



## Hi-Rel Components from Aeroflex / Metelics

### Diodes

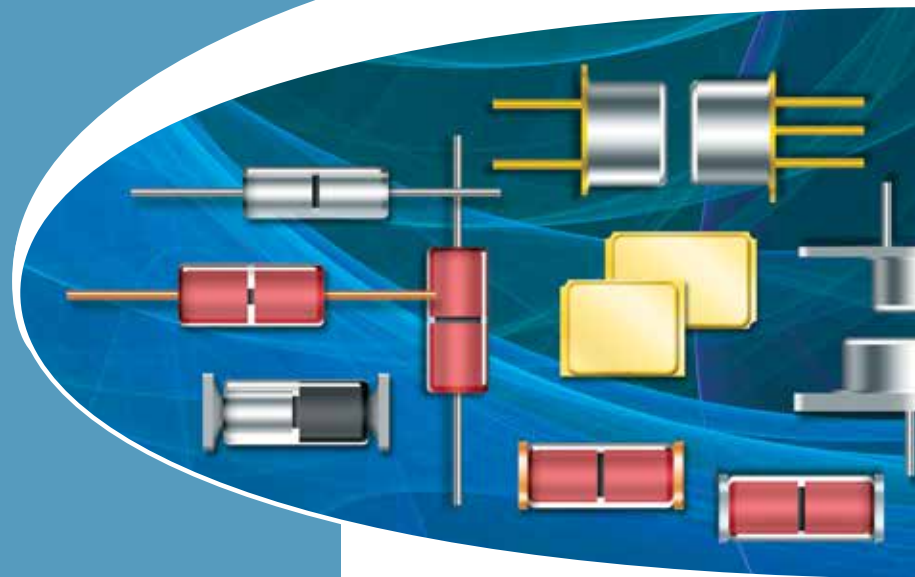
- Switching
- Zener
- TC Zener
- Current Regulators

### Transistors

- Small Signal
- Medium & High Power
- Darlington

### Silicon Controlled Rectifiers

- JANHC and JANKC Chips
- DLA Certified JAN–JANS



# Short Form Catalog

October 2014

# Diodes for HiRel Applications

## Zener Diodes

Available in JAN, JANTX and JANTXV levels to MIL-PRF-19500 slash sheets /117, /127, and /437 and JAN, JANTX, JANTXV and JANS levels for /435 in both axial leaded and MELF packages.



DO-35



DO-213AA

**Zener Diodes**  
1N4099-1 to 1N4135-1,  
1N4614-1 to 1N4627-1  
[aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

| <div>Zener Diodes</div> <div>1N4099-1 to 1N4135-1,</div> <div>1N4614-1 to 1N4627-1</div> <div>aeroflex.com/MetelicsHRC</div> | Nominal Zener<br>Voltage, $V_Z$<br>(Note 2) | Zener Test<br>Current, $I_{ZT}$ | Maximum Zener<br>Impedance, $Z_{IT}$<br>(Note 3) |         | Maximum Reverse<br>Current, $I_R$ @ $V_R$ | Maximum Noise<br>Density, $N_b$ @ $I_{ZT}$ | Maximum Zener<br>DC Current, $I_{ZM}$ |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------|--------------------------------------------------|---------|-------------------------------------------|--------------------------------------------|---------------------------------------|
| Types (Note 1)                                                                                                               | Volts                                       | $\mu A$                         | Ohms                                             | $\mu A$ | Volts                                     | $\mu V / \sqrt{Hz}$                        | mA                                    |
| 1N4614-1, 1N4614UR-1                                                                                                         | 1.8                                         | 250                             | 1200                                             | 7.5     | 1                                         | 1                                          | 120                                   |
| 1N4615-1, 1N4615UR-1                                                                                                         | 2.0                                         | 250                             | 1250                                             | 5.0     | 1                                         | 1                                          | 110                                   |
| 1N4616-1, 1N4616UR-1                                                                                                         | 2.2                                         | 250                             | 1300                                             | 4.0     | 1                                         | 1                                          | 100                                   |
| 1N4617-1, 1N4617UR-1                                                                                                         | 2.4                                         | 250                             | 1400                                             | 2.0     | 1                                         | 1                                          | 95                                    |
| 1N4618-1, 1N4618UR-1                                                                                                         | 2.7                                         | 250                             | 1500                                             | 1.0     | 1                                         | 1                                          | 90                                    |
| 1N4619-1, 1N4619UR-1                                                                                                         | 3.0                                         | 250                             | 1600                                             | 0.8     | 1                                         | 1                                          | 87                                    |
| 1N4620-1, 1N4620UR-1                                                                                                         | 3.3                                         | 250                             | 1650                                             | 7.5     | 1.5                                       | 1                                          | 85                                    |
| 1N4621-1, 1N4621UR-1                                                                                                         | 3.6                                         | 250                             | 1700                                             | 7.5     | 2                                         | 1                                          | 83                                    |
| 1N4622-1, 1N4622UR-1                                                                                                         | 3.9                                         | 250                             | 1650                                             | 5.0     | 2                                         | 1                                          | 80                                    |
| 1N4623-1, 1N4623UR-1                                                                                                         | 4.3                                         | 250                             | 1600                                             | 4.0     | 2                                         | 1                                          | 77                                    |
| 1N4624-1, 1N4624UR-1                                                                                                         | 4.7                                         | 250                             | 1550                                             | 10.0    | 2                                         | 1                                          | 75                                    |
| 1N4625-1, 1N4625UR-1                                                                                                         | 5.1                                         | 250                             | 1500                                             | 10.0    | 3                                         | 2                                          | 70                                    |
| 1N4626-1, 1N4626UR-1                                                                                                         | 5.6                                         | 250                             | 1400                                             | 10.0    | 4                                         | 4                                          | 65                                    |
| 1N4627-1, 1N4627UR-1                                                                                                         | 6.2                                         | 250                             | 1200                                             | 10.0    | 5                                         | 5                                          | 61                                    |
| 1N4099-1, 1N4099UR-1                                                                                                         | 6.8                                         | 250                             | 200                                              | 10.0    | 5.17                                      | 40                                         | 56                                    |
| 1N4100-1, 1N4100UR-1                                                                                                         | 7.5                                         | 250                             | 200                                              | 10.0    | 5.70                                      | 40                                         | 51                                    |
| 1N4101-1, 1N4101UR-1                                                                                                         | 8.2                                         | 250                             | 200                                              | 1.0     | 6.24                                      | 40                                         | 46                                    |
| 1N4102-1, 1N4102UR-1                                                                                                         | 8.7                                         | 250                             | 200                                              | 1.0     | 6.61                                      | 40                                         | 44                                    |
| 1N4103-1, 1N4103UR-1                                                                                                         | 9.1                                         | 250                             | 200                                              | 1.0     | 6.92                                      | 40                                         | 42                                    |
| 1N4104-1, 1N4104UR-1                                                                                                         | 10                                          | 250                             | 200                                              | 1.0     | 7.60                                      | 40                                         | 38                                    |
| 1N4105-1, 1N4105UR-1                                                                                                         | 11                                          | 250                             | 200                                              | 0.05    | 8.44                                      | 40                                         | 35                                    |
| 1N4106-1, 1N4106UR-1                                                                                                         | 12                                          | 250                             | 200                                              | 0.05    | 8.12                                      | 40                                         | 32                                    |
| 1N4107-1, 1N4107UR-1                                                                                                         | 13                                          | 250                             | 200                                              | 0.05    | 9.857                                     | 40                                         | 29                                    |
| 1N4108-1, 1N4108UR-1                                                                                                         | 14                                          | 250                             | 200                                              | 0.05    | 10.65                                     | 40                                         | 27                                    |
| 1N4109-1, 1N4109UR-1                                                                                                         | 15                                          | 250                             | 100                                              | 0.05    | 11.40                                     | 40                                         | 25                                    |
| 1N4110-1, 1N4110UR-1                                                                                                         | 16                                          | 250                             | 100                                              | 0.05    | 12.15                                     | 40                                         | 24                                    |
| 1N4111-1, 1N4111UR-1                                                                                                         | 17                                          | 250                             | 100                                              | 0.05    | 12.92                                     | 40                                         | 22                                    |
| 1N4112-1, 1N4112UR-1                                                                                                         | 18                                          | 250                             | 100                                              | 0.05    | 13.67                                     | 40                                         | 21                                    |
| 1N4113-1, 1N4113UR-1                                                                                                         | 19                                          | 250                             | 150                                              | 0.05    | 14.44                                     | 40                                         | 20                                    |
| 1N4114-1, 1N4114UR-1                                                                                                         | 20                                          | 250                             | 150                                              | 0.01    | 15.20                                     | 40                                         | 19                                    |
| 1N4115-1, 1N4115UR-1                                                                                                         | 22                                          | 250                             | 150                                              | 0.01    | 16.72                                     | 40                                         | 17                                    |
| 1N4116-1, 1N4116UR-1                                                                                                         | 24                                          | 250                             | 150                                              | 0.01    | 18.25                                     | 40                                         | 16                                    |
| 1N4117-1, 1N4117UR-1                                                                                                         | 25                                          | 250                             | 150                                              | 0.01    | 19.00                                     | 40                                         | 15                                    |
| 1N4118-1, 1N4118UR-1                                                                                                         | 27                                          | 250                             | 150                                              | 0.01    | 20.45                                     | 40                                         | 14                                    |
| 1N4119-1, 1N4119UR-1                                                                                                         | 29                                          | 250                             | 200                                              | 0.01    | 21.28                                     | 40                                         | 14                                    |
| 1N4120-1, 1N4120UR-1                                                                                                         | 30                                          | 250                             | 200                                              | 0.01    | 22.80                                     | 40                                         | 13                                    |
| 1N4121-1, 1N4121UR-1                                                                                                         | 33                                          | 250                             | 200                                              | 0.01    | 25.08                                     | 40                                         | 12                                    |
| 1N4122-1, 1N4122UR-1                                                                                                         | 36                                          | 250                             | 200                                              | 0.01    | 27.38                                     | 40                                         | 11                                    |
| 1N4123-1, 1N4123UR-1                                                                                                         | 39                                          | 250                             | 200                                              | 0.01    | 29.65                                     | 40                                         | 9.8                                   |
| 1N4124-1, 1N4124UR-1                                                                                                         | 43                                          | 250                             | 250                                              | 0.01    | 32.65                                     | 40                                         | 8.9                                   |
| 1N4125-1, 1N4125UR-1                                                                                                         | 47                                          | 250                             | 250                                              | 0.01    | 35.75                                     | 40                                         | 8.1                                   |
| 1N4126-1, 1N4126UR-1                                                                                                         | 51                                          | 250                             | 300                                              | 0.01    | 38.76                                     | 40                                         | 7.5                                   |
| 1N4127-1, 1N4127UR-1                                                                                                         | 56                                          | 250                             | 300                                              | 0.01    | 42.60                                     | 40                                         | 6.7                                   |
| 1N4128-1, 1N4128UR-1                                                                                                         | 60                                          | 250                             | 400                                              | 0.01    | 45.60                                     | 40                                         | 6.4                                   |
| 1N4129-1, 1N4129UR-1                                                                                                         | 62                                          | 250                             | 500                                              | 0.01    | 47.10                                     | 40                                         | 6.1                                   |
| 1N4130-1, 1N4130UR-1                                                                                                         | 68                                          | 250                             | 700                                              | 0.01    | 51.68                                     | 40                                         | 5.6                                   |
| 1N4131-1, 1N4131UR-1                                                                                                         | 75                                          | 250                             | 700                                              | 0.01    | 57.00                                     | 40                                         | 5.1                                   |
| 1N4132-1, 1N4132UR-1                                                                                                         | 82                                          | 250                             | 800                                              | 0.01    | 62.32                                     | 40                                         | 4.6                                   |
| 1N4133-1, 1N4133UR-1                                                                                                         | 87                                          | 250                             | 1000                                             | 0.01    | 66.12                                     | 40                                         | 4.4                                   |
| 1N4134-1, 1N4134UR-1                                                                                                         | 91                                          | 250                             | 1200                                             | 0.01    | 69.16                                     | 40                                         | 4.2                                   |
| 1N4135-1, 1N4135UR-1                                                                                                         | 100                                         | 250                             | 1500                                             | 0.01    | 76.00                                     | 40                                         | 3.0                                   |

Electrical specifications @  $T_A = +25^\circ C$  (unless otherwise specified).

NOTE 1: The JEDEC type numbers shown have a  $\pm 5\%$  tolerance on nominal Zener Voltage. The suffix C is used to identify  $\pm 2\%$ ; and suffix D is used to identify  $\pm 1\%$ .

NOTE 2: Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ C \pm 3^\circ C$ .

NOTE 3: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

# Diodes for HiRel Applications

 DO-35

 DO-213AA

## Low Noise Zener Diodes 1N5518B-1 to 1N5546B-1

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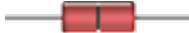
| Types (Note 1)          | Volts | mA  | Ohms | µA dc | NON & A- Suffix | B- C- D- Suffix | mA dc | µV / √Hz | Volts | mA dc |
|-------------------------|-------|-----|------|-------|-----------------|-----------------|-------|----------|-------|-------|
| 1N5518B-1, 1N5518BUR-1  | 3.3   | 20  | 26   | 5.0   | 0.90            | 1.0             | 115   | 0.5      | 0.90  | 2.0   |
| 1N5519B-1, 1N5519BUR-1  | 3.6   | 20  | 24   | 3.0   | 0.90            | 1.0             | 105   | 0.5      | 0.90  | 2.0   |
| 1N5520B-1, 1N5520BUR-1  | 3.9   | 20  | 22   | 1.0   | 0.90            | 1.0             | 98    | 0.5      | 0.85  | 2.0   |
| 1N5521B-1, 1N5521BUR-1  | 4.3   | 20  | 18   | 3.0   | 1.0             | 1.5             | 88    | 0.5      | 0.75  | 2.0   |
| 1N5522B -1, 1N5522BUR-1 | 4.7   | 10  | 22   | 2.0   | 1.5             | 2.0             | 81    | 0.5      | 0.60  | 1.0   |
| 1N5523B-1, 1N5523BUR-1  | 5.1   | 5.0 | 26   | 2.0   | 2.0             | 2.5             | 75    | 0.5      | 0.65  | 0.25  |
| 1N5524B-1, 1N5524BUR-1  | 5.6   | 3.0 | 30   | 2.0   | 3.0             | 3.5             | 68    | 1.0      | 0.30  | 0.25  |
| 1N5525B-1, 1N5525BUR-1  | 6.2   | 1.0 | 30   | 1.0   | 4.5             | 5.0             | 61    | 1.0      | 0.20  | 0.01  |
| 1N5526B-1, 1N5526BUR-1  | 6.8   | 1.0 | 30   | 1.0   | 5.5             | 6.2             | 56    | 1.0      | 0.10  | 0.01  |
| 1N5527B -1, 1N5527BUR-1 | 7.5   | 1.0 | 35   | 0.5   | 6.0             | 6.8             | 51    | 2.0      | 0.05  | 0.01  |
| 1N5528B-1, 1N5528BUR-1  | 8.2   | 1.0 | 40   | 0.5   | 6.5             | 7.5             | 46    | 4.0      | 0.05  | 0.01  |
| 1N5529B-1, 1N5529BUR-1  | 9.1   | 1.0 | 45   | 0.1   | 7.0             | 8.2             | 42    | 4.0      | 0.05  | 0.01  |
| 1N5530B-1, 1N5530BUR-1  | 10.0  | 1.0 | 60   | 0.05  | 8.0             | 9.1             | 38    | 4.0      | 0.10  | 0.01  |
| 1N5531B-1, 1N5531BUR-1  | 11.0  | 1.0 | 80   | 0.05  | 9.0             | 9.9             | 35    | 5.0      | 0.20  | 0.01  |
| 1N5532B-1, 1N5532BUR-1  | 12.0  | 1.0 | 90   | 0.05  | 9.5             | 0.8             | 32    | 10       | 0.20  | 0.01  |
| 1N5533B-1, 1N5533BUR-1  | 13.0  | 1.0 | 90   | 0.01  | 10.5            | 11.7            | 29    | 15       | 0.20  | 0.01  |
| 1N5534B-1, 1N5534BUR-1  | 14.0  | 1.0 | 100  | 0.01  | 11.5            | 12.6            | 27    | 20       | 0.20  | 0.01  |
| 1N5535B-1, 1N5535BUR-1  | 15.0  | 1.0 | 100  | 0.01  | 12.5            | 13.5            | 25    | 20       | 0.20  | 0.01  |
| 1N5536B-1, 1N5536BUR-1  | 16.0  | 1.0 | 100  | 0.01  | 13.0            | 14.4            | 24    | 20       | 0.20  | 0.01  |
| 1N5537B-1, 1N5537BUR-1  | 17.0  | 1.0 | 100  | 0.01  | 14.0            | 15.3            | 22    | 20       | 0.20  | 0.01  |
| 1N5538B-1, 1N5538BUR-1  | 18.0  | 1.0 | 100  | 0.01  | 15.0            | 16.2            | 21    | 20       | 0.20  | 0.01  |
| 1N5539B-1, 1N5539BUR-1  | 19.0  | 1.0 | 100  | 0.01  | 16.0            | 17.1            | 20    | 20       | 0.20  | 0.01  |
| 1N5540B-1, 1N5540BUR-1  | 20.0  | 1.0 | 100  | 0.01  | 17.0            | 18.0            | 19    | 20       | 0.20  | 0.01  |
| 1N5541B-1, 1N5541BUR-1  | 22.0  | 1.0 | 100  | 0.01  | 18.0            | 19.8            | 17    | 20       | 0.25  | 0.01  |
| 1N5542B-1, 1N5542BUR-1  | 24.0  | 1.0 | 100  | 0.01  | 20.0            | 21.6            | 16    | 20       | 0.30  | 0.01  |
| 1N5543B-1, 1N5543BUR-1  | 25.0  | 1.0 | 100  | 0.01  | 21.0            | 22.4            | 15    | 20       | 0.35  | 0.01  |
| 1N5544B-1, 1N5544BUR-1  | 28.0  | 1.0 | 100  | 0.01  | 23.0            | 25.2            | 14    | 20       | 0.40  | 0.01  |
| 1N5545B-1, 1N5545BUR-1  | 30.0  | 1.0 | 100  | 0.01  | 24.0            | 27.0            | 13    | 20       | 0.45  | 0.01  |
| 1N5546B-1, 1N5546BUR-1  | 33.0  | 1.0 | 100  | 0.01  | 28.0            | 29.7            | 12    | 20       | 0.50  | 0.01  |

Electrical specifications @  $T_A = +25^\circ C$  (unless otherwise specified).

NOTE 1: No Suffix type numbers are  $\pm 20\%$  with guaranteed limits for only  $V_Z$ ,  $I_R$ , and  $V_F$ . Units with "A" suffix are  $\pm 10\%$  with guaranteed limits for  $V_Z$ ,  $I_R$ , and  $V_F$ . Units with guaranteed limits for all six parameters are indicated by a "B" suffix for  $\pm 5.0\%$  units, "C" suffix for  $\pm 2.0\%$  and "D" suffix for  $\pm 1.0\%$ .

NOTE 2: Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ C \pm 3^\circ C$ .

NOTE 3: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

 DO-35

 DO-213AA

## Zener Diodes 1N746A-1N759, 1N4370A-1N4372A

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| Types (Note 1)         | Nominal Zener Voltage, $V_Z$ @ $I_{ZT}$ (Note 2) | Zener Test Current $I_{ZT}$ (Note 2) | Maximum Zener Impedance $Z_{ZT}$ @ $I_{ZT}$ (Note 3) | Maximum Reverse Current, $I_R$ @ $V_R$ | Maximum Zener Current, $I_{ZM}$ |
|------------------------|--------------------------------------------------|--------------------------------------|------------------------------------------------------|----------------------------------------|---------------------------------|
| Volts                  | mA                                               | Ohms ( $\Omega$ )                    | $\mu A$                                              | Volts                                  | Volts                           |
| 1N4370A-1, 1N4370AUR-1 | 2.4                                              | 20                                   | 30                                                   | 100                                    | 155                             |
| 1N4371A-1, 1N4371AUR-1 | 2.7                                              | 20                                   | 30                                                   | 60                                     | 140                             |
| 1N4372A-1, 1N4372AUR-1 | 3.0                                              | 20                                   | 29                                                   | 30                                     | 125                             |
| 1N746A-1, 1N746AUR-1   | 3.3                                              | 20                                   | 28                                                   | 5                                      | 120                             |
| 1N747A-1, 1N747AUR-1   | 3.6                                              | 20                                   | 24                                                   | 3                                      | 110                             |
| 1N748A-1, 1N748AUR-1   | 3.9                                              | 20                                   | 23                                                   | 2                                      | 100                             |
| 1N749A-1, 1N749AUR-1   | 4.3                                              | 20                                   | 22                                                   | 2                                      | 90                              |
| 1N750A-1, 1N750AUR-1   | 4.7                                              | 20                                   | 19                                                   | 5                                      | 85                              |
| 1N751A-1, 1N751AUR-1   | 5.1                                              | 20                                   | 17                                                   | 5                                      | 75                              |
| 1N752A-1, 1N752AUR-1   | 5.6                                              | 20                                   | 11                                                   | 5                                      | 70                              |
| 1N753A-1, 1N753AUR-1   | 6.2                                              | 20                                   | 7                                                    | 5                                      | 65                              |
| 1N754A-1, 1N754AUR-1   | 6.8                                              | 20                                   | 5                                                    | 2                                      | 60                              |
| 1N755A-1, 1N755AUR-1   | 7.5                                              | 20                                   | 6                                                    | 2                                      | 55                              |
| 1N756A-1, 1N756AUR-1   | 8.2                                              | 20                                   | 8                                                    | 1                                      | 50                              |
| 1N757A-1, 1N757AUR-1   | 9.1                                              | 20                                   | 10                                                   | 1                                      | 45                              |
| 1N758A-1, 1N758AUR-1   | 10.0                                             | 20                                   | 17                                                   | 1                                      | 40                              |
| 1N759A-1, 1N759AUR-1   | 12.0                                             | 20                                   | 30                                                   | 1                                      | 35                              |

Electrical specifications @  $T_A = +25^\circ C$  (unless otherwise specified).

NOTE 1: Zener voltage tolerance on "A" suffix is  $\pm 5\%$ . No Suffix denotes  $\pm 10\%$  tolerance, "C" suffix denotes  $\pm 2\%$  tolerance and "D" suffix denotes  $\pm 1\%$  tolerance.

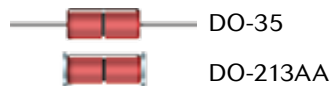
NOTE 2: Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ C \pm 3^\circ C$ .

NOTE 3: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

# Diodes for HiRel Applications

## Silicon Zener Diodes

1N957B-1 thru 1N986B-1. 1N962B-1 thru 1N986B-1 available in JAN, JANTX and JANTXV per MIL-PRF-19500/117



**Zener Diodes**  
**1N957B-1 to**  
**1N986B-1**  
[aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

| Zener Diodes<br>1N957B-1 to<br>1N986B-1<br><i>aeroflex.com/MetelicsHRC</i> |                                             | DO-213AA                       |                                                            |                                                                 |     |                                       |                                     |               |                                                                          |                                                      |
|----------------------------------------------------------------------------|---------------------------------------------|--------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|-----|---------------------------------------|-------------------------------------|---------------|--------------------------------------------------------------------------|------------------------------------------------------|
|                                                                            | Nominal Zener<br>Voltage, $V_Z$<br>(Note 2) | Zener Test Current<br>$I_{ZT}$ | Maximum Zener<br>Impedance<br>$Z_{ZT}$ @ $I_{ZT}$ (Note 3) | Maximum Zener<br>Knee Impedance<br>$Z_{ZK}$ @ $I_{ZK}$ (Note 3) |     | Maximum DC<br>Zener Current, $I_{ZM}$ | Maximum Surge<br>Current, $I_{ZSM}$ |               | Maximum Reverse<br>Leakage $I_R$ @ $V_R$<br>$T_A = 25^{\circ}\text{C}$ , | Maximum Temperature<br>Coefficient,<br>$\alpha_{VZ}$ |
| Types (Note 1)                                                             | Volts                                       | mA                             | Ohms                                                       | Ohms                                                            | mA  | mA                                    | mA                                  | $\mu\text{A}$ | Volts                                                                    | %/ $^{\circ}\text{C}$                                |
| 1N957B-1                                                                   | 6.8                                         | 18.5                           | 4.5                                                        | 700                                                             | 1.0 | 55                                    | 300                                 | 150           | 5.2                                                                      | +0.050                                               |
| 1N958B-1                                                                   | 7.5                                         | 16.5                           | 5.5                                                        | 700                                                             | .5  | 50                                    | 275                                 | 75            | 5.7                                                                      | +0.058                                               |
| 1N959B-1                                                                   | 8.2                                         | 15.0                           | 6.5                                                        | 700                                                             | .5  | 45                                    | 250                                 | 50            | 6.2                                                                      | +0.065                                               |
| 1N960B-1                                                                   | 9.1                                         | 14.0                           | 7.5                                                        | 700                                                             | .5  | 41                                    | 225                                 | 25            | 6.9                                                                      | +0.068                                               |
| 1N961B-1                                                                   | 10                                          | 12.5                           | 8.5                                                        | 700                                                             | .25 | 38                                    | 200                                 | 10            | 7.6                                                                      | +0.075                                               |
| 1N962B-1                                                                   | 11                                          | 11.5                           | 9.5                                                        | 700                                                             | .25 | 35                                    | 590                                 | 1.0           | 8.4                                                                      | +0.073                                               |
| 1N963B-1                                                                   | 12                                          | 10.5                           | 11.5                                                       | 700                                                             | .25 | 32                                    | 540                                 | 1.0           | 9.1                                                                      | +0.076                                               |
| 1N964B-1                                                                   | 13                                          | 9.5                            | 13                                                         | 700                                                             | .25 | 30                                    | 500                                 | 0.5           | 9.9                                                                      | +0.079                                               |
| 1N965B-1                                                                   | 15                                          | 8.5                            | 16                                                         | 700                                                             | .25 | 26                                    | 433                                 | 0.5           | 11                                                                       | +0.082                                               |
| 1N966B-1                                                                   | 16                                          | 7.8                            | 17                                                         | 700                                                             | .25 | 25                                    | 406                                 | 0.5           | 12                                                                       | +0.083                                               |
| 1N967B-1                                                                   | 18                                          | 7.0                            | 21                                                         | 750                                                             | .25 | 21                                    | 361                                 | 0.5           | 14                                                                       | +0.085                                               |
| 1N968B-1                                                                   | 20                                          | 6.2                            | 25                                                         | 750                                                             | .25 | 19                                    | 325                                 | 0.5           | 15                                                                       | +0.086                                               |
| 1N969B-1                                                                   | 22                                          | 5.6                            | 29                                                         | 750                                                             | .25 | 17                                    | 295                                 | 0.5           | 17                                                                       | +0.087                                               |
| 1N970B-1                                                                   | 24                                          | 5.2                            | 33                                                         | 750                                                             | .25 | 16                                    | 271                                 | 0.5           | 18                                                                       | +0.088                                               |
| 1N971B-1                                                                   | 27                                          | 4.6                            | 41                                                         | 750                                                             | .25 | 14                                    | 240                                 | 0.5           | 21                                                                       | +0.090                                               |
| 1N972B-1                                                                   | 30                                          | 4.2                            | 49                                                         | 1000                                                            | .25 | 13                                    | 216                                 | 0.5           | 23                                                                       | +0.091                                               |
| 1N973B-1                                                                   | 33                                          | 3.8                            | 58                                                         | 1000                                                            | .25 | 12                                    | 197                                 | 0.5           | 25                                                                       | +0.092                                               |
| 1N974B-1                                                                   | 36                                          | 3.4                            | 70                                                         | 1000                                                            | .25 | 11                                    | 180                                 | 0.5           | 27                                                                       | +0.093                                               |
| 1N975B-1                                                                   | 39                                          | 3.2                            | 80                                                         | 1000                                                            | .25 | 9.1                                   | 166                                 | 0.5           | 30                                                                       | +0.094                                               |
| 1N976B-1                                                                   | 43                                          | 3.0                            | 93                                                         | 1000                                                            | .25 | 8.8                                   | 151                                 | 0.5           | 33                                                                       | +0.095                                               |
| 1N977B-1                                                                   | 47                                          | 2.7                            | 105                                                        | 1500                                                            | .25 | 7.9                                   | 138                                 | 0.5           | 36                                                                       | +0.095                                               |
| 1N978B-1                                                                   | 51                                          | 2.5                            | 125                                                        | 1500                                                            | .25 | 7.4                                   | 127                                 | 0.5           | 39                                                                       | +0.096                                               |
| 1N979B-1                                                                   | 56                                          | 2.2                            | 150                                                        | 2000                                                            | .25 | 6.9                                   | 116                                 | 0.5           | 43                                                                       | +0.096                                               |
| 1N980B-1                                                                   | 62                                          | 2.0                            | 185                                                        | 2000                                                            | .25 | 6.0                                   | 105                                 | 0.5           | 47                                                                       | +0.097                                               |
| 1N981B-1                                                                   | 68                                          | 1.8                            | 230                                                        | 2000                                                            | .25 | 5.5                                   | 95                                  | 0.5           | 52                                                                       | +0.097                                               |
| 1N982B-1                                                                   | 75                                          | 1.7                            | 270                                                        | 2000                                                            | .25 | 5.1                                   | 86                                  | 0.5           | 56                                                                       | +0.098                                               |
| 1N983B-1                                                                   | 82                                          | 1.5                            | 330                                                        | 3000                                                            | .25 | 4.6                                   | 79                                  | 0.5           | 62                                                                       | +0.098                                               |
| 1N984B-1                                                                   | 91                                          | 1.4                            | 400                                                        | 3000                                                            | .25 | 4.2                                   | 71                                  | 0.5           | 69                                                                       | +0.099                                               |
| 1N985B-1                                                                   | 100                                         | 1.3                            | 500                                                        | 3000                                                            | .25 | 3.7                                   | 65                                  | 0.5           | 76                                                                       | +0.110                                               |
| 1N986B-1                                                                   | 110                                         | 1.1                            | 750                                                        | 4000                                                            | .25 | 3.3                                   | 59                                  | 0.5           | 84                                                                       | +0.110                                               |

Electrical specifications @  $T_A = +25^\circ\text{C}$  (unless otherwise specified).

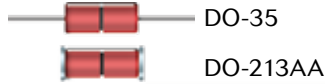
NOTE 1: The JEDEC type numbers shown (B Suffix) have a  $\pm 5\%$  tolerance on nominal Zener Voltage. The suffix A is used to identify  $\pm 10\%$  tolerance; suffix C is used to identify  $\pm 2\%$ ; and suffix D is used to identify  $\pm 1\%$ ; no suffix indicates  $\pm 20\%$ .

NOTE 2: Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ\text{C} \pm 3^\circ\text{C}$ .

NOTE 3: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

## Temperature Compensated (TC) Zener Reference Diodes 6.4V Nominal Zener Voltage

Available in JAN, JANTX, JANTXV and JANS levels to MIL-PRF-19500 slash sheets /159 and /452 in both axial leaded and MELF packages. Other features include metallurgically bonded and double plug construction.



### TC Zener Diodes 1N4565UR to 1N4584UR, -1

[aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

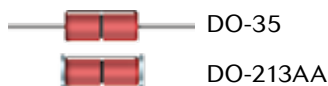
|                              | Zener Test Current<br>$I_{ZT}$ | Effective<br>Temperature<br>Coefficient | Voltage Temperature<br>Stability ( $\Delta V_Z$ )<br>(Note 1) | Temperature Range | Maximum Dynamic<br>Zener Impedance<br>(Note 2) |
|------------------------------|--------------------------------|-----------------------------------------|---------------------------------------------------------------|-------------------|------------------------------------------------|
| Types 6.4V $\pm$ 5% (Note 1) | mA                             | % / °C                                  | mV                                                            | °C                | Ohms ( $\Omega$ )                              |
| 1N4565-1, 1N4565UR-1         | 0.5                            | 0.01                                    | 48                                                            | 0 to +75°C        | 200                                            |
| 1N4565A-1, 1N4565AUR-1       | 0.5                            | 0.01                                    | 100                                                           | -55 to +100°C     | 200                                            |
| 1N4566-1, 1N4566UR-1         | 0.5                            | 0.005                                   | 24                                                            | 0 to +75°C        | 200                                            |
| 1N4566A-1, 1N4566AUR-1       | 0.5                            | 0.005                                   | 50                                                            | -55 to +100°C     | 200                                            |
| 1N4567-1, 1N4567UR-1         | 0.5                            | 0.002                                   | 10                                                            | 0 to +75°C        | 200                                            |
| 1N4567A-1, 1N4567AUR-1       | 0.5                            | 0.002                                   | 20                                                            | -55 to +100°C     | 200                                            |
| 1N4568-1, 1N4568UR-1         | 0.5                            | 0.001                                   | 5                                                             | 0 to +75°C        | 200                                            |
| 1N4568A-1, 1N4568AUR-1       | 0.5                            | 0.001                                   | 10                                                            | -55 to +100°C     | 200                                            |
| 1N4569-1, 1N4569UR-1         | 0.5                            | 0.0005                                  | 2.5                                                           | 0 to +75°C        | 200                                            |
| 1N4569A-1, 1N4569AUR-1       | 0.5                            | 0.0005                                  | 5                                                             | -55 to +100°C     | 200                                            |
| 1N4570-1, 1N4570UR-1         | 1.0                            | 0.01                                    | 48                                                            | 0 to +75°C        | 100                                            |
| 1N4570A-1, 1N4570AUR-1       | 1.0                            | 0.01                                    | 100                                                           | -55 to +100°C     | 100                                            |
| 1N4571-1, 1N4571UR-1         | 1.0                            | 0.005                                   | 24                                                            | 0 to +75°C        | 100                                            |
| 1N4571A-1, 1N4571AUR-1       | 1.0                            | 0.005                                   | 50                                                            | -55 to +100°C     | 100                                            |
| 1N4572-1, 1N4572UR-1         | 1.0                            | 0.002                                   | 10                                                            | 0 to +75°C        | 100                                            |
| 1N4572A-1, 1N4572AUR-1       | 1.0                            | 0.002                                   | 20                                                            | -55 to +100°C     | 100                                            |
| 1N4573-1, 1N4573UR-1         | 1.0                            | 0.001                                   | 5                                                             | 0 to +75°C        | 100                                            |
| 1N4573A-1, 1N4573AUR-1       | 1.0                            | 0.001                                   | 10                                                            | -55 to +100°C     | 100                                            |
| 1N4574-1, 1N4574UR-1         | 1.0                            | 0.0005                                  | 2.5                                                           | 0 to +75°C        | 100                                            |
| 1N4574A-1, 1N4574AUR-1       | 1.0                            | 0.0005                                  | 5                                                             | -55 to +100°C     | 100                                            |
| 1N4575-1, 1N4575UR-1         | 2.0                            | 0.01                                    | 48                                                            | 0 to +75°C        | 50                                             |
| 1N4575A-1, 1N4575AUR-1       | 2.0                            | 0.01                                    | 100                                                           | -55 to +100°C     | 50                                             |
| 1N4576, 1N4576UR             | 2.0                            | 0.005                                   | 24                                                            | 0 to +75°C        | 50                                             |
| 1N4576A, 1N4576AUR-1         | 2.0                            | 0.005                                   | 50                                                            | -55 to +100°C     | 50                                             |
| 1N4577-1, 1N4577UR-1         | 2.0                            | 0.002                                   | 10                                                            | 0 to +75°C        | 50                                             |
| 1N4577A-1, 1N4577AUR-1       | 2.0                            | 0.002                                   | 20                                                            | -55 to +100°C     | 50                                             |
| 1N4578-1, 1N4578UR-1         | 2.0                            | 0.001                                   | 5                                                             | 0 to +75°C        | 50                                             |
| 1N4578A-1, 1N4578AUR-1       | 2.0                            | 0.001                                   | 10                                                            | -55 to +100°C     | 50                                             |
| 1N4579-1, 1N4579UR-1         | 2.0                            | 0.0005                                  | 2.5                                                           | 0 to +75°C        | 50                                             |
| 1N4579A-1, 1N4579AUR-1       | 2.0                            | 0.0005                                  | 5                                                             | -55 to +100°C     | 50                                             |
| 1N4580-1, 1N4580UR-1         | 4.0                            | 0.01                                    | 48                                                            | 0 to +75°C        | 25                                             |
| 1N4580A-1, 1N4580AUR-1       | 4.0                            | 0.01                                    | 100                                                           | -55 to +100°C     | 25                                             |
| 1N4581-1, 1N4581UR-1         | 4.0                            | 0.005                                   | 24                                                            | 0 to +75°C        | 25                                             |
| 1N4581A-1, 1N4581AUR-1       | 4.0                            | 0.005                                   | 50                                                            | -55 to +100°C     | 25                                             |
| 1N4582-1, 1N4582UR-1         | 4.0                            | 0.002                                   | 10                                                            | 0 to +75°C        | 25                                             |
| 1N4582A-1, 1N4582AUR-1       | 4.0                            | 0.002                                   | 20                                                            | -55 to +100°C     | 25                                             |
| 1N4583-1, 1N4583UR-1         | 4.0                            | 0.001                                   | 5                                                             | 0 to +75°C        | 25                                             |
| 1N4583A-1, 1N4583AUR-1       | 4.0                            | 0.001                                   | 10                                                            | -55 to +100°C     | 25                                             |
| 1N4584-1, 1N4584UR-1         | 4.0                            | 0.0005                                  | 2.5                                                           | 0 to +75°C        | 25                                             |
| 1N4584A-1, 1N4584AUR-1       | 4.0                            | 0.0005                                  | 5                                                             | -55 to +100°C     | 25                                             |

Electrical specifications @ +25°C (unless otherwise specified).

NOTE 1: The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specified mV at any discrete temperature between the established limits, per JEDEC standard No. 5.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

# Diodes for HiRel Applications



## TC Zener Diodes 1N821 to 1N828, -1 1N821UR-1N828UR, -1 aeroflex.com/MetelicsHRC

|                      | Zener Voltage<br>$V_Z$ @ $I_{ZT}$ | Zener Test Current<br>$I_{ZT}$ | Maximum Zener<br>Impedance<br>$Z_{ZT}$ (Note 1) | Voltage Temperature<br>Stability $\Delta V_Z$<br>-55°C to +100°C<br>(Note 2) | Effective Temperature<br>Coefficient |
|----------------------|-----------------------------------|--------------------------------|-------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------|
| Types                | Volts                             | mA                             | Ohms ( $\Omega$ )                               | mV                                                                           | % / °C                               |
| 1N821-1, 1N821UR-1   | 5.9–6.5                           | 7.5                            | 15                                              | 96                                                                           | 0.01                                 |
| 1N821A-1, 1N821AUR-1 | 5.9–6.5                           | 7.5                            | 10                                              | 96                                                                           | 0.01                                 |
| 1N822-1, 1N822UR-1 † | 5.9–6.5                           | 7.5                            | 15                                              | 96                                                                           | 0.01                                 |
| 1N823-1, 1N823UR-1   | 5.9–6.5                           | 7.5                            | 15                                              | 48                                                                           | 0.005                                |
| 1N823A-1, 1N823AUR-1 | 5.9–6.5                           | 7.5                            | 10                                              | 48                                                                           | 0.005                                |
| 1N824-1, 1N824UR-1 † | 5.9–6.5                           | 7.5                            | 15                                              | 48                                                                           | 0.005                                |
| 1N825-1, 1N825UR-1   | 5.9–6.5                           | 7.5                            | 15                                              | 19                                                                           | 0.002                                |
| 1N825A-1, 1N825AUR-1 | 5.9–6.5                           | 7.5                            | 10                                              | 19                                                                           | 0.002                                |
| 1N826-1, 1N826UR-1   | 6.2–6.9                           | 7.5                            | 15                                              | 20                                                                           | 0.002                                |
| 1N827-1, 1N827UR-1   | 5.9–6.5                           | 7.5                            | 15                                              | 9                                                                            | 0.001                                |
| 1N827A-1, 1N827AUR-1 | 5.9–6.5                           | 7.5                            | 10                                              | 9                                                                            | 0.001                                |
| 1N828-1, 1N828UR-1   | 6.2–6.9                           | 7.5                            | 15                                              | 10                                                                           | 0.001                                |
| 1N829-1, 1N829UR-1   | 5.9–6.5                           | 7.5                            | 15                                              | 5                                                                            | 0.0005                               |
| 1N829A-1, 1N829AUR-1 | 5.9–6.5                           | 7.5                            | 10                                              | 5                                                                            | 0.0005                               |

† Double Anode: Electrical Specifications Apply Under Both Bias Polarities.

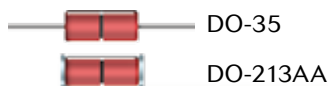
Electrical specifications @ +25°C (unless otherwise specified).

NOTE 1: Zener impedance is derived by superimposing on  $I_{ZT}$  A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

NOTE 2: The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specified mV at any discrete temperature between the established limits, per JEDEC standard No. 5.

## Silicon Switching Diodes

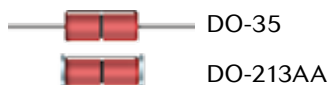
Available in JAN, JANTX, JANTXV levels to MIL-PRF-19500 slash sheets /116, /144, /231, and JAN, JANTX, JANTXV, and JANS /578 & /609 in both axial leaded and MELF packages. Other features include Metallurgically Bonded; Hermetically Sealed and Double Plug Construction.



## Switching Diodes 1N3600, 1N4150-1 aeroflex.com/MetelicsHRC

| Types                | Volts | V(pk) | µA dc | µA dc | pF  | nA  | V dc min | V dc max | V dc min | V dc max | V dc min | V dc max | V dc min | V dc max | V dc min | V dc max |
|----------------------|-------|-------|-------|-------|-----|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1N3600               | 75    | 50    | 0.1   | 100   | 2.5 | 4.0 | 0.54     | 0.62     | 0.66     | 0.74     | 0.76     | 0.86     | 0.82     | 0.92     | 0.87     | 1.00     |
| 1N4150-1, 1N4150UR-1 | 75    | 50    | 0.1   | 100   | 2.5 | 4.0 | 0.54     | 0.62     | 0.66     | 0.74     | 0.76     | 0.86     | 0.82     | 0.92     | 0.87     | 1.00     |

Electrical specifications @ +25°C (unless otherwise specified).



## Switching Diodes 1N914 & 1N4148-1 aeroflex.com/MetelicsHRC

|                      | $V_{BR}$ @ 100 $\mu A$ | $V_{RWM}$ | $I_O$ | $V_{r1}$ $I_F = 10 mA$ | $V_{r2}$ $I_F = 50 mA$ | $t_{tr}$ $I_R = 10 mA$<br>$I_F = 10 mA$<br>$R_L = 100 \Omega$ | $I_{R1}$ @ 20 Vdc | $I_{R2}$ @ 75 Vdc | $I_{R3}$ $V_R = 20 V$<br>$T_A = 150^\circ C$ | $I_{R4}$ $V_R = 20 V$<br>$T_A = 150^\circ C$ | Capacitance<br>@ 0 V | Capacitance<br>@ 1.5 V |
|----------------------|------------------------|-----------|-------|------------------------|------------------------|---------------------------------------------------------------|-------------------|-------------------|----------------------------------------------|----------------------------------------------|----------------------|------------------------|
| Types                | Volts                  | V(pk)     | mA    | V dc                   | V dc                   | nsec                                                          | nA                | $\mu A$           | $\mu A$                                      | $\mu A$                                      | pF                   | pF                     |
| 1N914, 1N914UR       | 100                    | 75        | 75    | 0.8                    | 1.2                    | 5                                                             | 25                | 0.5               | 35                                           | 75                                           | 4.0                  | 2.8                    |
| 1N4148-1, 1N4148UR-1 | 100                    | 75        | 200   | 0.8                    | 1.2                    | 5                                                             | 35                | 0.5               | 35                                           | 75                                           | 4.0                  | 2.8                    |

Electrical specifications @ +25°C (unless otherwise specified).

# Diodes for HiRel Applications



D-5D

## Switching Diodes 1N6638 Series

aeroflex.com/MetelicsHRC

|        | $V_{BR} @ I_R$ |               | $V_{RWM}$ |                        | $V_{FR} / t_T @ I_F = 200 \text{ mA}$ |     | $C_{T1} V_R = 0.0 \text{ V}$ |     | $C_{T2} V_R = 1.5 \text{ V}$ |       | $t_{tr} I_R = 10 \text{ mA}$ |                  | $V_{R1} V_R = V_{RWM}$       |                             | $I_{R2} V_R = 20 \text{ V}$ |           | $I_{R3} V_R = 20 \text{ V}$ |  | $I_{R4} V_R = V_{RWM}$ |  | $V_F @ f$ |          | $V_F @ f_A = -55^\circ\text{C}$ |           | $I_F$ |  |
|--------|----------------|---------------|-----------|------------------------|---------------------------------------|-----|------------------------------|-----|------------------------------|-------|------------------------------|------------------|------------------------------|-----------------------------|-----------------------------|-----------|-----------------------------|--|------------------------|--|-----------|----------|---------------------------------|-----------|-------|--|
| Types  | V(pk)          | $\mu\text{A}$ | V(pk)     | $V_{FR} \text{ V(pk)}$ | $\tau_{fr} \text{ ns}$                | pF  | pF                           | ns  | nA dc                        | nA dc | $\mu\text{A dc}$             | $\mu\text{A dc}$ | V dc min                     | V dc max                    | V dc max                    | mA pulsed |                             |  |                        |  | V dc min  | V dc max | V dc max                        | mA pulsed |       |  |
| 1N6638 | 150            | 100           | 125       | 5.0                    | 20                                    | 2.5 | 2.0                          | 4.5 | 35                           | 500   | 50                           | 100              | —                            | 1.1<br>0.8                  | 1.2                         | —         | 200<br>10                   |  |                        |  |           |          |                                 |           |       |  |
| 1N6639 | 100            | 10            | 75        | 5.0                    | 10                                    | 2.5 | —                            | 4.0 | —                            | 100   | —                            | 90               | —                            | 1.2                         | 1.3                         | —         | 500                         |  |                        |  |           |          |                                 |           |       |  |
| 1N6640 | 75             | 10            | 50        | 5.0                    | 10                                    | 2.5 | —                            | 4.0 | —                            | 100   | —                            | 90               | 0.54<br>0.76<br>0.82<br>0.87 | 0.62<br>0.86<br>0.92<br>1.0 | —                           | —         | 1<br>50<br>100<br>200       |  |                        |  |           |          |                                 |           |       |  |
| 1N6641 | 75             | 10            | 50        | 5.0                    | 10                                    | 3.0 | —                            | 5.0 | —                            | 100   | —                            | 90               | —                            | 1.1                         | 1.2                         | —         | 200                         |  |                        |  |           |          |                                 |           |       |  |
| 1N6642 | 100            | 100           | 75        | 5.0                    | 20                                    | 5.0 | 2.8                          | 5.0 | 25                           | 500   | 50                           | 100              | —                            | 1.0<br>1.2                  | —                           | 10        | 100                         |  |                        |  |           |          |                                 |           |       |  |
| 1N6643 | 75             | 100           | 50        | 5.0                    | 20                                    | 5.0 | 2.8                          | 6.0 | 50                           | 500   | 75                           | 100              | —                            | 1.0<br>1.2                  | —                           | 10<br>100 |                             |  |                        |  |           |          |                                 |           |       |  |

Electrical specifications @  $T_A = +25^\circ\text{C}$  (unless otherwise specified).



D-5DUS



UB

## Switching Diodes 1N6638U Series

aeroflex.com/MetelicsHRC

|                    | $V_{BR} @ I_R$ |               | $V_{RWM}$ |                        | $V_{FR} / t_T @ I_F = 200 \text{ mA}$ |     | $C_{T1} V_R = 0.0 \text{ V}$ |     | $C_{T2} V_R = 1.5 \text{ V}$ |       | $t_{tr} I_R = 10 \text{ mA}$ |                  | $V_{R1} V_R = V_{RWM}$       |                             | $I_{R2} V_R = 20 \text{ V}$ |                       | $I_{R3} V_R = 20 \text{ V}$ |  | $I_{R4} V_R = V_{RWM}$ |  | $V_F @ f$ |          | $V_F @ f_A = -55^\circ\text{C}$ |           | $I_F$ |  |
|--------------------|----------------|---------------|-----------|------------------------|---------------------------------------|-----|------------------------------|-----|------------------------------|-------|------------------------------|------------------|------------------------------|-----------------------------|-----------------------------|-----------------------|-----------------------------|--|------------------------|--|-----------|----------|---------------------------------|-----------|-------|--|
| Types              | V(pk)          | $\mu\text{A}$ | V(pk)     | $V_{FR} \text{ V(pk)}$ | $\tau_{fr} \text{ ns}$                | pF  | pF                           | ns  | nA dc                        | nA dc | $\mu\text{A dc}$             | $\mu\text{A dc}$ | V dc min                     | V dc max                    | V dc max                    | mA pulsed             |                             |  |                        |  | V dc min  | V dc max | V dc max                        | mA pulsed |       |  |
| 1N6638U and US     | 150            | 100           | 125       | 5.0                    | 20                                    | 2.5 | 2.0                          | 4.5 | 35                           | 500   | 50                           | 100              | —                            | 1.1<br>0.8                  | 1.2                         | —                     | 200<br>10                   |  |                        |  |           |          |                                 |           |       |  |
| 1N6639U and US     | 100            | 10            | 75        | 5.0                    | 10                                    | 2.5 | —                            | 4.0 | —                            | 100   | —                            | 90               | —                            | 1.2                         | 1.3                         | —                     | 500                         |  |                        |  |           |          |                                 |           |       |  |
| 1N6640U and US     | 75             | 10            | 50        | 5.0                    | 10                                    | 2.5 | —                            | 4.0 | —                            | 100   | —                            | 90               | 0.54<br>0.76<br>0.82<br>0.87 | 0.62<br>0.86<br>0.92<br>1.0 | —<br>—<br>—<br>1.1          | 1<br>50<br>100<br>200 |                             |  |                        |  |           |          |                                 |           |       |  |
| 1N6641U and US     | 75             | 10            | 50        | 5.0                    | 10                                    | 3.0 | —                            | 5.0 | —                            | 100   | —                            | 90               | —                            | 1.1                         | 1.2                         | —                     | 200                         |  |                        |  |           |          |                                 |           |       |  |
| 1N6642U, US and UB | 100            | 100           | 75        | 5.0                    | 20                                    | 5.0 | 2.8                          | 5.0 | 25                           | 500   | 50                           | 100              | —                            | 1.0<br>1.2                  | —<br>1.2                    | 10<br>100             |                             |  |                        |  |           |          |                                 |           |       |  |
| 1N6643U and US     | 75             | 100           | 50        | 5.0                    | 20                                    | 5.0 | 2.8                          | 6.0 | 50                           | 500   | 75                           | 100              | —                            | 1.0<br>1.2                  | —<br>1.4                    | 10<br>100             |                             |  |                        |  |           |          |                                 |           |       |  |

Electrical specifications @  $T_A = +25^\circ\text{C}$  (unless otherwise specified).



DO-34

## Switching Diodes 1N4531

aeroflex.com/MetelicsHRC

|          | $V_F$        |          | $I_F$    |              | $V_{BR}$ |       | $t_{tr} I_R = 10 \text{ mA}$ |                   | $I_{R2} I_{R3} = 100 \Omega$ |          | $T_{RR} @ I_F = 50 \text{ mA}$ |      | $V_{FR} @ I_F = 50 \text{ mA}$ |    | Capacitance @ 0 V |  | Capacitance @ 1.5 V |  |
|----------|--------------|----------|----------|--------------|----------|-------|------------------------------|-------------------|------------------------------|----------|--------------------------------|------|--------------------------------|----|-------------------|--|---------------------|--|
| Types    | Ambient (°C) | $I_F$ mA | V dc max | Ambient (°C) | V dc     | A max | Ambient (°C)                 | $I_R \mu\text{A}$ | V dc max                     | V dc max | nsec                           | nsec | V(pk)                          | pF | pF                |  |                     |  |
| 1N4531-1 | 25           | 10       | 0.8      | 25           | 20       | 0.025 | 25                           | 100               | 100                          | 25       | 5                              | 20   | 5                              | 4  | 2.8               |  |                     |  |
|          | 25           | 100      | 1.2      | 25           | 75       | 0.500 |                              |                   |                              |          |                                |      |                                |    |                   |  |                     |  |
|          | 150          | 10       | 0.8      | 150          | 20       | 35.0  |                              |                   |                              |          |                                |      |                                |    |                   |  |                     |  |
|          | -55          | 100      | 1.3      | 150          | 75       | 75.0  |                              |                   |                              |          |                                |      |                                |    |                   |  |                     |  |



DO-35



DO-213AA

## Switching Diodes 1N4454-1

aeroflex.com/MetelicsHRC

|                      | $V_{BR} @ 5 \mu A$ | $V_{RWM}$ | $I_F$ | $V_{T1} I_F = 10 \text{ mA}$ | $V_{T2} I_F = 10 \text{ mA}$ | $t_{tr}$ | $I_{R1} @ 50 \text{ Vdc}$ | $I_{R2} @ 75 \text{ Vdc}$ | Capacitance @ 0 V |
|----------------------|--------------------|-----------|-------|------------------------------|------------------------------|----------|---------------------------|---------------------------|-------------------|
| Types                | Volts              | V(pk)     | mA    | V dc                         | V dc                         | nsec     | $\mu A$                   | $\mu A$                   | pF                |
| 1N4454-1, 1N4454UR-1 | 75                 | 50        | 200   | 0.8                          | 0.7                          | 4        | 0.1                       | 100                       | 2.0               |

# Diodes for HiRel Applications

## Current Regulators

Available in JAN, JANTX, JANTXV, and JANS levels to MIL-PRF-19500 slash sheet /463 in both axial leaded and MELF packages.



DO-35



DO-213AA

**Current Regulator  
Diode Series**  
1N5283-1 to 1N5314-1,  
1N7041-1 to 1N7055-1  
[aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

Regulator Current  
 $I_p$  (mA) @  $V_s = 25V$

Maximum Dynamic  
Impedance  
@  $V_s = 25V$   
 $Z_s$  (M) (Note 1)

Minimum Knee  
Impedance  
@  $V_k = 6.0V$   
 $Z_k$  (M) (Note 2)

Maximum Limiting  
Voltage  
@  $I_L = 0.8 I_p$  (min)  
 $V_L$  (volts)

Peak Operating  
Voltage

| Types                | Nominal | Minimum | Maximum |       |       |      | Volts |
|----------------------|---------|---------|---------|-------|-------|------|-------|
| 1N5283-1, 1N5283UR-1 | 0.22    | 0.198   | 0.242   | 25.0  | 2.75  | 1.00 | 100   |
| 1N5284-1, 1N5284UR-1 | 0.24    | 0.216   | 0.264   | 19.0  | 2.35  | 1.00 | 100   |
| 1N5285-1, 1N5285UR-1 | 0.27    | 0.243   | 0.297   | 14.0  | 1.95  | 1.00 | 100   |
| 1N5286-1, 1N5286UR-1 | 0.30    | 0.270   | 0.330   | 9.0   | 1.60  | 1.00 | 100   |
| 1N5287-1, 1N5287UR-1 | 0.33    | 0.297   | 0.363   | 8.0   | 1.35  | 1.00 | 100   |
| 1N5288-1, 1N5288UR-1 | 0.39    | 0.351   | 0.429   | 4.10  | 1.000 | 1.05 | 100   |
| 1N5289-1, 1N5289UR-1 | .043    | 0.387   | 0.473   | 3.30  | 0.870 | 1.05 | 100   |
| 1N5290-1, 1N5290UR-1 | 0.47    | 0.423   | 0.517   | 2.70  | 0.750 | 1.05 | 100   |
| 1N5291-1, 1N5291UR-1 | 0.56    | 0.504   | 0.616   | 1.90  | 0.560 | 1.10 | 100   |
| 1N5292-1, 1N5292UR-1 | 0.62    | 0.558   | 0.682   | 1.55  | 0.470 | 1.13 | 100   |
| 1N5293-1, 1N5293UR-1 | 0.68    | 0.612   | 0.748   | 1.35  | 0.400 | 1.15 | 100   |
| 1N5294-1, 1N5294UR-1 | 0.75    | 0.675   | 0.825   | 1.15  | 0.335 | 1.20 | 100   |
| 1N5295-1, 1N5295UR-1 | 0.82    | 0.738   | 0.902   | 1.00  | 0.290 | 1.25 | 100   |
| 1N5296-1, 1N5296UR-1 | 0.91    | 0.819   | 1.001   | 0.88  | 0.240 | 1.29 | 100   |
| 1N5297-1, 1N5297UR-1 | 1.00    | 0.900   | 1.100   | 0.80  | 0.205 | 1.35 | 100   |
| 1N5298-1, 1N5298UR-1 | 1.10    | 0.99    | 1.21    | 0.70  | 0.180 | 1.40 | 100   |
| 1N5299-1, 1N5299UR-1 | 1.20    | 1.08    | 1.32    | 0.64  | 0.155 | 1.45 | 100   |
| 1N5300-1, 1N5300UR-1 | 1.30    | 1.17    | 1.43    | 0.58  | 0.135 | 1.50 | 100   |
| 1N5301-1, 1N5301UR-1 | 1.40    | 1.26    | 1.54    | 0.54  | 0.115 | 1.55 | 100   |
| 1N5302-1, 1N5302UR-1 | 1.50    | 1.35    | 1.65    | 0.51  | 0.105 | 1.60 | 100   |
| 1N5303-1, 1N5303UR-1 | 1.60    | 1.44    | 1.76    | 0.475 | 0.092 | 1.65 | 100   |
| 1N5304-1, 1N5304UR-1 | 1.80    | 1.62    | 1.98    | 0.420 | 0.074 | 1.75 | 100   |
| 1N5305-1, 1N5305UR-1 | 2.00    | 1.80    | 2.20    | 0.395 | 0.061 | 1.85 | 100   |
| 1N5306-1, 1N5306UR-1 | 2.20    | 1.98    | 2.42    | 0.370 | 0.052 | 1.95 | 100   |
| 1N5307-1, 1N5307UR-1 | 2.40    | 2.16    | 2.54    | 0.345 | 0.044 | 2.00 | 100   |
| 1N5308-1, 1N5308UR-1 | 2.70    | 2.43    | 2.97    | 0.320 | 0.035 | 2.15 | 100   |
| 1N5309-1, 1N5309UR-1 | 3.00    | 2.70    | 3.30    | 0.300 | 0.029 | 2.25 | 100   |
| 1N5310-1, 1N5310UR-1 | 3.30    | 2.97    | 3.63    | 0.280 | 0.024 | 2.35 | 100   |
| 1N5311-1, 1N5311UR-1 | 3.60    | 3.24    | 3.96    | 0.265 | 0.020 | 2.50 | 100   |
| 1N5312-1, 1N5312UR-1 | 3.90    | 3.51    | 4.29    | 0.255 | 0.017 | 2.60 | 100   |
| 1N5313-1, 1N5313UR-1 | 4.30    | 3.87    | 4.73    | 0.245 | 0.014 | 2.75 | 100   |
| 1N5314-1, 1N5314UR-1 | 4.70    | 4.23    | 5.17    | 0.235 | 0.012 | 2.90 | 100   |
| 1N7048-1, 1N7048UR-1 | 5.10    | 4.59    | 5.61    | 100   | 4.0   | 3.67 | 80    |
| 1N7049-1, 1N7049UR-1 | 5.60    | 5.04    | 6.16    | 90    | 4.0   | 4.03 | 80    |
| 1N7050-1, 1N7050UR-1 | 6.20    | 5.58    | 6.82    | 80    | 3.0   | 4.46 | 70    |
| 1N7051-1, 1N7051UR-1 | 6.80    | 6.12    | 7.48    | 70    | 2.0   | 4.90 | 70    |
| 1N7052-1, 1N7052UR-1 | 7.50    | 6.75    | 8.25    | 50    | 1.5   | 5.40 | 60    |
| 1N7053-1, 1N7053UR-1 | 8.20    | 7.38    | 9.02    | 30    | 1.5   | 5.90 | 60    |
| 1N7054-1, 1N7054UR-1 | 9.10    | 8.19    | 10.01   | 20    | 1.0   | 6.55 | 50    |
| 1N7055-1, 1N7055UR-1 | 10.00   | 9.00    | 11.10   | 10    | 1.0   | 7.20 | 50    |

Electrical specifications @ +25°C (unless otherwise specified).

NOTE 1:  $Z_s$  is derived by superimposing A 90 Hz RMS signal equal to 10% of  $V_s$  on  $V_s$

NOTE 2:  $Z_k$  is derived by superimposing A 90 Hz RMS signal equal to 10% of  $V_k$  on  $V_k$

Available in chip form.

# Diodes for HiRel Applications

## Zener Diode Chip Series CD5518B – CD5546B aeroflex.com/MetelicsHRC

|         | Nominal Zener Voltage,<br>$V_Z$ @ $I_{ZT}$<br>(Note 1) | Zener Test Current,<br>$I_{ZT}$ | Maximum Zener<br>Impedance,<br>$Z_{ZT}$ @ $I_{ZT}$<br>(Note 2) | Maximum Reverse<br>Leakage Current,<br>$I_R$ | Maximum Reverse<br>Leakage Current,<br>$V_R$ | Regulation Factor<br>$V_Z$<br>(Note 3) | Low $V_Z$ Current,<br>$I_{ZL}$ |
|---------|--------------------------------------------------------|---------------------------------|----------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|
| Types   | Volts                                                  | mAdc                            | Ohms                                                           | mAdc                                         | Volts                                        | Volts                                  | mAdc                           |
| CD5518B | 3.3                                                    | 20                              | 26                                                             | 5.0                                          | 1.0                                          | 0.90                                   | 2.0                            |
| CD5519B | 3.6                                                    | 20                              | 24                                                             | 3.0                                          | 1.0                                          | 0.90                                   | 2.0                            |
| CD5520B | 3.9                                                    | 20                              | 22                                                             | 1.0                                          | 1.0                                          | 0.90                                   | 2.0                            |
| CD5521B | 4.3                                                    | 20                              | 18                                                             | 3.0                                          | 1.5                                          | 0.75                                   | 2.0                            |
| CD5522B | 4.7                                                    | 10                              | 22                                                             | 2.0                                          | 2.0                                          | 0.60                                   | 1.0                            |
| CD5523B | 5.1                                                    | 5.0                             | 26                                                             | 2.0                                          | 2.5                                          | 0.65                                   | 0.25                           |
| CD5524B | 5.6                                                    | 3.0                             | 30                                                             | 2.0                                          | 3.5                                          | 0.30                                   | 0.25                           |
| CD5525B | 6.2                                                    | 1.0                             | 30                                                             | 1.0                                          | 5.0                                          | 0.20                                   | 0.01                           |
| CD5526B | 6.8                                                    | 1.0                             | 30                                                             | 1.0                                          | 6.2                                          | 0.10                                   | 0.01                           |
| CD5527B | 7.5                                                    | 1.0                             | 35                                                             | 0.5                                          | 6.8                                          | 0.05                                   | 0.01                           |
| CD5528B | 8.2                                                    | 1.0                             | 40                                                             | 0.5                                          | 7.5                                          | 0.05                                   | 0.01                           |
| CD5529B | 9.1                                                    | 1.0                             | 45                                                             | 0.1                                          | 8.2                                          | 0.05                                   | 0.01                           |
| CD5530B | 10.0                                                   | 1.0                             | 60                                                             | 0.05                                         | 9.1                                          | 0.10                                   | 0.01                           |
| CD5531B | 11.0                                                   | 1.0                             | 80                                                             | 0.05                                         | 9.9                                          | 0.20                                   | 0.01                           |
| CD5532B | 12.0                                                   | 1.0                             | 90                                                             | 0.05                                         | 10.8                                         | 0.20                                   | 0.01                           |
| CD5533B | 13.0                                                   | .0                              | 90                                                             | 0.01                                         | 11.7                                         | 0.20                                   | 0.01                           |
| CD5534B | 14.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 12.6                                         | 0.20                                   | 0.01                           |
| CD5535B | 15.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 13.5                                         | 0.20                                   | 0.01                           |
| CD5536B | 16.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 14.4                                         | 0.20                                   | 0.01                           |
| CD5537B | 17.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 15.3                                         | 0.20                                   | 0.01                           |
| CD5538B | 18.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 16.2                                         | 0.20                                   | 0.01                           |
| CD5539B | 19.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 17.1                                         | 0.20                                   | 0.01                           |
| CD5540B | 20.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 18.0                                         | 0.20                                   | 0.01                           |
| CD5541B | 22.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 19.8                                         | 0.25                                   | 0.01                           |
| CD5542B | 24.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 21.6                                         | 0.30                                   | 0.01                           |
| CD5543B | 25.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 22.4                                         | 0.35                                   | 0.01                           |
| CD5544B | 28.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 25.2                                         | 0.40                                   | 0.01                           |
| CD5545B | 30.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 27.0                                         | 0.45                                   | 0.01                           |
| CD5546B | 33.0                                                   | 1.0                             | 100                                                            | 0.01                                         | 29.7                                         | 0.50                                   | 0.01                           |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/437.**

NOTE 1: Suffix "B" voltage range equals nominal Zener voltage,  $\pm 5\%$ . Suffix "A" equals  $\pm 10\%$ . "C" suffix =  $\pm 2\%$  and "D" suffix =  $\pm 1\%$ . No Suffix equals  $\pm 20\%$ . Zener voltage is read using a pulse measurement, 10 milliseconds maximum.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms ac current equal to 10 % of  $I_{ZT}$ .

NOTE 3:  $\Delta V_Z$  is the maximum difference between  $V_Z$  @  $I_{ZT}$  and  $V_Z$  at  $I_{ZL}$  measured with the device junction in thermal equilibrium at an ambient temperature of +25°  $\pm 3^\circ\text{C}$ .

## Zener Diode Chip Series CD4614 – CD4627 aeroflex.com/MetelicsHRC

|        | Nominal Zener Voltage,<br>$V_Z$ @ $I_{ZT}$<br>(Note 1) | Zener Test Current,<br>$I_{ZT}$ | Maximum Zener<br>Impedance,<br>$Z_{ZT}$ @ $I_{ZT}$<br>(Note 2) | Maximum Reverse<br>Leakage Current,<br>$I_R$ @ $V_R$ |
|--------|--------------------------------------------------------|---------------------------------|----------------------------------------------------------------|------------------------------------------------------|
| Types  | Volts                                                  | $\mu\text{A}$                   | Ohms                                                           | $\mu\text{A}$                                        |
| CD4614 | 1.8                                                    | 250                             | 1200                                                           | 7.5                                                  |
| CD4615 | 2.0                                                    | 250                             | 1250                                                           | 5.0                                                  |
| CD4616 | 2.2                                                    | 250                             | 1300                                                           | 4.0                                                  |
| CD4617 | 2.4                                                    | 250                             | 1400                                                           | 2.0                                                  |
| CD4618 | 2.7                                                    | 250                             | 1500                                                           | 1.0                                                  |
| CD4619 | 3.0                                                    | 250                             | 1600                                                           | 0.8                                                  |
| CD4620 | 3.3                                                    | 250                             | 1650                                                           | 7.5                                                  |
| CD4621 | 3.6                                                    | 250                             | 1700                                                           | 7.5                                                  |
| CD4622 | 3.9                                                    | 250                             | 1650                                                           | 5.0                                                  |
| CD4623 | 4.3                                                    | 250                             | 1600                                                           | 4.0                                                  |
| CD4624 | 4.7                                                    | 250                             | 1550                                                           | 10.0                                                 |
| CD4625 | 5.1                                                    | 250                             | 1500                                                           | 10.0                                                 |
| CD4626 | 5.6                                                    | 250                             | 1400                                                           | 10.0                                                 |
| CD4627 | 6.2                                                    | 250                             | 1200                                                           | 10.0                                                 |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/435.**

NOTE 1: Zener voltage range equals nominal Zener voltage  $\pm 5\%$  for no suffix types. Zener voltage is read using a pulse measurement, 10 milliseconds maximum. "C" suffix =  $\pm 2\%$  and "D" suffix =  $\pm 1\%$ .

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms AC current equal to 10 % of  $I_{ZT}$ .

# Diodes for HiRel Applications

**TC Zener Diode  
Chip Series  
CD4565 – CD4584A**  
aeroflex.com/MetelicsHRC

|                       | Zener Test Current<br>$I_{ZT}$ | Effective<br>Temperature<br>Coefficient | Voltage Temperature<br>Stability, $\Delta V_{ZT}$ Max<br>-55° to +100°<br>(Note 1) | Temperature Range | Maximum Zener<br>Impedance<br>$Z_{ZT}$ (Note 2) |
|-----------------------|--------------------------------|-----------------------------------------|------------------------------------------------------------------------------------|-------------------|-------------------------------------------------|
| Types 6.4 V $\pm 5\%$ | mA                             | % / °C                                  | Ohms                                                                               | °C                | Ohms                                            |
| CD4565                | 0.5                            | 0.01                                    | 48                                                                                 | 0 to +75 °C       | 200                                             |
| CD4565A               | 0.5                            | 0.01                                    | 100                                                                                | -55 to +100 °C    | 200                                             |
| CD4566                | 0.5                            | 0.005                                   | 24                                                                                 | 0 to +75 °C       | 200                                             |
| CD4566A               | 0.5                            | 0.005                                   | 50                                                                                 | -55 to +100 °C    | 200                                             |
| CD4567                | 0.5                            | 0.002                                   | 10                                                                                 | 0 to +75 °C       | 200                                             |
| CD4567A               | 0.5                            | 0.002                                   | 20                                                                                 | -55 to +100 °C    | 200                                             |
| CD4568                | 0.5                            | 0.001                                   | 5                                                                                  | 0 to +75 °C       | 200                                             |
| CD4568A               | 0.5                            | 0.001                                   | 10                                                                                 | -55 to +100 °C    | 200                                             |
| CD4569                | 0.5                            | 0.0005                                  | 2.5                                                                                | 0 to +75 °C       | 200                                             |
| CD4569A               | 0.5                            | 0.0005                                  | 5                                                                                  | -55 to +100 °C    | 200                                             |
| CD4570                | 1.0                            | 0.01                                    | 48                                                                                 | 0 to +75° C       | 100                                             |
| CD4570A               | 1.0                            | 0.01                                    | 100                                                                                | -55 to +100 °C    | 100                                             |
| CD4571                | 1.0                            | 0.005                                   | 24                                                                                 | 0 to +75°C        | 100                                             |
| CD4571A               | 1.0                            | 0.005                                   | 50                                                                                 | -55 to +100°C     | 100                                             |
| CD4572                | 1.0                            | 0.002                                   | 10                                                                                 | 0 to +75°C        | 100                                             |
| CD4572A               | 1.0                            | 0.002                                   | 20                                                                                 | -55 to +100°C     | 100                                             |
| CD4573                | 1.0                            | 0.001                                   | 5                                                                                  | 0 to +75 °C       | 100                                             |
| CD4573A               | 1.0                            | 0.001                                   | 10                                                                                 | -55 to +100 °C    | 100                                             |
| CD4574                | 1.0                            | 0.0005                                  | 2.5                                                                                | 0 to +75 °C       | 100                                             |
| CD4574A               | 1.0                            | 0.0005                                  | 5                                                                                  | -55 to +100 °C    | 100                                             |
| CD4575                | 2.0                            | 0.01                                    | 48                                                                                 | 0 to +75°C        | 50                                              |
| CD4575A               | 2.0                            | 0.01                                    | 100                                                                                | -55 to +100 °C    | 50                                              |
| CD4576                | 2.0                            | 0.005                                   | 24                                                                                 | 0 to +75 °C       | 50                                              |
| CD4576A               | 2.0                            | 0.005                                   | 50                                                                                 | -55 to +100 °C    | 50                                              |
| CD4577                | 2.0                            | 0.002                                   | 10                                                                                 | 0 to +75 °C       | 50                                              |
| CD4577A               | 2.0                            | 0.002                                   | 20                                                                                 | -55 to +100 °C    | 50                                              |
| CD4578                | 2.0                            | 0.001                                   | 5                                                                                  | 0 to +75 °C       | 50                                              |
| CD4578A               | 2.0                            | 0.001                                   | 10                                                                                 | -55 to +100 °C    | 50                                              |
| CD4579                | 2.0                            | 0.0005                                  | 2.5                                                                                | 0 to +75 °C       | 50                                              |
| CD4579A               | 2.0                            | 0.0005                                  | 5                                                                                  | -55 to +100 °C    | 50                                              |
| CD4580                | 4.0                            | 0.01                                    | 48                                                                                 | 0 to +75 °C       | 25                                              |
| CD4580A               | 4.0                            | 0.01                                    | 100                                                                                | -55 to +100 °C    | 25                                              |
| CD4581                | 4.0                            | 0.005                                   | 24                                                                                 | 0 to +75 °C       | 25                                              |
| CD4581A               | 4.0                            | 0.005                                   | 50                                                                                 | -55 to +100 °C    | 25                                              |
| CD4582                | 4.0                            | 0.002                                   | 10                                                                                 | 0 to +75 °C       | 25                                              |
| CD4582A               | 4.0                            | 0.002                                   | 20                                                                                 | -55 to +100 °C    | 25                                              |
| CD4583                | 4.0                            | 0.001                                   | 5                                                                                  | 0 to +75 °C       | 25                                              |
| CD4583A               | 4.0                            | 0.001                                   | 10                                                                                 | -55 to +100 °C    | 25                                              |
| CD4584                | 4.0                            | 0.0005                                  | 2.5                                                                                | 0 to +75° C       | 25                                              |
| CD4584A               | 4.0                            | 0.0005                                  | 5                                                                                  | -55 to +100 °C    | 25                                              |

Electrical specifications @ +25 °C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/452.**

NOTE 1: The maximum allowable change observed over the entire temperature range, i.e., the diode voltage will not exceed the specialized mV at any discrete temperature between the established limits, per JEDEC standard No.5.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms ac current equal to 10% of  $I_{ZT}$ .

# Diodes for HiRel Applications

**Zener Diode  
Chip Series  
CD4099 – CD4135**  
aeroflex.com/MetelicsHRC

|        | Nominal Zener Voltage,<br>$V_Z$ @ $I_{ZT}$<br>(Note 1) | Zener Test Current,<br>$I_{ZT}$ | Maximum Zener<br>Impedance,<br>$Z_{ZT}$ @ $I_{ZT}$<br>(Note 2) | Maximum Reverse<br>Leakage Current,<br>$I_R$ @ $V_R$ |       |
|--------|--------------------------------------------------------|---------------------------------|----------------------------------------------------------------|------------------------------------------------------|-------|
| Types  | Volts                                                  | $\mu A$                         | Ohms                                                           | $\mu A$                                              | Volts |
| CD4099 | 6.8                                                    | 250                             | 200                                                            | 10.0                                                 | 5.17  |
| CD4100 | 7.5                                                    | 250                             | 200                                                            | 10.0                                                 | 5.70  |
| CD4101 | 8.2                                                    | 250                             | 200                                                            | 1.0                                                  | 6.24  |
| CD4102 | 8.7                                                    | 250                             | 200                                                            | 1.0                                                  | 6.61  |
| CD4103 | 9.1                                                    | 250                             | 200                                                            | 1.0                                                  | 6.92  |
| CD4104 | 10                                                     | 250                             | 200                                                            | 1.0                                                  | 7.60  |
| CD4105 | 11                                                     | 250                             | 200                                                            | 0.05                                                 | 8.44  |
| CD4106 | 12                                                     | 250                             | 200                                                            | 0.05                                                 | 9.12  |
| CD4107 | 13                                                     | 250                             | 200                                                            | 0.05                                                 | 9.87  |
| CD4108 | 14                                                     | 250                             | 200                                                            | 0.05                                                 | 10.65 |
| CD4109 | 15                                                     | 250                             | 100                                                            | 0.05                                                 | 11.40 |
| CD4110 | 16                                                     | 250                             | 100                                                            | 0.05                                                 | 12.15 |
| CD4111 | 17                                                     | 250                             | 100                                                            | 0.05                                                 | 12.92 |
| CD4112 | 18                                                     | 250                             | 100                                                            | 0.05                                                 | 13.67 |
| CD4113 | 19                                                     | 250                             | 150                                                            | 0.05                                                 | 14.44 |
| CD4114 | 20                                                     | 250                             | 150                                                            | 0.01                                                 | 15.20 |
| CD4115 | 22                                                     | 250                             | 150                                                            | 0.01                                                 | 16.72 |
| CD4116 | 24                                                     | 250                             | 150                                                            | 0.01                                                 | 18.25 |
| CD4117 | 25                                                     | 250                             | 150                                                            | 0.01                                                 | 19.00 |
| CD4118 | 27                                                     | 250                             | 150                                                            | 0.01                                                 | 20.46 |
| CD4119 | 28                                                     | 250                             | 200                                                            | 0.01                                                 | 21.28 |
| CD4120 | 30                                                     | 250                             | 200                                                            | 0.01                                                 | 22.80 |
| CD4121 | 33                                                     | 250                             | 200                                                            | 0.01                                                 | 25.08 |
| CD4122 | 36                                                     | 250                             | 200                                                            | 0.01                                                 | 27.38 |
| CD4123 | 39                                                     | 250                             | 200                                                            | 0.01                                                 | 29.65 |
| CD4124 | 43                                                     | 250                             | 250                                                            | 0.01                                                 | 32.56 |
| CD4125 | 47                                                     | 250                             | 250                                                            | 0.01                                                 | 35.75 |
| CD4126 | 51                                                     | 250                             | 300                                                            | 0.01                                                 | 38.76 |
| CD4127 | 56                                                     | 250                             | 300                                                            | 0.01                                                 | 42.60 |
| CD4128 | 60                                                     | 250                             | 400                                                            | 0.01                                                 | 45.60 |
| CD4129 | 62                                                     | 250                             | 500                                                            | 0.01                                                 | 47.10 |
| CD4130 | 68                                                     | 250                             | 700                                                            | 0.01                                                 | 51.68 |
| CD4131 | 75                                                     | 250                             | 700                                                            | 0.01                                                 | 57.00 |
| CD4132 | 82                                                     | 250                             | 800                                                            | 0.01                                                 | 62.32 |
| CD4133 | 87                                                     | 250                             | 1000                                                           | 0.01                                                 | 66.12 |
| CD4134 | 91                                                     | 250                             | 1200                                                           | 0.01                                                 | 69.16 |
| CD4135 | 100                                                    | 250                             | 1500                                                           | 0.01                                                 | 76.00 |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/435.**

NOTE 1: Zener voltage range equals nominal Zener voltage  $\pm$  5% for no suffix types. Zener voltage is read using a pulse measurement, 10 milliseconds maximum. "C" suffix =  $\pm$  2% and "D" suffix =  $\pm$  1%.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms AC current equal to 10 % of  $I_{ZT}$ .

# Diodes for HiRel Applications

## Zener Diode Chip Series CD957B – CD986B aeroflex.com/MetelicsHRC

| Zener Diode<br>Chip Series<br>CD957B – CD986B<br><i>aeroflex.com/MetelicsHRC</i> | Nominal Zener Voltage,<br>$V_Z$<br>(Note 1) | Zener Test Current,<br>$I_{ZT}$ | Maximum Zener<br>Impedance,<br>$Z_{ZT}$ @ $I_{ZT}$<br>(Note 2) | Maximum Zener<br>Impedance,<br>$Z_{ZK}$ @ $I_{ZK}$<br>(Note 2) | Maximum DC Zener<br>Current,<br>$I_{ZM}$ | Maximum Reverse<br>Leakage Current,<br>$I_R$ @ $V_R$ |     |       |
|----------------------------------------------------------------------------------|---------------------------------------------|---------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------|------------------------------------------------------|-----|-------|
| Types                                                                            | Volts                                       | mA                              | Ohms                                                           | Ohms                                                           | mA                                       | mA                                                   | μA  | Volts |
| CD957B                                                                           | 6.8                                         | 18.5                            | 4.5                                                            | 700                                                            | 1.0                                      | 55                                                   | 5.0 | 5.2   |
| CD958B                                                                           | 7.5                                         | 16.5                            | 5.5                                                            | 700                                                            | 0.5                                      | 50                                                   | 5.0 | 5.7   |
| CD959B                                                                           | 8.2                                         | 15.0                            | 6.5                                                            | 700                                                            | 0.5                                      | 45                                                   | 5.0 | 6.2   |
| CD960B                                                                           | 9.1                                         | 14.0                            | 7.5                                                            | 700                                                            | 0.5                                      | 41                                                   | 5.0 | 6.9   |
| CD961B                                                                           | 10                                          | 12.5                            | 8.5                                                            | 700                                                            | 0.25                                     | 38                                                   | 2.0 | 7.6   |
| CD962B                                                                           | 11                                          | 11.5                            | 9.5                                                            | 700                                                            | 0.25                                     | 32                                                   | 1.0 | 8.4   |
| CD963B                                                                           | 12                                          | 10.5                            | 11.5                                                           | 700                                                            | 0.25                                     | 31                                                   | 1.0 | 9.1   |
| CD964B                                                                           | 13                                          | 9.5                             | 13                                                             | 700                                                            | 0.25                                     | 28                                                   | 0.5 | 9.9   |
| CD965B                                                                           | 15                                          | 8.5                             | 16                                                             | 700                                                            | 0.25                                     | 25                                                   | 0.5 | 11    |
| CD966B                                                                           | 16                                          | 7.8                             | 17                                                             | 700                                                            | 0.25                                     | 24                                                   | 0.5 | 12    |
| CD967B                                                                           | 18                                          | 7.0                             | 21                                                             | 750                                                            | 0.25                                     | 20                                                   | 0.5 | 14    |
| CD968B                                                                           | 20                                          | 6.2                             | 25                                                             | 750                                                            | 0.25                                     | 18                                                   | 0.5 | 15    |
| CD969B                                                                           | 22                                          | 5.6                             | 29                                                             | 750                                                            | 0.25                                     | 16                                                   | 0.5 | 17    |
| CD970B                                                                           | 24                                          | 5.2                             | 33                                                             | 750                                                            | 0.25                                     | 15                                                   | 0.5 | 18    |
| CD971B                                                                           | 27                                          | 4.6                             | 41                                                             | 750                                                            | 0.25                                     | 13                                                   | 0.5 | 21    |
| CD972B                                                                           | 30                                          | 4.2                             | 49                                                             | 1000                                                           | 0.25                                     | 12                                                   | 0.5 | 23    |
| CD973B                                                                           | 33                                          | 3.8                             | 58                                                             | 1000                                                           | 0.25                                     | 11                                                   | 0.5 | 25    |
| CD974B                                                                           | 36                                          | 3.4                             | 70                                                             | 1000                                                           | 0.25                                     | 10                                                   | 0.5 | 27    |
| CD975B                                                                           | 39                                          | 3.2                             | 90                                                             | 1000                                                           | 0.25                                     | 9.5                                                  | 0.5 | 30    |
| CD976B                                                                           | 43                                          | 3.0                             | 93                                                             | 1500                                                           | 0.25                                     | 8.8                                                  | 0.5 | 33    |
| CD977B                                                                           | 47                                          | 2.7                             | 105                                                            | 1500                                                           | 0.25                                     | 7.9                                                  | 0.5 | 36    |
| CD978B                                                                           | 51                                          | 2.5                             | 125                                                            | 1500                                                           | 0.25                                     | 7.4                                                  | 0.5 | 39    |
| CD979B                                                                           | 56                                          | 2.2                             | 150                                                            | 2000                                                           | 0.25                                     | 6.8                                                  | 0.5 | 43    |
| CD980B                                                                           | 62                                          | 2.0                             | 185                                                            | 2000                                                           | 0.25                                     | 6.0                                                  | 0.5 | 47    |
| CD981B                                                                           | 68                                          | 1.8                             | 230                                                            | 2000                                                           | 0.25                                     | 5.5                                                  | 0.5 | 52    |
| CD982B                                                                           | 75                                          | 1.7                             | 270                                                            | 2000                                                           | 0.25                                     | 5.0                                                  | 0.5 | 56    |
| CD983B                                                                           | 82                                          | 1.5                             | 330                                                            | 3000                                                           | 0.25                                     | 4.6                                                  | 0.5 | 62    |
| CD984B                                                                           | 91                                          | 1.4                             | 400                                                            | 3000                                                           | 0.25                                     | 4.1                                                  | 0.5 | 69    |
| CD985B                                                                           | 100                                         | 1.3                             | 500                                                            | 3000                                                           | 0.25                                     | 3.7                                                  | 0.5 | 76    |
| CD986B                                                                           | 110                                         | 1.1                             | 750                                                            | 4000                                                           | 0.25                                     | 3.3                                                  | 0.5 | 84    |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/117.**

NOTE 1: Zener voltage range equals nominal voltage  $\pm$  5% for "B" Suffix. "A" Suffix denotes  $\pm$  10%. No Suffix denotes  $\pm$  20%. "C" suffix =  $\pm$  2% and "D" suffix =  $\pm$  1%. Zener voltage is read using a pulse measurement, 10 milliseconds maximum.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms a.c. current equal to 10 % of  $I_{ZT}$ .

## Ultrafast Rectifier Diodes CD5802, CD5804 & CD5806 aeroflex.com/MetelicsHRC

|        | $V_{RWM}$ | $V_{BR}$ | $I_O$<br>$T_J = 75^\circ\text{C}$ | $T_{rr}$<br>$I_F = 0.5\text{ A}$ , $I_{RM} = 0.5\text{ A}$<br>$I_{RFO} = 0.5\text{ A}$ | $C_{j(max)}$ @<br>$V_R = 100\text{ V}$ | $V_{FM1}$<br>$I_{FM} = 1.0\text{ A}$ ,<br>$T_P = 8.3\text{ mS (max)}$ | $V_{FM2}$<br>$I_{FM} = 2.5\text{ A}$ ,<br>$T_P = 8.3\text{ mS (max)}$ | $V_{FM3}$<br>$I_{FM} = 1.0\text{ A}$ ,<br>$T_A = +125^\circ\text{C}$ | $V_{FM4}$<br>$I_{FM} = 1.0\text{ A}$ ,<br>$T_A = +125^\circ\text{C}$ | $I_R$ @ $V_{RWM}$<br>$T_C = 25^\circ\text{C}$ | $I_{R2}$ @ $V_{RWM}$ , Rated<br>$T_A = 125^\circ\text{C}$ | $V_{FRM}$<br>$t_r = 8\text{ nS}$ ,<br>$I_{FM} = 250\text{ mA}$ |
|--------|-----------|----------|-----------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------|
| Types  | V(min)    | V(pk)    | A                                 | ns                                                                                     | pF                                     | V dc                                                                  | V dc                                                                  | V dc                                                                 | V dc                                                                 | $\mu$ A dc                                    | $\mu$ A dc                                                | V dc                                                           |
| CD5802 | 50        | 60       | 2.5                               | 25                                                                                     | 25                                     | 0.875                                                                 | 0.975                                                                 | 0.800                                                                | 1.075                                                                | 1                                             | 175                                                       | 2.2                                                            |
| CD5804 | 100       | 110      | 2.5                               | 25                                                                                     | 25                                     | 0.875                                                                 | 0.975                                                                 | 0.800                                                                | 1.075                                                                | 1                                             | 175                                                       | 2.2                                                            |
| CD5806 | 150       | 160      | 2.5                               | 25                                                                                     | 25                                     | 0.875                                                                 | 0.975                                                                 | 0.800                                                                | 1.075                                                                | 1                                             | 175                                                       | 2.2                                                            |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/477.**

## Ultrafast Rectifier Diodes CD5807, CD5809 & CD5811 aeroflex.com/MetelicsHRC

|        | $V_{RWM}$ | $V_{BR}$ | $I_O$<br>$T_J = 75^\circ\text{C}$ | $T_{rr}$<br>$I_F = 1\text{ A}$ , $I_{RM} = 1\text{ A}$<br>$I_{RFO} = 0.1\text{ A}$ | $C_{j(max)}$ @<br>$V_R = 100\text{ V}$ | $V_{FM1}$<br>$I_{FM} = 3.0\text{ A}$ ,<br>$T_P = 8.3\text{ mS (max)}$ | $V_{FM2}$<br>$I_{FM} = 4.0\text{ A}$ ,<br>$T_P = 8.3\text{ mS (max)}$ | $V_{FM3}$<br>$I_{FM} = 6.0\text{ A}$ ,<br>$T_A = +125^\circ\text{C}$ | $V_{FM4}$<br>$I_{FM} = 4.0\text{ A}$ ,<br>$T_A = +125^\circ\text{C}$ | $I_R$ @ $V_{RWM}$<br>$T_C = 25^\circ\text{C}$ | $I_{R2}$ @ $V_{RWM}$ , Rated<br>$T_A = 125^\circ\text{C}$ | $V_{FRM}$<br>$t_r = 8\text{ nS}$ ,<br>$I_{FM} = 500\text{ mA}$ |
|--------|-----------|----------|-----------------------------------|------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------|
| Types  | V(min)    | V(pk)    | A                                 | ns                                                                                 | pF                                     | V dc                                                                  | V dc                                                                  | V dc                                                                 | V dc                                                                 | $\mu$ A dc                                    | $\mu$ A dc                                                | V dc                                                           |
| CD5807 | 50        | 60       | 2.5                               | 30                                                                                 | 60                                     | 0.865                                                                 | 0.875                                                                 | 0.925                                                                | 0.800                                                                | 5                                             | 525                                                       | 2.2                                                            |
| CD5809 | 100       | 110      | 2.5                               | 30                                                                                 | 60                                     | 0.865                                                                 | 0.875                                                                 | 0.925                                                                | 0.800                                                                | 5                                             | 525                                                       | 2.2                                                            |
| CD5811 | 150       | 160      | 2.5                               | 30                                                                                 | 60                                     | 0.865                                                                 | 0.875                                                                 | 0.925                                                                | 0.800                                                                | 5                                             | 525                                                       | 2.2                                                            |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/477.**

# Diodes for HiRel Applications

## Zener Diode Chip Series CD746A – CD759A, CD4370A – CD4372A [aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

| Zener Diode<br>Chip Series<br>CD746A – CD759A,<br>CD4370A – CD4372A<br><i>aeroflex.com/MetelicsHRC</i> | Nominal Zener Voltage,<br>$V_Z$ @ $I_{ZT}$<br>(Note 1) | Zener Test Current,<br>$I_{ZT}$ | Maximum Zener<br>Impedance,<br>$Z_{ZT}$ @ $I_{ZT}$<br>(Note 2) | Maximum Reverse<br>Leakage Current<br>$I_R$ @ $V_R$ |       | Maximum Zener<br>Current<br>$I_{ZM}$ |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------|----------------------------------------------------------------|-----------------------------------------------------|-------|--------------------------------------|
| Types                                                                                                  | Volts                                                  | mA                              | Ohms                                                           | $\mu$ A                                             | Volts | mA                                   |
| CD4370A                                                                                                | 2.4                                                    | 20                              | 30                                                             | 100                                                 | 1.0   | 155                                  |
| CD4371A                                                                                                | 2.7                                                    | 20                              | 30                                                             | 75                                                  | 1.0   | 140                                  |
| CD4372A                                                                                                | 3.0                                                    | 20                              | 29                                                             | 50                                                  | 1.0   | 125                                  |
| CD746A                                                                                                 | 3.3                                                    | 20                              | 28                                                             | 10                                                  | 1.0   | 120                                  |
| CD747A                                                                                                 | 3.6                                                    | 20                              | 24                                                             | 5                                                   | 1.0   | 110                                  |
| CD748A                                                                                                 | 3.9                                                    | 20                              | 23                                                             | 5                                                   | 1.0   | 100                                  |
| CD749A                                                                                                 | 4.3                                                    | 20                              | 22                                                             | 2                                                   | 1.0   | 90                                   |
| CD750A                                                                                                 | 4.7                                                    | 20                              | 19                                                             | 5                                                   | 1.5   | 85                                   |
| CD751A                                                                                                 | 5.1                                                    | 20                              | 17                                                             | 5                                                   | 2.0   | 75                                   |
| CD752A                                                                                                 | 5.6                                                    | 20                              | 11                                                             | 5                                                   | 2.5   | 70                                   |
| CD753A                                                                                                 | 6.2                                                    | 20                              | 7                                                              | 5                                                   | 3.5   | 85                                   |
| CD754A                                                                                                 | 6.8                                                    | 20                              | 5                                                              | 2                                                   | 4.0   | 60                                   |
| CD755A                                                                                                 | 7.5                                                    | 20                              | 6                                                              | 2                                                   | 5.0   | 55                                   |
| CD756A                                                                                                 | 8.2                                                    | 20                              | 8                                                              | 1                                                   | 6.0   | 50                                   |
| CD757A                                                                                                 | 9.1                                                    | 20                              | 10                                                             | 1                                                   | 7.0   | 45                                   |
| CD758A                                                                                                 | 10.0                                                   | 20                              | 17                                                             | 1                                                   | 8.0   | 40                                   |
| CD759A                                                                                                 | 12.0                                                   | 20                              | 30                                                             | 1                                                   | 9.0   | 35                                   |

Electrical specifications @ +25°C (unless otherwise specified). **AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/127.**

NOTE 1: Zener voltage range equals nominal voltage  $\pm 5\%$  for "A" Suffix. No Suffix denotes  $\pm 10\%$ . "C" suffix =  $\pm 2\%$  and "D" suffix =  $\pm 1\%$ . Zener voltage is read using a pulse measurement, 10 milliseconds maximum.

NOTE 2: Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms a.c. current equal to 10 % of  $I_{ZT}$ .

## Silicon Switching Diode Chips CD914, CD4148, CD4531, CD6642 & CD4454 [aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

|                            | $V_{BR} @ 100 \text{ mA}$ | $V_{RWM}$  | $I_b$ | $V_{F1} @ I_F = 10 \text{ mA}$ | $V_{F2} @ I_F = 50 \text{ mA}$ | $V_{F3} @ I_F = 100 \text{ mA}$ | $t_{rr}$ | $I_{R1} @ 20 \text{ Vdc}$ | $I_{R2}$    | $I_{R3} @ 20 \text{ Vdc}$<br>$T_A = 150^\circ\text{C}$ | $I_{R4} @ 150^\circ\text{C}$ | Capacitance<br>@ 0 V | Capacitance<br>@ 1.5 V |
|----------------------------|---------------------------|------------|-------|--------------------------------|--------------------------------|---------------------------------|----------|---------------------------|-------------|--------------------------------------------------------|------------------------------|----------------------|------------------------|
| Types                      | Volts (min)               | Volts (pk) | mA    | Vdc                            | Vdc                            | Vdc                             | nsec     | nA                        | $\mu A @ V$ | $\mu A$                                                | $\mu A @ V$                  | pF                   | pF                     |
| CD914                      | 100                       | 75         | 75    | 0.8                            | 1.2                            | N/A                             | 5        | 25                        | 0.5 @ 75    | 35                                                     | 75 @ 75                      | 4.0                  | 2.8                    |
| CD4148<br>CD4531<br>CD6642 | 100                       | 75         | 200   | 0.8                            | N/A                            | 1.2                             | 5        | 35                        | 0.5 @ 75    | 35                                                     | 75 @ 75                      | 4.0                  | 2.8                    |
| CD4454                     | 75                        | 50         | 200   | 1.0                            | N/A                            | N/A                             | 4        | N/A                       | 0.1 @ 50    | N/A                                                    | 100 @ 50                     | 2.0                  | N/A                    |

Electrical specifications @ +25°C (unless otherwise specified).

**CD914, CD4148, CD4531, AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/116. CD6642 AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/ 578.**

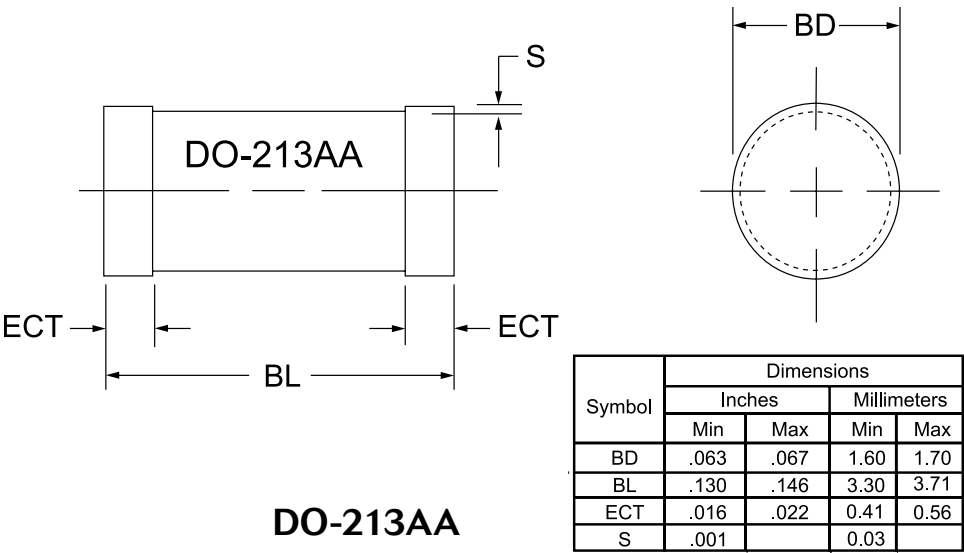
## Silicon Switching Diode Chips CD3600, CD4150, CD6640 & CD4153 [aeroflex.com/MetelicsHRC](http://aeroflex.com/MetelicsHRC)

|                  | $V_{BR} @ I_R = 10 \mu A^*$ | $V_{RWM}$  | $I_{R1} @ V_R = 50 \text{ Vdc}$<br>$T_A = 150^\circ\text{C}$ | $I_{R2} @ V_R = 50 \text{ Vdc}$<br>$T_A = 150^\circ\text{C}$ | Capacitance<br>$V_R = 0, f = 1 \text{ MHz}$<br>ac signals = 50 mV (p-p) | $t_{rr}$ |
|------------------|-----------------------------|------------|--------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------|----------|
| Types            | Volts (min)                 | Volts (pk) | $\mu A \text{ Vdc}$                                          | $\mu A \text{ Vdc}$                                          | pF                                                                      | nsec     |
| CD3600           | 75                          | 50         | 0.10                                                         | 100                                                          | 2.5                                                                     | 4        |
| CD4150<br>CD6640 | 75                          | 50         | 0.10                                                         | 100                                                          | 2.5                                                                     | 4        |
| CD4153           | 75*                         | 50         | 0.05                                                         | 150                                                          | 2.0                                                                     | 4        |

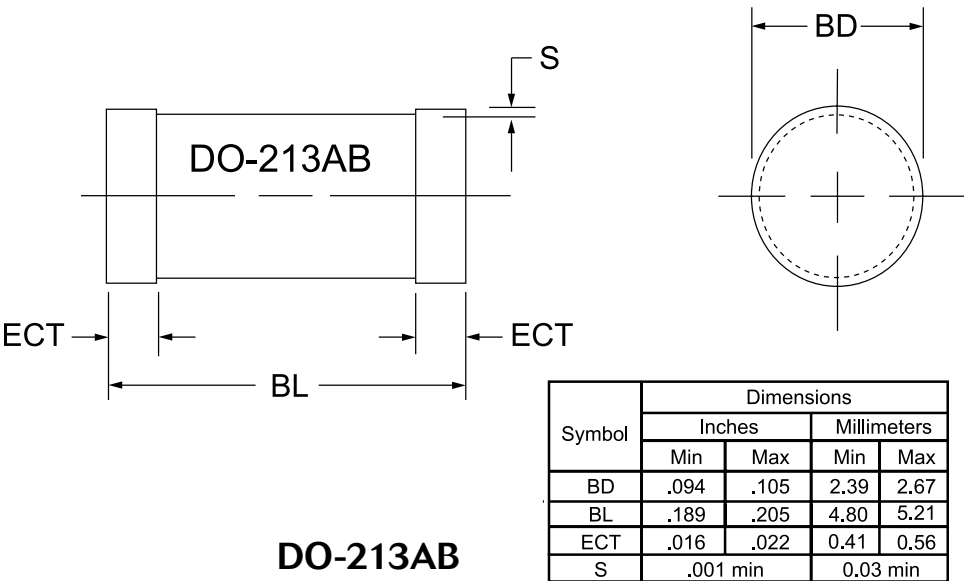
\* @ 5 mA for CD4153

Electrical specifications @ +25°C (unless otherwise specified). **CD6640 AVAILABLE IN JANHC AND JANKC PER MIL-PRF-19500/609.**

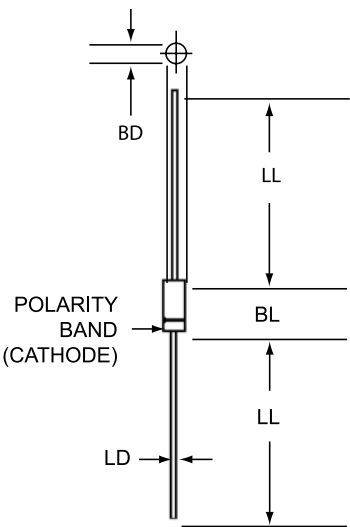
# Diode Packaging



DO-213AA

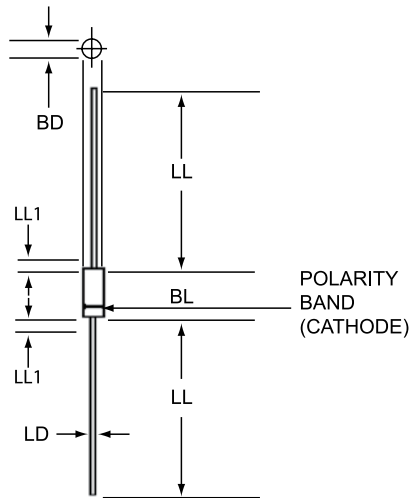


DO-213AB



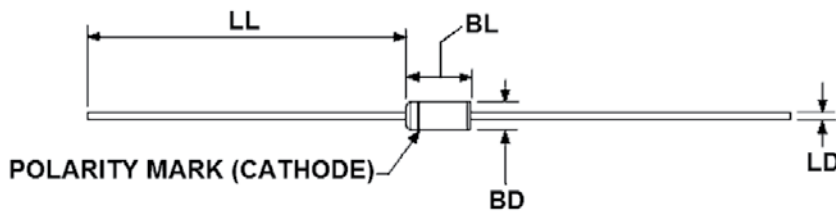
| Type               | LTR | Dimensions |       |             |       |
|--------------------|-----|------------|-------|-------------|-------|
|                    |     | Inches     |       | Millimeters |       |
|                    |     | MIN        | MAX   | MIN         | MAX   |
| 1N4148-1<br>14914  | BD  | .056       | .075  | 1.42        | 1.91  |
|                    | BL  | .140       | .180  | 3.56        | 4.57  |
|                    | LD  | .018       | .022  | 0.46        | 0.56  |
| (DO-35)            | LL  | 1.000      | 1.500 | 25.40       | 38.10 |
| 1N41531<br>(DO-34) | BD  | .050       | .075  | 1.27        | 1.90  |
|                    | BL  | .080       | .120  | 2.03        | 3.05  |
|                    | LD  | .018       | .022  | 0.46        | 0.56  |
|                    | LL  | 1.000      | 1.500 | 25.40       | 38.10 |

DO-34, DO-35



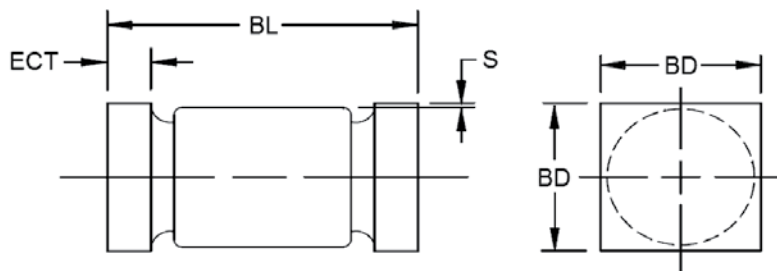
| Symbol | Dimensions |       |             |       |
|--------|------------|-------|-------------|-------|
|        | Inches     |       | Millimeters |       |
|        | MIN        | MAX   | MIN         | MAX   |
| BD     | .060       | .107  | 1.52        | 2.72  |
| BL     | .120       | .300  | 3.05        | 7.62  |
| LD     | .018       | .022  | 0.46        | 0.58  |
| LL     | 1.000      | 1.500 | 25.40       | 38.10 |
| LL1    |            | 0.050 |             | 1.27  |

**DO-7**



| Symbol | Dimensions |      |             |       |
|--------|------------|------|-------------|-------|
|        | Inches     |      | Millimeters |       |
|        | MIN        | MAX  | MIN         | MAX   |
| BD     | .059       | .080 | 1.42        | 2.03  |
| BL     | .130       | .180 | 3.30        | 4.57  |
| LD     | .018       | .022 | 0.46        | 0.56  |
| LL     | 1.00       | 1.50 | 25.40       | 38.10 |

**D-5D**



| Symbol | Dimensions |      |             |      |
|--------|------------|------|-------------|------|
|        | Inches     |      | Millimeters |      |
|        | MIN        | MAX  | MIN         | MAX  |
| BD     | .070       | .085 | 1.78        | 2.16 |
| BL     | .165       | .195 | 4.19        | 4.95 |
| ECT    | .019       | .028 | 0.48        | 0.71 |
| S      | 0.003      |      | 0.08        |      |

**D-5DUS**

# Transistors for HiRel Applications



## NPN Transistors

aeroflex.com/transistors

|                 | Slash Sheet | $V_{CE(sus)}$ | $V_{CBO}$ | $I_{C(max)}$ | $h_{FE} @ I_C / V_{CE}$ | $C_{obo}$ | $f_t$ | Package           |
|-----------------|-------------|---------------|-----------|--------------|-------------------------|-----------|-------|-------------------|
| NPN Transistors |             | Volts         | Volts     | Amps         | min/max@A/V             | pF        | MHz   |                   |
| 2N3055          | 407         | 70            | 100       | 15           | 20/60 @ 4/4             | 700       | 0.8   | TO-3              |
| 2N3418*         | 393         | 60            | 85        | 3            | 20/60 @ 1/2             | 150       | 26    | TO-5 / TO-39      |
| 2N3419*         | 393         | 80            | 125       | 3            | 20/60 @ 1/2             | 150       | 26    | TO-5 / TO-39      |
| 2N3420*         | 393         | 60            | 85        | 3            | 40/20 @ 1/2             | 150       | 26    | TO-5 / TO-39      |
| 2N3421*         | 393         | 80            | 125       | 3            | 40/20 @ 1/2             | 150       | 26    | TO-5 / TO-39      |
| 2N3715          | 408         | 60            | 80        | 10           | 30/120 @ 3/2            | 500       | 4     | TO-3              |
| 2N3716          | 408         | 80            | 100       | 10           | 30/120 @ 3/2            | 500       | 4     | TO-3              |
| 2N3766          | 518         | 60            | 80        | 4            | 40/160 @ .5/5           | 50        | 10    | TO-66             |
| 2N3767          | 518         | 80            | 100       | 4            | 40/160 @ .5/5           | 50        | 10    | TO-66             |
| 2N3879          | 526         | 75            | 120       | 7            | 20/80 @ 4/5             | 175       | 40    | TO-66             |
| 2N3902          | 371         | 400           | 700       | 3.5          | 30/90 @ 1/5             | 250       | 2.5   | TO-3              |
| 2N4150*         | 394         | 70            | 100       | 10           | 40/120 @ 5/5            | 350       | 15    | TO-5 / TO-39 / U3 |
| 2N4237          | 581         | 40            | 50        | 1            | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N4238          | 581         | 60            | 80        | 1            | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N4239          | 581         | 80            | 100       | 1            | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N5152*         | 544         | 80            | 100       | 2            | 30/90 @ 2.5/5           | 250       | 60    | TO-5 / TO-39      |
| 2N5154*         | 544         | 80            | 100       | 2            | 70/200 @ 2.5/5          | 250       | 70    | TO-5 / TO-39 / U3 |
| 2N5157          | 371         | 500           | 700       | 3.5          | 30/90 @ 1/5             | 250       | 2.5   | TO-3              |
| 2N5339*         | 560         | 100           | 100       | 5            | 60/240 @ 2/2            | 250       | 30    | TO-5 / TO-39 / U3 |
| 2N5681          | 583         | 100           | 100       | 1.0          | 40/150 @ .25/2          | 50        | 30    | TO-39             |
| 2N5682          | 583         | 120           | 120       | 1.0          | 40/150 @ .25/2          | 50        | 30    | TO-39             |
| 2N6058          | 502         | 80            | 80        | 12           | 1K/18K @ 6/3            | 300       | 10    | TO-3              |
| 2N6059          | 502         | 100           | 100       | 12           | 1K/18K @ 6/3            | 300       | 10    | TO-3              |
| 2N6249          | 510         | 200           | 300       | 10           | 10/50 @ 10/3            | 500       | 2.5   | TO-3              |
| 2N6250          | 510         | 275           | 375       | 10           | 8/50 @ 10/3             | 500       | 2.5   | TO-3              |
| 2N6251          | 510         | 350           | 450       | 10           | 6/50 @ 10/3             | 500       | 2.5   | TO-3              |
| 2N6283          | 504         | 80            | 80        | 20           | 1.25K/18K @ 10/3        | 350       | 8     | TO-3              |
| 2N6284          | 504         | 100           | 100       | 20           | 1.25K/18K @ 10/3        | 350       | 8     | TO-3              |
| 2N6300          | 539         | 60            | 60        | 8            | 750/18K @ 4/3           | 200       | 25    | TO-66             |
| 2N6301          | 539         | 80            | 80        | 8            | 750/18K @ 4/3           | 200       | 25    | TO-66             |
| 2N6383          | 523         | 40            | 40        | 10           | 1K/20K @ 5/3            | 200       | 20    | TO-3              |
| 2N6384          | 523         | 60            | 60        | 10           | 1K/20K @ 5/3            | 200       | 20    | TO-3              |
| 2N6385          | 523         | 80            | 80        | 10           | 1K/20K @ 5/3            | 200       | 20    | TO-3              |
| 2N6674          | 537         | 300           | 450       | 15           | 8/20 @ 10/2             | 500       | 15    | TO-3              |
| 2N6675          | 537         | 400           | 650       | 15           | 8/20 @ 10/2             | 500       | 15    | TO-3              |
| 2N6676          | 538         | 300           | 450       | 15           | 8/20 @ 15/3             | 500       | 15    | TO-3              |
| 2N6678          | 538         | 400           | 650       | 15           | 8/20 @ 15/3             | 500       | 15    | TO-3              |

AVAILABLE IN JAN, JANTX AND JANTXV PER APPLICABLE SLASH SHEET.

\* ALSO AVAILABLE IN JANS.



## NPN RadHard Small Signal Transistors

aeroflex.com/transistors

|                                  | Slash Sheet | $V_{CE(sus)}$ | $V_{CBO}$ | $I_{C(max)}$ | $h_{FE} @ I_C / V_{CE}$ | $C_{obo}$ | $f_t$ | Package       |
|----------------------------------|-------------|---------------|-----------|--------------|-------------------------|-----------|-------|---------------|
| RadHard Small Signal Transistors |             | Volts         | Volts     | Amps         | min/max@A/V             | pF        | MHz   |               |
| JANS2N2219                       | 251         | 50            | 75        | 0.8          | 100/300 @ .15/10        | 8         | 250   | TO-5 / TO-39  |
| JANS2N2222A                      | 255         | 50            | 75        | 0.8          | 100/300 @ .15/10        | 8         | 250   | TO-18, UA, UB |
| JANS2N2484                       | 376         | 60            | 60        | 0.05         | 250/800 @ .001/5        | 5         | 60    | TO-18, UA, UB |
| JANS2N3019                       | 391         | 80            | 140       | 1            | 100/300 @ .15/10        | 12        | 100   | TO-5 / TO-39  |
| JANS2N3700                       | 391         | 80            | 140       | 1            | 100/300 @ .15/10        | 12        | 100   | TO-18, UA, UB |

JANS2N2222A, UA AND UB QUALIFIED TO MIL-PRF-19500/255.

# Transistors for HiRel Applications

## PNP Transistors

aeroflex.com/transistors



| PNP Transistors | Slash Sheet | $V_{CE0}$ (slug) | $V_{CB0}$ | $I_C$ (max) | $h_{FE} @ I_C / V_{CE}$ | $C_{obo}$ | $f_T$ | Package           |
|-----------------|-------------|------------------|-----------|-------------|-------------------------|-----------|-------|-------------------|
| 2N3740*         | 441         | 60               | 60        | 4           | 30/120 @ .25/1          | 100       | 5     | TO-66             |
| 2N3741*         | 441         | 80               | 80        | 4           | 30/120 @ .25/1          | 100       | 5     | TO-66             |
| 2N3791          | 379         | 60               | 60        | 10          | 30/120 @ 3/2            | 500       | 4     | TO-3              |
| 2N3792          | 379         | 80               | 80        | 10          | 30/120 @ 3/2            | 500       | 4     | TO-3              |
| 2N3867*         | 350         | 40               | 40        | 3           | 40/200 @ 1.5/2          | 120       | 60    | TO-5 / TO-39      |
| 2N3868*         | 350         | 60               | 60        | 3           | 30/150 @ 1.5/2          | 120       | 60    | TO-5 / TO-39      |
| 2N4234          | 580         | 40               | 40        | 1           | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N4235          | 580         | 60               | 60        | 1           | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N4236          | 580         | 80               | 80        | 1           | 30/150 @ .25/1          | 100       | 30    | TO-39             |
| 2N5151*         | 545         | 80               | 100       | 2           | 30/90 @ 2.5/5           | 250       | 60    | TO-5 / TO-39      |
| 2N5153*         | 545         | 80               | 100       | 2           | 70/200 @ 2.5/5          | 250       | 70    | TO-5 / TO-39 / U3 |
| 2N5679          | 582         | 100              | 100       | 1           | 40/150 @ .25/2          | 50        | 30    | TO-39             |
| 2N5680          | 582         | 120              | 120       | 1           | 40/150 @ .25/2          | 50        | 30    | TO-39             |
| 2N6051          | 501         | 80               | 80        | 12          | 1K/18K @ 6/3            | 300       | 10    | TO-3              |
| 2N6052          | 501         | 100              | 100       | 12          | 1K/18K @ 6/3            | 300       | 10    | TO-3              |
| 2N6193*         | 561         | 100              | 100       | 5           | 60/240 @ 2/2            | 300       | 30    | TO-5 / TO-39 / U3 |
| 2N6286          | 505         | 80               | 80        | 20          | 1.25K/18K @ 10/3        | 400       | 8     | TO-3              |
| 2N6287          | 505         | 100              | 100       | 20          | 1.25K/18K @ 10/3        | 400       | 8     | TO-3              |
| 2N6298          | 540         | 60               | 60        | 8           | 750/18K @ 4/3           | 200       | 25    | TO-66             |
| 2N6299          | 540         | 80               | 80        | 8           | 750/18K @ 4/3           | 200       | 25    | TO-66             |

AVAILABLE IN JAN, JANTX, AND JANTXV.

\* ALSO AVAILABLE IN JANS.



## PNP RadHard Small Signal Transistors

aeroflex.com/transistors

| RadHard Small Signal Transistors | Slash Sheet | $V_{CE0}$ (slug) | $V_{CB0}$ | $I_C$ (max) | $h_{FE} @ I_C / V_{CE}$ | $C_{obo}$ | $f_T$ | Package       |
|----------------------------------|-------------|------------------|-----------|-------------|-------------------------|-----------|-------|---------------|
| JANS2N2905A*                     | 290         | 60               | 60        | 0.6         | 100/300 @ .15/10        | 8         | 200   | TO-5 / TO-39  |
| JANS2N2907A*                     | 291         | 60               | 60        | 0.6         | 100/300 @ .15/10        | 8         | 250   | TO-18, UA, UB |

\* JANS AND JANSR COMING SOON.



## Silicon Controlled Rectifiers

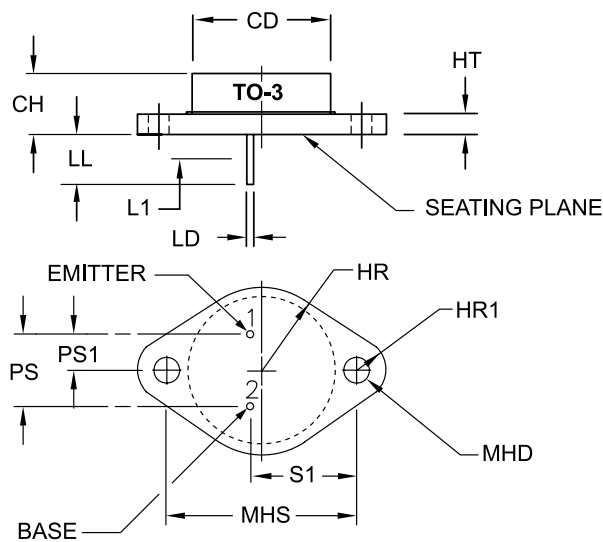
aeroflex.com/transistors

| Silicon Controlled Rectifiers | Slash Sheet | $V_{DRM}$ | $I_O$ | $I_{max}$ | $V_{GT}$  | $I_{GT}$ | $I_{HOX}$ | Package |
|-------------------------------|-------------|-----------|-------|-----------|-----------|----------|-----------|---------|
| 2N2323                        | 276         | 50        | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-5    |
| 2N2323S                       | 276         | 50        | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-39   |
| 2N2323A                       | 276         | 50        | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-5    |
| 2N2323AS                      | 276         | 50        | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-39   |
| 2N2324                        | 276         | 100       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-5    |
| 2N2324S                       | 276         | 100       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-39   |
| 2N2324A                       | 276         | 100       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-5    |
| 2N2324AS                      | 276         | 100       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-39   |
| 2N2326                        | 276         | 200       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-5    |
| 2N2326S                       | 276         | 200       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-39   |
| 2N2326A                       | 276         | 200       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-5    |
| 2N2326AS                      | 276         | 200       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-39   |
| 2N2328                        | 276         | 300       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-5    |
| 2N2328S                       | 276         | 300       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-39   |
| 2N2328A                       | 276         | 300       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-5    |
| 2N2328AS                      | 276         | 300       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-39   |
| 2N2329                        | 276         | 400       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-5    |
| 2N2329S                       | 276         | 400       | 220   | 10        | 0.35/0.80 | 200      | 2         | TO-39   |
| 2N2329A                       | 276         | 400       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-5    |
| 2N2329AS                      | 276         | 400       | 220   | 10        | 0.35/0.60 | 20       | 2         | TO-39   |

AVAILABLE IN JAN, JANTX AND JANTXV.

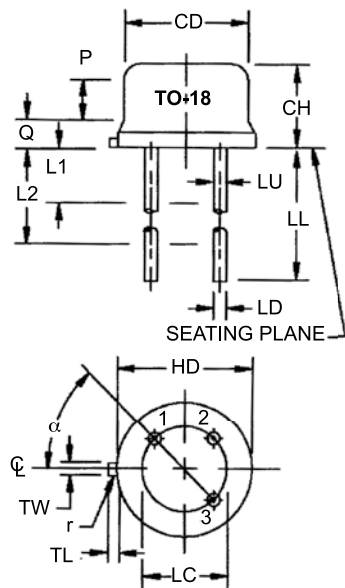
# Transistor Packaging

TO-3



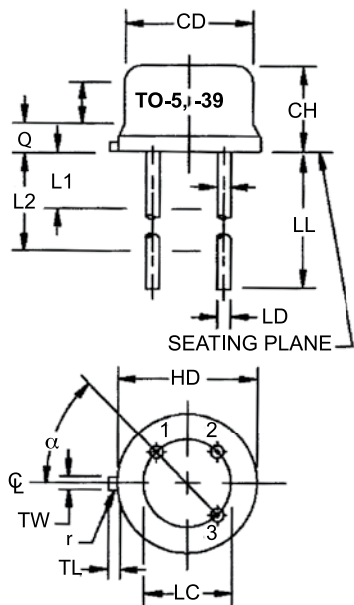
| LTR | Dimensions |       |             |       |
|-----|------------|-------|-------------|-------|
|     | Inches     |       | Millimeters |       |
|     | MIN        | MAX   | MIN         | MAX   |
| CD  |            | .875  |             | 22.23 |
| CH  | .250       | .450  | 6.35        | 11.43 |
| HR  | .495       | .525  | 12.57       | 13.34 |
| HR1 | .131       | .188  | 3.33        | 4.78  |
| HT  | .050       | .135  | 1.27        | 3.43  |
| LD  | .038       | .053  | 0.97        | 1.35  |
| LL  | .312       | .500  | 7.92        | 12.70 |
| L1  |            | .050  |             | 1.27  |
| MHO | .151       | .161  | 3.84        | 4.09  |
| MHS | 1.177      | 1.197 | 29.90       | 30.40 |
| PS  | .420       | .440  | 10.67       | 11.18 |
| PS1 | .205       | .25   | 5.21        | 6.35  |
| S1  | .665       | .675  | 16.89       | 17.15 |

TO-18



| LTR             | Dimensions |      |             |       |
|-----------------|------------|------|-------------|-------|
|                 | Inches     |      | Millimeters |       |
|                 | MIN        | MAX  | MIN         | MAX   |
| CD              | .178       | .195 | 4.52        | 4.95  |
| CH              | .170       | .210 | 4.32        | 5.33  |
| HD              | .209       | .230 | 5.31        | 5.84  |
| LC              | .100 TP    |      | 2.54 TP     |       |
| LD              | .016       | .019 | .041        | .048  |
| LL              | .500       | .750 | 12.70       | 19.05 |
| LU              | .016       | .019 | .041        | .048  |
| L1              |            | .050 |             | 1.27  |
| L2              | .250       |      | 6.35        |       |
| P               | .100       |      | 2.54        |       |
| Q               |            | .030 |             | 0.76  |
| TL              | .028       | .048 | 0.71        | 1.22  |
| TW              | .036       | .046 | 0.91        | 1.17  |
| r               |            | .010 |             | 0.25  |
| $\alpha$        | 45° TP     |      | 45° TP      |       |
| 1, 2, 9, 11, 13 |            |      |             |       |

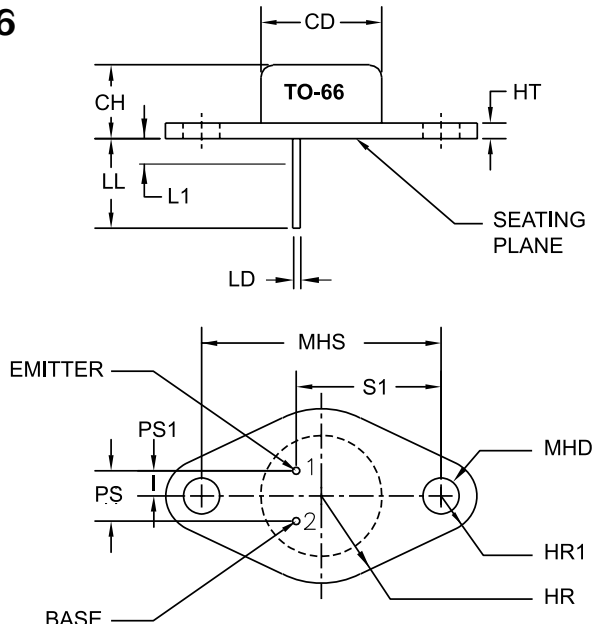
TO-5, TO-39



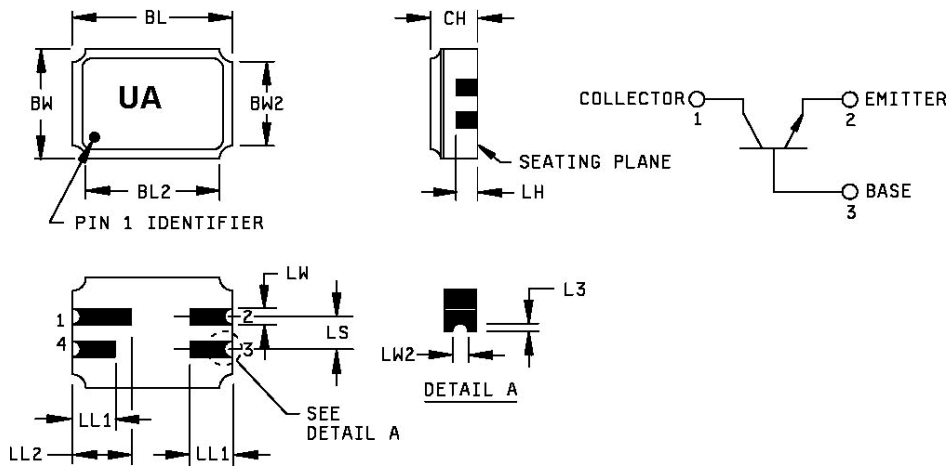
| LTR                  | Dimensions |      |             |       |
|----------------------|------------|------|-------------|-------|
|                      | Inches     |      | Millimeters |       |
|                      | MIN        | MAX  | MIN         | MAX   |
| CD                   | .305       | .335 | 7.75        | 8.51  |
| CH                   | .240       | .260 | 6.10        | 6.60  |
| HD                   | .335       | .370 | 8.51        | 9.40  |
| LC                   | .200 TP    |      | 5.08 TP     |       |
| LD                   | .016       | .019 | .041        | .048  |
| LL                   | .500       | .750 | 12.7        | 19.05 |
| LU                   | .016       | .019 | .041        | .048  |
| L1                   |            | .050 |             | 1.27  |
| L2                   | .250       |      | 6.35        |       |
| P                    | .100       |      | 2.54        |       |
| Q                    |            | .030 |             | 0.76  |
| TL                   | .029       | .045 | 0.74        | 1.14  |
| TW                   | .028       | .034 | 0.71        | 0.86  |
| r                    |            | .010 |             | 0.25  |
| $\alpha$             | 45° TP     |      | 45° TP      |       |
| 1, 2, 10, 12, 13, 14 |            |      |             |       |

TO-5 LL dimension shall be 1.5 inches max (38.1 mm) minimum and 1.75 inches (44.4 mm) maximum

## TO-66



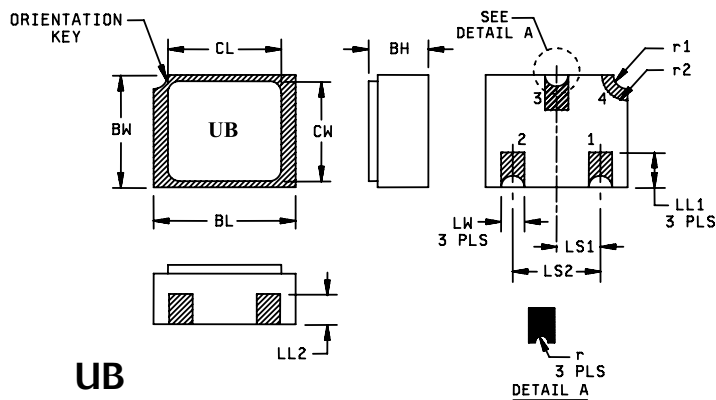
| LTR | Dimensions |      |             |       |
|-----|------------|------|-------------|-------|
|     | Inches     |      | Millimeters |       |
|     | MIN        | MAX  | MIN         | MAX   |
| CD  |            | .875 |             | 15.75 |
| CH  | .250       | .340 | 6.35        | 8.64  |
| HT  | .050       | .075 | 1.27        | 1.91  |
| HR  |            | .350 |             | 8.89  |
| HR1 | .115       | .145 | 2.92        | 3.68  |
| LD  | .028       | .034 | 0.71        | 0.86  |
| LL  | .360       | .500 | 9.14        | 12.70 |
| L1  |            | .050 |             | 1.27  |
| MHD | .142       | .152 | 3.61        | 3.86  |
| MHS | .958       | .962 | 24.33       | 24.43 |
| PS  | .190       | .210 | 4.83        | 5.33  |
| PS1 | .095       | .105 | 2.41        | 2.66  |
| S1  | .570       | .590 | 14.48       | 14.99 |



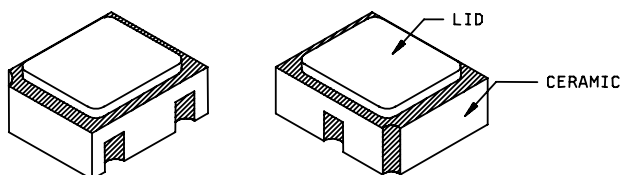
| Symbol | Dimensions |      |             |      |
|--------|------------|------|-------------|------|
|        | Inches     |      | Millimeters |      |
|        | Min        | Max  | Min         | Max  |
| BL     | .215       | .225 | 5.46        | 5.71 |
| BL2    |            | .225 |             | 5.71 |
| BW     | .145       | .155 | 3.68        | 3.93 |
| BW2    |            | .155 |             | 3.93 |
| CH     | .061       | .075 | 1.55        | 1.90 |
| L3     | .003       | .007 | 0.08        | 0.18 |
| LH     | .029       | .042 | 0.74        | 1.07 |
| LL1    | .032       | .048 | 0.81        | 1.22 |
| LL2    | .072       | .088 | 1.83        | 2.23 |
| LS     | .045       | .055 | 1.14        | 1.39 |
| LW     | .022       | .028 | 0.56        | 0.71 |
| LW2    | .006       | .022 | 0.15        | 0.56 |

| Pin no.    | 1         | 2       | 3    | 4   |
|------------|-----------|---------|------|-----|
| Transistor | Collector | Emitter | Base | N/C |

## UA



## UB



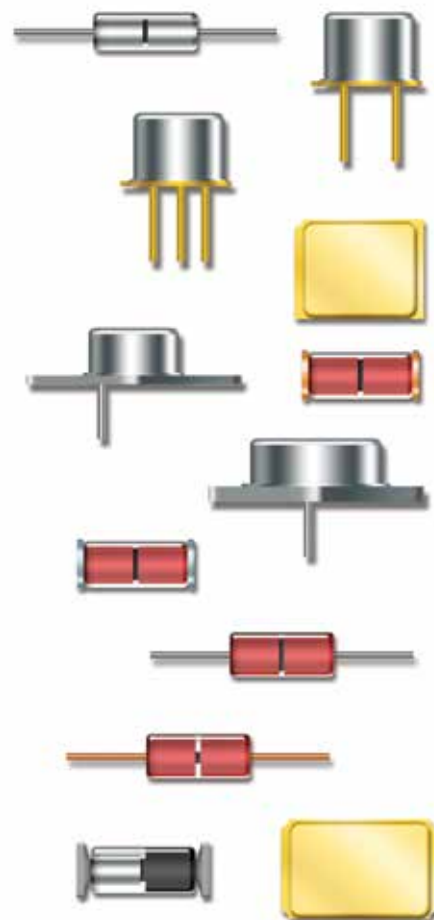
| Symbol          | Dimensions |      |             |      |
|-----------------|------------|------|-------------|------|
|                 | Inches     |      | Millimeters |      |
|                 | Min        | Max  | Min         | Max  |
| BH              | .046       | .056 | 1.17        | 1.42 |
| BL              | .115       | .128 | 2.92        | 3.25 |
| BW              | .085       | .108 | 2.16        | 2.74 |
| CL              |            | .128 |             | 3.25 |
| CW              |            | .108 |             | 2.74 |
| LL1             | .022       | .038 | 0.56        | 0.96 |
| LL2             | .017       | .035 | 0.43        | 0.89 |
| LS <sub>1</sub> | .036       | .040 | 0.91        | 1.02 |
| LS <sub>2</sub> | .071       | .079 | 1.81        | 2.01 |
| LW              | .016       | .024 | 0.41        | 0.61 |
| r               |            | .008 |             | .203 |
| r <sub>1</sub>  |            | .012 |             | .305 |
| r <sub>2</sub>  |            | .022 |             | .559 |

## Product Portfolio:

- Current offerings include Switching, TC Zeners, Zener Diodes, Current Regulators, Transistors and JANHC, JANKC Chips
- Qualifications coming for Schottkys, RadHard Transistors, Ultra Fast Rectifiers and 1.5W and 5W Zeners
- Class H and K Element Evaluation
- Test Lab Services

## Certifications:

- JANS Certified Diode and Transistor manufacturing lines per MIL-PRF-19500
- MIL-STD-750 Lab Suitability Status
- ISO9001-2008 Certified



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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