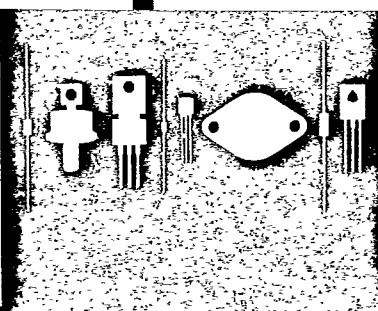


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1N5518, A, B, C, D

THRU

1N5546, A, B, C, D

LOW LEAKAGE, LOW NOISE ZENER DIODE

JEDEC DO-7 CASE

## DESCRIPTION

The Central Semiconductor 1N5518 Series types are Silicon Avalanche Zener Diodes designed for applications requiring low noise, low leakage, low current and low impedance.

## MAXIMUM RATINGS ( $T_A = 50^\circ\text{C}$ )

|                       | SYMBOL         | UNIT                         |
|-----------------------|----------------|------------------------------|
| Power Dissipation     | $P_D$          | 400. mW                      |
| Operating and Storage |                |                              |
| Junction Temperature  | $T_J, T_{stg}$ | -65 TO +200 $^\circ\text{C}$ |

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| JEDEC<br>Type<br>No.<br>(note 1) | Nominal<br>Zener<br>Voltage<br>$V_Z @ I_{ZT}$<br>(volts) | Test<br>Current<br>$I_{ZT}$<br>(ma) | Max.<br>Zener<br>Impedance<br>$Z_{ZT} @ I_{ZT}$<br>(ohms)<br>(Note 2) | Max. Reverse<br>Leakage Current        |                | Max. Noise<br>Density at<br>$I_Z = 250 \mu\text{A}$<br>$N_p$<br>$\mu\text{V}/\sqrt{\text{Hz}}$<br>(Note 4) | Max. Regulation<br>Factor (Note 5) |                  | Max.<br>Regulator<br>Current<br>$I_{ZM}$<br>(mA) | Reverse<br>Surge<br>Current<br>$I_P$ (Surge)<br>(mA)<br>(Note 6) | Maximum<br>Temperature<br>Coefficient<br>(%/°C)<br>(+25 to<br>+125°C) |
|----------------------------------|----------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------|----------------------------------------|----------------|------------------------------------------------------------------------------------------------------------|------------------------------------|------------------|--------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------|
|                                  |                                                          |                                     |                                                                       | $I_R$<br>( $\mu\text{A}$ )<br>(Note 3) | $V_R$<br>Volts |                                                                                                            | $\Delta V_Z$<br>(volts)            | $I_{ZL}$<br>(mA) |                                                  |                                                                  |                                                                       |
| 1N5518                           | 3.3                                                      | 20                                  | 26                                                                    | 5.0                                    | 0.9            | 0.5                                                                                                        | 0.90                               | 2.0              | 115                                              | 1800                                                             | -.07                                                                  |
| 1N5519                           | 3.6                                                      | 20                                  | 24                                                                    | 3.0                                    | 0.9            | 0.5                                                                                                        | 0.90                               | 2.0              | 105                                              | 1650                                                             | -.065                                                                 |
| 1N5520                           | 3.9                                                      | 20                                  | 22                                                                    | 1.0                                    | 0.9            | 0.5                                                                                                        | 0.85                               | 2.0              | 98                                               | 1500                                                             | -.060                                                                 |
| 1N5521                           | 4.3                                                      | 20                                  | 18                                                                    | 3.0                                    | 1.0            | 0.5                                                                                                        | 0.75                               | 2.0              | 88                                               | 1400                                                             | -.055 +.020                                                           |
| 1N5522                           | 4.7                                                      | 10                                  | 22                                                                    | 2.0                                    | 1.5            | 0.5                                                                                                        | 0.60                               | 1.0              | 81                                               | 1270                                                             | -.043 +.025                                                           |
| 1N5523                           | 5.1                                                      | 5                                   | 26                                                                    | 2.0                                    | 2.0            | 0.5                                                                                                        | 0.65                               | 0.25             | 75                                               | 1170                                                             | -.030 +.030                                                           |
| 1N5524                           | 5.6                                                      | 3                                   | 30                                                                    | 2.0                                    | 3.0            | 1.0                                                                                                        | 0.30                               | 0.25             | 68                                               | 1080                                                             | -.030 +.045                                                           |
| 1N5525                           | 6.2                                                      | 1                                   | 30                                                                    | 1.0                                    | 4.5            | 1.0                                                                                                        | 0.20                               | 0.01             | 61                                               | 965                                                              | +.050                                                                 |
| 1N5526                           | 6.8                                                      | 1                                   | 30                                                                    | 1.0                                    | 5.5            | 1.0                                                                                                        | 0.10                               | 0.01             | 56                                               | 870                                                              | +.052                                                                 |
| 1N5527                           | 7.5                                                      | 1                                   | 35                                                                    | 0.5                                    | 6.0            | 2.0                                                                                                        | 0.05                               | 0.01             | 51                                               | 810                                                              | +.058                                                                 |
| 1N5528                           | 8.2                                                      | 1                                   | 40                                                                    | 0.5                                    | 6.5            | 4.0                                                                                                        | 0.05                               | 0.01             | 46                                               | 740                                                              | +.062                                                                 |
| 1N5529                           | 9.1                                                      | 1                                   | 45                                                                    | 0.1                                    | 7.0            | 4.0                                                                                                        | 0.05                               | 0.01             | 42                                               | 650                                                              | +.068                                                                 |
| 1N5530                           | 10.0                                                     | 1                                   | 60                                                                    | 0.05                                   | 8.0            | 4.0                                                                                                        | 0.10                               | 0.01             | 38                                               | 600                                                              | +.075                                                                 |
| 1N5531                           | 11.0                                                     | 1                                   | 80                                                                    | 0.05                                   | 9.0            | 5.0                                                                                                        | 0.20                               | 0.01             | 35                                               | 540                                                              | +.075                                                                 |
| 1N5532                           | 12.0                                                     | 1                                   | 90                                                                    | 0.05                                   | 9.5            | 10                                                                                                         | 0.20                               | 0.01             | 32                                               | 500                                                              | +.080                                                                 |
| 1N5533                           | 13.0                                                     | 1                                   | 90                                                                    | 0.01                                   | 10.5           | 15                                                                                                         | 0.20                               | 0.01             | 29                                               | 470                                                              | +.080                                                                 |
| 1N5534                           | 14.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 11.5           | 20                                                                                                         | 0.20                               | 0.01             | 27                                               | 850                                                              | +.082                                                                 |
| 1N5535                           | 15.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 12.5           | 20                                                                                                         | 0.20                               | 0.01             | 25                                               | 800                                                              | +.082                                                                 |
| 1N5536                           | 16.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 13.0           | 20                                                                                                         | 0.20                               | 0.01             | 24                                               | 750                                                              | +.083                                                                 |
| 1N5537                           | 17.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 14.0           | 20                                                                                                         | 0.20                               | 0.01             | 22                                               | 700                                                              | +.085                                                                 |
| 1N5538                           | 18.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 15.0           | 20                                                                                                         | 0.20                               | 0.01             | 21                                               | 665                                                              | +.085                                                                 |
| 1N5539                           | 19.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 16.0           | 20                                                                                                         | 0.20                               | 0.01             | 20                                               | 630                                                              | +.086                                                                 |
| 1N5540                           | 20.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 17.0           | 20                                                                                                         | 0.20                               | 0.01             | 19                                               | 600                                                              | +.086                                                                 |
| 1N5541                           | 22.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 18.0           | 20                                                                                                         | 0.25                               | 0.01             | 17                                               | 541                                                              | +.087                                                                 |
| 1N5542                           | 24.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 20.0           | 20                                                                                                         | 0.30                               | 0.01             | 16                                               | 511                                                              | +.088                                                                 |
| 1N5543                           | 25.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 21.0           | 20                                                                                                         | 0.35                               | 0.01             | 15                                               | 481                                                              | +.090                                                                 |
| 1N5544                           | 28.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 23.0           | 20                                                                                                         | 0.40                               | 0.01             | 14                                               | 431                                                              | +.091                                                                 |
| 1N5545                           | 30.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 24.0           | 20                                                                                                         | 0.45                               | 0.01             | 13                                               | 400                                                              | +.091                                                                 |
| 1N5546                           | 33.0                                                     | 1                                   | 100                                                                   | 0.01                                   | 28.0           | 20                                                                                                         | 0.50                               | 0.01             | 12                                               | 360                                                              | +.092                                                                 |

Note 1: Suffix denotes  $V_Z$  tolerance: none for  $\pm 20\%$ , A for  $\pm 10\%$ , B for  $\pm 5\%$ , C for  $\pm 2\%$ , D for  $\pm 1\%$ .

Note 2: Measured with 10%, 60 Hz AC superimposed on  $I_{ZT}$ .

Note 3: Measured at  $V_R$  as shown in the table.

Note 4: Measured from 1000 to 3000 Hz.

Note 5: Difference between  $V_Z$  at  $I_{ZT}$  and  $I_{ZL}$ .

Note 6: Peak current superimposed on  $I_{ZT}$ ; device will withstand a total of five surges at one minute intervals, each surge being a  $\frac{1}{2}$  square wave pulse of 8.0 msec. duration or an equivalent  $\frac{1}{2}$  sinewave with the same effective rms current.