

## 1.5KE6.8(C)A - 1.5KE440(C)A

### Features

- Glass passivated junction.
- 1500W Peak Pulse Power capability at 1.0 ms.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time; typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0 ns for bidirectional.
- Typical  $I_R$  less than 1.0  $\mu$ A above 10V.
- UL certified, UL #E210467.



**DO-201AE**

COLOR BAND DENOTES CATHODE  
ON UNIDIRECTIONAL DEVICES ONLY. NO  
COLOR BAND ON BIDIRECTIONAL  
DEVICES.

### DEVICES FOR BIPOLAR APPLICATIONS

- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

## 1500 Watt Transient Voltage Suppressors

### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol    | Parameter                                                                                       | Value        | Units            |
|-----------|-------------------------------------------------------------------------------------------------|--------------|------------------|
| $P_{PPM}$ | Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$ , $T_P=1\text{ms}$                     | minimum 1500 | W                |
| $I_{PPM}$ | Peak Pulse Current                                                                              | see table    | A                |
| $P_D$     | Steady State Power Dissipation<br>.375 " lead length @ $T_A = 75^\circ\text{C}$                 | 5.0          | W                |
| $I_{FSM}$ | Non-repetitive Peak Forward Surge Current<br>superimposed on rated load (JEDEC method) (Note 1) | 200          | A                |
| $T_{stg}$ | Storage Temperature Range                                                                       | -65 to +175  | $^\circ\text{C}$ |
| $T_J$     | Operating Junction Temperature                                                                  | -65 to +175  | $^\circ\text{C}$ |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**Note 1:** Measured on 8.3 ms single half-sine wave; Duty cycle = 4 pulses per minute maximum.

## Transient Voltage Suppressors

(continued)

### Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Uni-directional<br>Bi-directional (C)<br>Device | Reverse<br>Stand-off Voltage<br>$V_{RWM}$ (V) | Breakdown Voltage<br>$V_{BR}$ (V) |       | Test<br>Current<br>$I_T$ (mA) | Max Clamping<br>Voltage @IPPM<br>$V_C$ (V) | Max Peak Pulse<br>Surge Current<br>$I_{PPM}$ (A) | Max Reverse<br>Leakage $V_{RWM}$<br>$I_R$ (uA)* |
|-------------------------------------------------|-----------------------------------------------|-----------------------------------|-------|-------------------------------|--------------------------------------------|--------------------------------------------------|-------------------------------------------------|
| 1.5KE6.8(C)A                                    | 5.80                                          | 6.45                              | 7.14  | 10                            | 10.5                                       | 143                                              | 1000                                            |
| 1.5KE7.5(C)A                                    | 6.40                                          | 7.13                              | 7.88  | 10                            | 11.3                                       | 133                                              | 500                                             |
| 1.5KE8.2(C)A                                    | 7.02                                          | 7.79                              | 8.61  | 10                            | 12.1                                       | 124                                              | 200                                             |
| 1.5KE9.1(C)A                                    | 7.78                                          | 8.65                              | 9.55  | 1                             | 13.4                                       | 112                                              | 50                                              |
| 1.5KE10(C)A                                     | 8.55                                          | 9.50                              | 10.5  | 1                             | 14.5                                       | 103                                              | 10                                              |
| 1.5KE11(C)A                                     | 9.40                                          | 10.5                              | 11.6  | 1                             | 15.6                                       | 96.2                                             | 5                                               |
| 1.5KE12(C)A                                     | 10.2                                          | 11.4                              | 12.6  | 1                             | 16.7                                       | 90.0                                             | 5                                               |
| 1.5KE13(C)A                                     | 11.1                                          | 12.4                              | 13.7  | 1                             | 18.2                                       | 82.0                                             | 5                                               |
| 1.5KE15(C)A                                     | 12.8                                          | 14.3                              | 15.8  | 1                             | 21.2                                       | 71.0                                             | 5                                               |
| 1.5KE16(C)A                                     | 13.6                                          | 15.2                              | 16.8  | 1                             | 22.5                                       | 67.0                                             | 5                                               |
| 1.5KE18(C)A                                     | 15.3                                          | 17.1                              | 18.9  | 1                             | 26.2                                       | 59.5                                             | 5                                               |
| 1.5KE20(C)A                                     | 17.1                                          | 19.0                              | 21.0  | 1                             | 27.7                                       | 54.2                                             | 5                                               |
| 1.5KE22(C)A                                     | 18.8                                          | 20.9                              | 23.1  | 1                             | 30.6                                       | 49.0                                             | 5                                               |
| 1.5KE24(C)A                                     | 20.5                                          | 22.8                              | 25.2  | 1                             | 33.2                                       | 45.2                                             | 5                                               |
| 1.5KE27(C)A                                     | 23.1                                          | 25.7                              | 28.4  | 1                             | 37.5                                       | 40.0                                             | 5                                               |
| 1.5KE30(C)A                                     | 25.6                                          | 28.5                              | 31.5  | 1                             | 41.4                                       | 36.2                                             | 5                                               |
| 1.5KE33(C)A                                     | 28.2                                          | 31.4                              | 34.7  | 1                             | 45.7                                       | 33.0                                             | 5                                               |
| 1.5KE36(C)A                                     | 30.8                                          | 34.2                              | 37.8  | 1                             | 49.9                                       | 30.1                                             | 5                                               |
| 1.5KE39(C)A                                     | 33.3                                          | 37.1                              | 41.0  | 1                             | 53.9                                       | 28.0                                             | 5                                               |
| 1.5KE43(C)A                                     | 36.8                                          | 40.9                              | 45.2  | 1                             | 59.3                                       | 25.3                                             | 5                                               |
| 1.5KE47(C)A                                     | 40.2                                          | 44.7                              | 49.4  | 1                             | 64.8                                       | 23.2                                             | 5                                               |
| 1.5KE51(C)A                                     | 43.6                                          | 48.5                              | 53.6  | 1                             | 70.1                                       | 21.4                                             | 5                                               |
| 1.5KE56(C)A                                     | 47.8                                          | 53.2                              | 58.8  | 1                             | 77.0                                       | 19.5                                             | 5                                               |
| 1.5KE62(C)A                                     | 53.0                                          | 58.9                              | 65.1  | 1                             | 85.0                                       | 17.7                                             | 5                                               |
| 1.5KE68(C)A                                     | 58.1                                          | 64.6                              | 71.4  | 1                             | 92.0                                       | 16.3                                             | 5                                               |
| 1.5KE75(C)A                                     | 64.1                                          | 71.3                              | 78.8  | 1                             | 104.0                                      | 14.6                                             | 5                                               |
| 1.5KE82(C)A                                     | 70.1                                          | 77.9                              | 86.1  | 1                             | 113.0                                      | 13.3                                             | 5                                               |
| 1.5KE91(C)A                                     | 77.8                                          | 86.5                              | 95.5  | 1                             | 125.0                                      | 12.0                                             | 5                                               |
| 1.5KE100(C)A                                    | 85.5                                          | 95.0                              | 105.0 | 1                             | 137.0                                      | 11.0                                             | 5                                               |
| 1.5KE110(C)A                                    | 94.0                                          | 106.0                             | 116.0 | 1                             | 152.0                                      | 9.9                                              | 5                                               |
| 1.5KE120(C)A                                    | 102.0                                         | 114.0                             | 126.0 | 1                             | 165.0                                      | 9.1                                              | 5                                               |
| 1.5KE130(C)A                                    | 111.0                                         | 124.0                             | 137.0 | 1                             | 179.0                                      | 8.4                                              | 5                                               |
| 1.5KE150(C)A                                    | 128.0                                         | 143.0                             | 158.0 | 1                             | 207.0                                      | 7.2                                              | 5                                               |
| 1.5KE160(C)A                                    | 136.0                                         | 152.0                             | 168.0 | 1                             | 219.0                                      | 6.8                                              | 5                                               |
| 1.5KE170(C)A                                    | 145.0                                         | 162.0                             | 179.0 | 1                             | 234.0                                      | 6.4                                              | 5                                               |
| 1.5KE180(C)A                                    | 154.0                                         | 171.0                             | 189.0 | 1                             | 246.0                                      | 6.1                                              | 5                                               |
| 1.5KE200(C)A                                    | 171.0                                         | 190.0                             | 210.0 | 1                             | 274.0                                      | 5.5                                              | 5                                               |
| 1.5KE220(C)A                                    | 185.0                                         | 209.0                             | 231.0 | 1                             | 328.0                                      | 4.6                                              | 5                                               |
| 1.5KE250(C)A                                    | 214.0                                         | 237.0                             | 263.0 | 1                             | 344.0                                      | 4.5                                              | 5                                               |
| 1.5KE300(C)A                                    | 256.0                                         | 285.0                             | 315.0 | 1                             | 414.0                                      | 3.8                                              | 5                                               |
| 1.5KE350(C)A                                    | 300.0                                         | 333.0                             | 368.0 | 1                             | 482.0                                      | 3.2                                              | 5                                               |
| 1.5KE400(C)A                                    | 342.0                                         | 380.0                             | 420.0 | 1                             | 548.0                                      | 2.8                                              | 5                                               |
| 1.5KE440(C)A                                    | 376.0                                         | 418.0                             | 462.0 | 1                             | 602.0                                      | 2.6                                              | 5                                               |

\* For bidirectional parts with  $V_{RWM} < 10\text{V}$ , the  $I_R$  max limit is doubled.

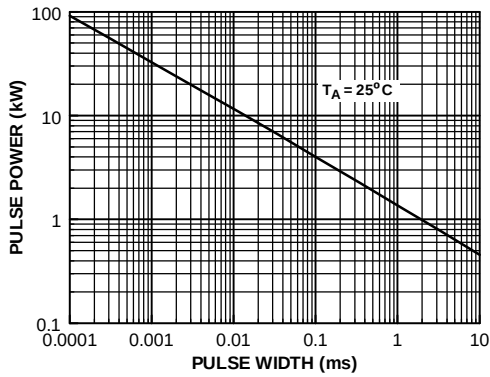
1.5KE6.8(C)A - 1.5KE440(C)A

# Transient Voltage Suppressors (continued)

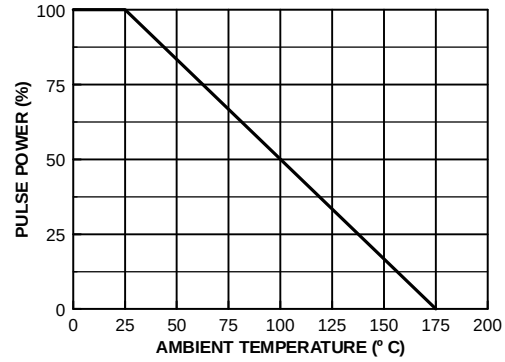
1.5KE6.8(C)A - 1.5KE440(C)A

## Typical Characteristics

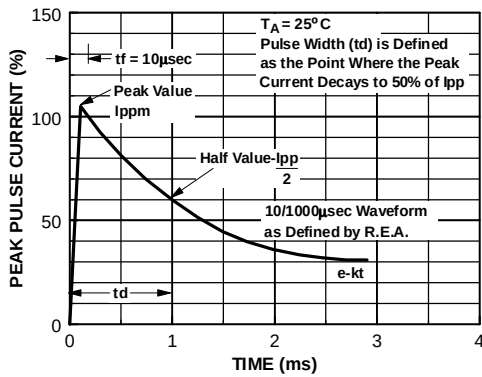
Peak Pulse Power Rating Curve



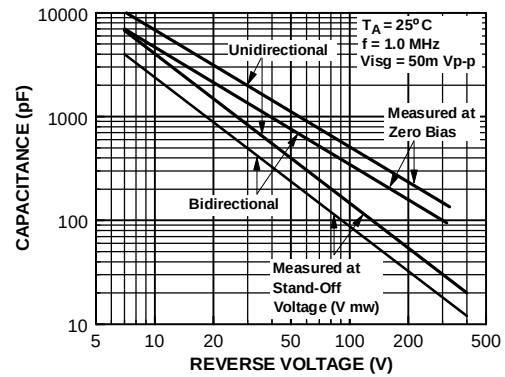
Pulse Derating Curve



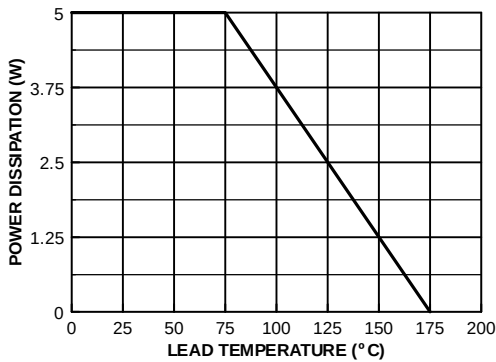
Pulse Waveform



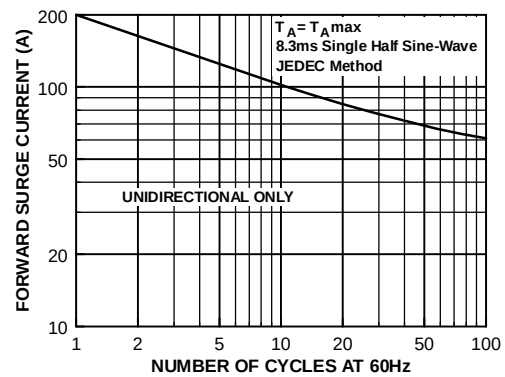
Junction Capacitance



Steady State Power Derating Curve



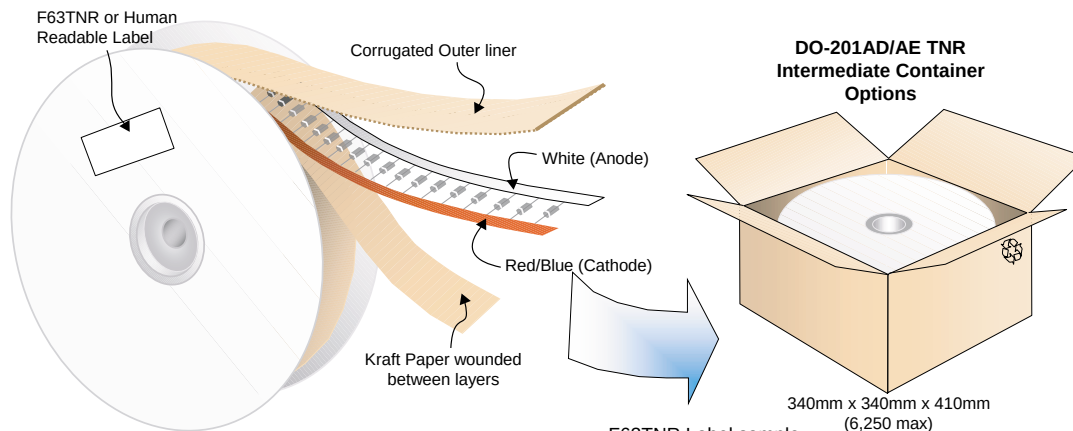
Non-Repetitive Surge Current



## DO-201AD/AE Tape and Reel Data



### DO-201AD/AE Packaging Configuration: Figure 1.0



### DO-201AD/AE Packaging Information Table : Figure 2.0

| DO-201AD/AE Packaging Information |                       |
|-----------------------------------|-----------------------|
| Packaging Option                  | Under package code P3 |
| Packaging type                    | TNR                   |
| Qty per Reel/Tube/Bag             | 1250                  |
| Reel Size (inch diameter)         | 13                    |
| Inside Tape Spacing (mm)          | 52                    |
| Int Box Dimension (mm)            | 340x340x410           |
| Max qty per Box                   | 6,250                 |
| Weight per unit (gm)              | 1.20 AD/1.10 AE       |
| Weight per Reel (kg)              | 1.50 AD/1.20 AE       |
| Note/Comments                     |                       |

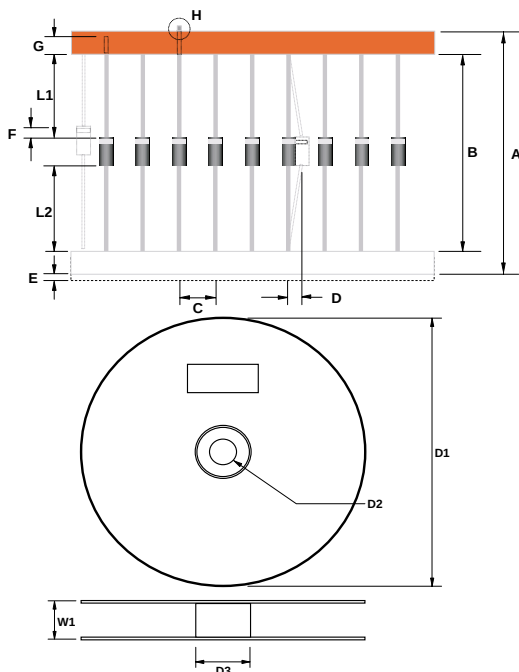
#### F63TNR Label sample



#### Human Readable Label sample



### DO-201AD/AE Taping Dimension: Figure 5.0



#### TAPING DIMENSIONS

|       | INCH                       | MM                       | MILS                    | NOTES                        |
|-------|----------------------------|--------------------------|-------------------------|------------------------------|
| A     | 2.520<br>+0.066/<br>-0.027 | 64.00<br>+1.69/<br>-0.69 | 2519<br>+66.5/<br>-27.0 | Overall width                |
|       | 1.496<br>+0.059/<br>-0.039 | 38.00<br>+1.5<br>-1.0    | 1496<br>+59<br>-39      |                              |
| B     | 2.047±0.027                | 52 ±0.69                 | 2047±27                 | Inside Tape Spacing          |
| C     | 0.200 ±0.0157              | 10.08 ±0.40              | 394 ±15.7               | Component Pitch              |
| D     | 0.047(max)                 | 1.2(max)                 | 47(max)                 | Component Misalignment       |
| E     | 0.022(max)                 | 0.55(max)                | 22(max)                 | Tape Mismatch                |
| F     | 0.027(max)                 | ±0.69                    | ±27                     | Units in line w/ one another |
| G     | 0.126(min)                 | 3.2(min)                 | 126(min)                | Lead amount between tapes    |
| H     | 0                          | 0                        | 0                       | Lead amount beyond tapes     |
| L1-L2 | ±0.027                     | ±0.69                    | ±27                     | Delta between two leads      |

#### REEL DIMENSIONS

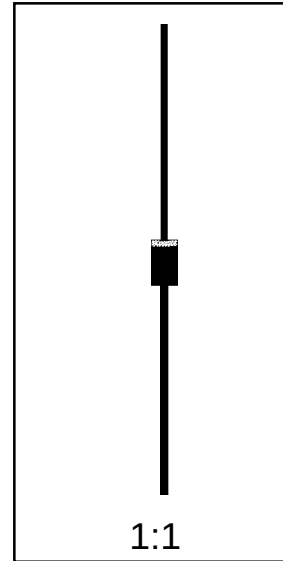
| ITEM DESCRIPTION               | SYMBOL | MINIMUM | MAXIMUM |
|--------------------------------|--------|---------|---------|
| Reel Diameter                  | D1     | 13.875  | 14.125  |
| Arbor Hole Diameter (Standard) | D2     | 1.245   | 1.255   |
| Core Diameter                  | D3     | 3.190   | 3.310   |
| Flange to Flange Outer Width   | W1     |         | 3.400   |

Note: All Dimensions are in inches

## DO-201AD Package Dimensions



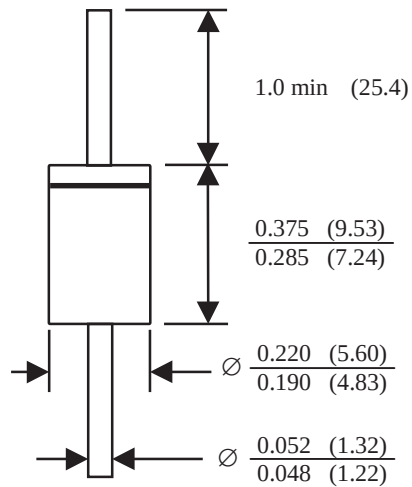
### DO-201AD (FS PKG Code P3)



Scale 1:1 on letter size paper

Dimensions shown below are in:  
inches [millimeters]

Part Weight per unit (gram): 1.1



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### Definition of Terms

| Datasheet Identification | Product Status         | Definition                                                                                                                                                                                                            |
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