

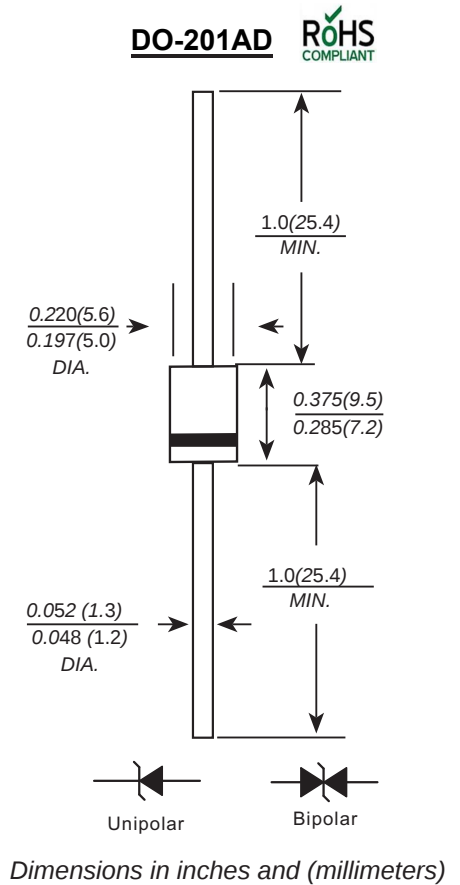
## GLASS PASSIVAED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

### Features

- ◆ 1500w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time:typically less than 1.0ps from 0v to VBR for unidirectional and 5.0ns for bidirectional types.
- ◆ High temperature soldering guaranteed:  
265°C/10S/9.5mm lead length at 5 lbs tension

### Mechanical Data

**Case** : JEDEC DO-201AD Molded plastic body  
**Terminals** : Solder plated, solderable per MIL-STD-750,Method 2026  
**Polarity** : Polarity symbol marking on body  
**Mounting Position** : Any  
**Weight** : 0.014 ounce, 0.40 grams



### Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

|                                                                                   | SYMBOLS  | VALUE        | UNITS |
|-----------------------------------------------------------------------------------|----------|--------------|-------|
| Peak power dissipation                                                            | PPPM     | Minimum 1500 | Watts |
| Peak pulse reverse current                                                        | IPPM     | See Table 1  | Amps  |
| Steady state power dissipation (Note 2)                                           | PM(AV)   | 5.0          | Watts |
| Peak forward surge current                                                        | IFSM     | 200          | Amps  |
| Maximum instantaneous forward voltage at 100A<br>for unidirectional only (Note 4) | VF       | 3.5/5.0      | Volts |
| Operating junction and storage temperature range                                  | TSTG, TJ | -55 to + 175 | °C    |

#### Notes:

- 1.10/1000μs waveform non-repetitive current pulse, per Fig.3 and derated above Ta=25°C per Fig.2
- 2.TL=75°C, lead lengths 9.5mm, Mounted on copper pad area of (20x20mm) Fig.5
- 3.Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
- 4.VF=3.5V max. for devices of V(BR)≤200V, and VF=5.0V max. for devices of V(BR)>200V



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

Breakdown Voltage:6.8-440 Volts    Peak Pulse Power:1500 Watts

## ELECTRICAL CHARACTERISTICS (at T<sub>A</sub>=25°C unless otherwise noted)

| Device Type | Breakdown Voltage V <sub>BR</sub> (Volts)(NOTES 1) |      | Test Current I <sub>T</sub> (mA) | Stand-off Voltage V <sub>WM</sub> (Volts) | Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (NOTE3)(μA) | Maximum Peak Pulse Reverse Current I <sub>PPM</sub> (NOTE2) (Amps) | Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>c</sub> (Volts) | Maximum Temperature Coefficient of V <sub>BR</sub> (%/°C) |
|-------------|----------------------------------------------------|------|----------------------------------|-------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|
|             | MIN                                                | MAX  |                                  |                                           |                                                                       |                                                                    |                                                                     |                                                           |
| 1.5KE6.8A   | 6.45                                               | 7.14 | 10.0                             | 5.80                                      | 1000.0                                                                | 143                                                                | 10.5                                                                | 0.057                                                     |
| 1.5KE6.8CA  | 6.45                                               | 7.14 | 10.0                             | 5.80                                      | 1000.0                                                                | 143                                                                | 10.5                                                                | 0.057                                                     |
| 1.5KE7.5A   | 7.13                                               | 7.88 | 10.0                             | 6.40                                      | 500.0                                                                 | 133                                                                | 11.3                                                                | 0.061                                                     |
| 1.5KE7.5CA  | 7.13                                               | 7.88 | 10.0                             | 6.40                                      | 500.0                                                                 | 133                                                                | 11.3                                                                | 0.061                                                     |
| 1.5KE8.2A   | 7.79                                               | 8.61 | 10.0                             | 7.02                                      | 200.0                                                                 | 124                                                                | 12.1                                                                | 0.065                                                     |
| 1.5KE8.2CA  | 7.79                                               | 8.61 | 10.0                             | 7.02                                      | 200.0                                                                 | 124                                                                | 12.1                                                                | 0.065                                                     |
| 1.5KE9.1A   | 8.65                                               | 9.55 | 1.0                              | 7.78                                      | 50.0                                                                  | 112                                                                | 13.4                                                                | 0.068                                                     |
| 1.5KE9.1CA  | 8.65                                               | 9.55 | 1.0                              | 7.78                                      | 50.0                                                                  | 112                                                                | 13.4                                                                | 0.068                                                     |
| 1.5KE10A    | 9.50                                               | 10.5 | 1.0                              | 8.55                                      | 10.0                                                                  | 103                                                                | 14.5                                                                | 0.073                                                     |
| 1.5KE10CA   | 9.50                                               | 10.5 | 1.0                              | 8.55                                      | 10.0                                                                  | 103                                                                | 14.5                                                                | 0.073                                                     |
| 1.5KE11A    | 10.5                                               | 11.6 | 1.0                              | 9.40                                      | 5.0                                                                   | 96.2                                                               | 15.6                                                                | 0.075                                                     |
| 1.5KE11CA   | 10.5                                               | 11.6 | 1.0                              | 9.40                                      | 5.0                                                                   | 96.2                                                               | 15.6                                                                | 0.075                                                     |
| 1.5KE12A    | 11.4                                               | 12.6 | 1.0                              | 10.2                                      | 5.0                                                                   | 89.8                                                               | 16.7                                                                | 0.078                                                     |
| 1.5KE12CA   | 11.4                                               | 12.6 | 1.0                              | 10.2                                      | 5.0                                                                   | 89.8                                                               | 16.7                                                                | 0.078                                                     |
| 1.5KE13A    | 12.4                                               | 13.7 | 1.0                              | 11.1                                      | 5.0                                                                   | 82.4                                                               | 18.2                                                                | 0.081                                                     |
| 1.5KE13CA   | 12.4                                               | 13.7 | 1.0                              | 11.1                                      | 5.0                                                                   | 82.4                                                               | 18.2                                                                | 0.081                                                     |
| 1.5KE15A    | 14.3                                               | 15.8 | 1.0                              | 12.8                                      | 5.0                                                                   | 70.8                                                               | 21.2                                                                | 0.084                                                     |
| 1.5KE15CA   | 14.3                                               | 15.8 | 1.0                              | 12.8                                      | 5.0                                                                   | 70.8                                                               | 21.2                                                                | 0.084                                                     |
| 1.5KE16A    | 15.2                                               | 16.8 | 1.0                              | 13.6                                      | 5.0                                                                   | 66.7                                                               | 22.5                                                                | 0.086                                                     |
| 1.5KE16CA   | 15.2                                               | 16.8 | 1.0                              | 13.6                                      | 5.0                                                                   | 66.7                                                               | 22.5                                                                | 0.086                                                     |
| 1.5KE18A    | 17.1                                               | 18.9 | 1.0                              | 15.3                                      | 5.0                                                                   | 59.5                                                               | 25.5                                                                | 0.088                                                     |
| 1.5KE18CA   | 17.1                                               | 18.9 | 1.0                              | 15.3                                      | 5.0                                                                   | 59.5                                                               | 25.5                                                                | 0.088                                                     |
| 1.5KE20A    | 19.0                                               | 21.0 | 1.0                              | 17.1                                      | 5.0                                                                   | 54.2                                                               | 27.7                                                                | 0.090                                                     |
| 1.5KE20CA   | 19.0                                               | 21.0 | 1.0                              | 17.1                                      | 5.0                                                                   | 54.2                                                               | 27.7                                                                | 0.090                                                     |
| 1.5KE22A    | 20.9                                               | 23.1 | 1.0                              | 18.8                                      | 5.0                                                                   | 49.0                                                               | 30.6                                                                | 0.092                                                     |
| 1.5KE22CA   | 20.9                                               | 23.1 | 1.0                              | 18.8                                      | 5.0                                                                   | 49.0                                                               | 30.6                                                                | 0.092                                                     |
| 1.5KE24A    | 22.8                                               | 25.2 | 1.0                              | 20.5                                      | 5.0                                                                   | 45.2                                                               | 33.2                                                                | 0.094                                                     |
| 1.5KE24CA   | 22.8                                               | 25.2 | 1.0                              | 20.5                                      | 5.0                                                                   | 45.2                                                               | 33.2                                                                | 0.094                                                     |
| 1.5KE27A    | 25.7                                               | 28.4 | 1.0                              | 23.1                                      | 5.0                                                                   | 40.0                                                               | 37.5                                                                | 0.096                                                     |
| 1.5KE27CA   | 25.7                                               | 28.4 | 1.0                              | 23.1                                      | 5.0                                                                   | 40.0                                                               | 37.5                                                                | 0.096                                                     |
| 1.5KE30A    | 28.5                                               | 31.5 | 1.0                              | 25.6                                      | 5.0                                                                   | 36.2                                                               | 41.4                                                                | 0.097                                                     |
| 1.5KE30CA   | 28.5                                               | 31.5 | 1.0                              | 25.6                                      | 5.0                                                                   | 36.2                                                               | 41.4                                                                | 0.097                                                     |
| 1.5KE33A    | 31.4                                               | 34.7 | 1.0                              | 28.2                                      | 5.0                                                                   | 32.8                                                               | 45.7                                                                | 0.098                                                     |
| 1.5KE33CA   | 31.4                                               | 34.7 | 1.0                              | 28.2                                      | 5.0                                                                   | 32.8                                                               | 45.7                                                                | 0.098                                                     |
| 1.5KE36A    | 34.2                                               | 37.8 | 1.0                              | 30.8                                      | 5.0                                                                   | 30.1                                                               | 49.9                                                                | 0.099                                                     |
| 1.5KE36CA   | 34.2                                               | 37.8 | 1.0                              | 30.8                                      | 5.0                                                                   | 30.1                                                               | 49.9                                                                | 0.099                                                     |
| 1.5KE39A    | 37.1                                               | 41.0 | 1.0                              | 33.3                                      | 5.0                                                                   | 27.8                                                               | 53.9                                                                | 0.100                                                     |
| 1.5KE39CA   | 37.1                                               | 41.0 | 1.0                              | 33.3                                      | 5.0                                                                   | 27.8                                                               | 53.9                                                                | 0.100                                                     |
| 1.5KE43A    | 40.9                                               | 45.2 | 1.0                              | 36.8                                      | 5.0                                                                   | 25.3                                                               | 59.3                                                                | 0.101                                                     |
| 1.5KE43CA   | 40.9                                               | 45.2 | 1.0                              | 36.8                                      | 5.0                                                                   | 25.3                                                               | 59.3                                                                | 0.101                                                     |
| 1.5KE47A    | 44.7                                               | 49.4 | 1.0                              | 40.2                                      | 5.0                                                                   | 23.1                                                               | 64.8                                                                | 0.101                                                     |
| 1.5KE47CA   | 44.7                                               | 49.4 | 1.0                              | 40.2                                      | 5.0                                                                   | 23.1                                                               | 64.8                                                                | 0.101                                                     |
| 1.5KE51A    | 48.5                                               | 53.6 | 1.0                              | 43.6                                      | 5.0                                                                   | 21.4                                                               | 70.1                                                                | 0.102                                                     |
| 1.5KE51CA   | 48.5                                               | 53.6 | 1.0                              | 43.6                                      | 5.0                                                                   | 21.4                                                               | 70.1                                                                | 0.102                                                     |
| 1.5KE56A    | 53.2                                               | 58.8 | 1.0                              | 47.8                                      | 5.0                                                                   | 19.5                                                               | 77.0                                                                | 0.103                                                     |
| 1.5KE56CA   | 53.2                                               | 58.8 | 1.0                              | 47.8                                      | 5.0                                                                   | 19.5                                                               | 77.0                                                                | 0.103                                                     |

The electrical characteristics above is for reference only.



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

Breakdown Voltage:6.8-440 Volts    Peak Pulse Power:1500 Watts

## ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

| Device Type | Breakdown Voltage V <sub>BR</sub> (Volts)(NOTES 1) |      | Test Current I <sub>T</sub> (mA) | Stand-off Voltage V <sub>WM</sub> (Volts) | Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (NOTE3)(μA) | Maximum Peak Pulse Reverse Current I <sub>PPM</sub> (NOTE2) (Amps) | Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>C</sub> (Volts) | Maximum Temperature Coefficient of V <sub>BR</sub> (%/°C) |
|-------------|----------------------------------------------------|------|----------------------------------|-------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|
|             | MIN                                                | MAX  |                                  |                                           |                                                                       |                                                                    |                                                                     |                                                           |
| 1.5KE62A    | 58.9                                               | 65.1 | 1.0                              | 53.0                                      | 5.0                                                                   | 17.6                                                               | 85.0                                                                | 0.104                                                     |
| 1.5KE62CA   | 58.9                                               | 65.1 | 1.0                              | 53.0                                      | 5.0                                                                   | 17.6                                                               | 85.0                                                                | 0.104                                                     |
| 1.5KE68A    | 64.6                                               | 71.4 | 1.0                              | 58.1                                      | 5.0                                                                   | 16.3                                                               | 92.0                                                                | 0.104                                                     |
| 1.5KE68CA   | 64.6                                               | 71.4 | 1.0                              | 58.1                                      | 5.0                                                                   | 16.3                                                               | 92.0                                                                | 0.104                                                     |
| 1.5KE75A    | 71.3                                               | 78.8 | 1.0                              | 64.1                                      | 5.0                                                                   | 14.6                                                               | 103                                                                 | 0.105                                                     |
| 1.5KE75CA   | 71.3                                               | 78.8 | 1.0                              | 64.1                                      | 5.0                                                                   | 14.6                                                               | 103                                                                 | 0.105                                                     |
| 1.5KE82A    | 77.9                                               | 86.1 | 1.0                              | 70.1                                      | 5.0                                                                   | 13.3                                                               | 113                                                                 | 0.105                                                     |
| 1.5KE82CA   | 77.9                                               | 86.1 | 1.0                              | 70.1                                      | 5.0                                                                   | 13.3                                                               | 113                                                                 | 0.105                                                     |
| 1.5KE91A    | 86.5                                               | 95.5 | 1.0                              | 77.8                                      | 5.0                                                                   | 12.0                                                               | 125                                                                 | 0.106                                                     |
| 1.5KE91CA   | 86.5                                               | 95.5 | 1.0                              | 77.8                                      | 5.0                                                                   | 12.0                                                               | 125                                                                 | 0.106                                                     |
| 1.5KE100A   | 95.0                                               | 105  | 1.0                              | 85.5                                      | 5.0                                                                   | 10.9                                                               | 137                                                                 | 0.106                                                     |
| 1.5KE100CA  | 95.0                                               | 105  | 1.0                              | 85.5                                      | 5.0                                                                   | 10.9                                                               | 137                                                                 | 0.106                                                     |
| 1.5KE110A   | 105                                                | 116  | 1.0                              | 94.0                                      | 5.0                                                                   | 9.9                                                                | 152                                                                 | 0.107                                                     |
| 1.5KE110CA  | 105                                                | 116  | 1.0                              | 94.0                                      | 5.0                                                                   | 9.9                                                                | 152                                                                 | 0.107                                                     |
| 1.5KE120A   | 114                                                | 126  | 1.0                              | 102                                       | 5.0                                                                   | 9.1                                                                | 165                                                                 | 0.107                                                     |
| 1.5KE120CA  | 114                                                | 126  | 1.0                              | 102                                       | 5.0                                                                   | 9.1                                                                | 165                                                                 | 0.107                                                     |
| 1.5KE130A   | 124                                                | 137  | 1.0                              | 111                                       | 5.0                                                                   | 8.4                                                                | 179                                                                 | 0.107                                                     |
| 1.5KE130CA  | 124                                                | 137  | 1.0                              | 111                                       | 5.0                                                                   | 8.4                                                                | 179                                                                 | 0.107                                                     |
| 1.5KE150A   | 143                                                | 158  | 1.0                              | 128                                       | 5.0                                                                   | 7.2                                                                | 207                                                                 | 0.108                                                     |
| 1.5KE150CA  | 143                                                | 158  | 1.0                              | 128                                       | 5.0                                                                   | 7.2                                                                | 207                                                                 | 0.108                                                     |
| 1.5KE160A   | 152                                                | 168  | 1.0                              | 136                                       | 5.0                                                                   | 6.8                                                                | 219                                                                 | 0.108                                                     |
| 1.5KE160CA  | 152                                                | 168  | 1.0                              | 136                                       | 5.0                                                                   | 6.8                                                                | 219                                                                 | 0.108                                                     |
| 1.5KE170A   | 162                                                | 179  | 1.0                              | 145                                       | 5.0                                                                   | 6.4                                                                | 234                                                                 | 0.108                                                     |
| 1.5KE170CA  | 162                                                | 179  | 1.0                              | 145                                       | 5.0                                                                   | 6.4                                                                | 234                                                                 | 0.108                                                     |
| 1.5KE180A   | 171                                                | 189  | 1.0                              | 154                                       | 5.0                                                                   | 6.1                                                                | 246                                                                 | 0.108                                                     |
| 1.5KE180CA  | 171                                                | 189  | 1.0                              | 154                                       | 5.0                                                                   | 6.1                                                                | 246                                                                 | 0.108                                                     |
| 1.5KE200A   | 190                                                | 210  | 1.0                              | 171                                       | 5.0                                                                   | 5.5                                                                | 274                                                                 | 0.108                                                     |
| 1.5KE200CA  | 190                                                | 210  | 1.0                              | 171                                       | 5.0                                                                   | 5.5                                                                | 274                                                                 | 0.108                                                     |
| 1.5KE220A   | 209                                                | 231  | 1.0                              | 185                                       | 5.0                                                                   | 4.6                                                                | 328                                                                 | 0.108                                                     |
| 1.5KE220CA  | 209                                                | 231  | 1.0                              | 185                                       | 5.0                                                                   | 4.6                                                                | 328                                                                 | 0.108                                                     |
| 1.5KE250A   | 237                                                | 263  | 1.0                              | 214                                       | 5.0                                                                   | 4.4                                                                | 344                                                                 | 0.110                                                     |
| 1.5KE250CA  | 237                                                | 263  | 1.0                              | 214                                       | 5.0                                                                   | 4.4                                                                | 344                                                                 | 0.110                                                     |
| 1.5KE300A   | 285                                                | 315  | 1.0                              | 256                                       | 5.0                                                                   | 3.6                                                                | 414                                                                 | 0.110                                                     |
| 1.5KE300CA  | 285                                                | 315  | 1.0                              | 256                                       | 5.0                                                                   | 3.6                                                                | 414                                                                 | 0.110                                                     |
| 1.5KE350A   | 332                                                | 368  | 1.0                              | 300                                       | 5.0                                                                   | 3.1                                                                | 482                                                                 | 0.110                                                     |
| 1.5KE350CA  | 332                                                | 368  | 1.0                              | 300                                       | 5.0                                                                   | 3.1                                                                | 482                                                                 | 0.110                                                     |
| 1.5KE400A   | 380                                                | 420  | 1.0                              | 342                                       | 5.0                                                                   | 2.7                                                                | 548                                                                 | 0.110                                                     |
| 1.5KE400CA  | 380                                                | 420  | 1.0                              | 342                                       | 5.0                                                                   | 2.7                                                                | 548                                                                 | 0.110                                                     |
| 1.5KE440A   | 418                                                | 462  | 1.0                              | 376                                       | 5.0                                                                   | 2.5                                                                | 602                                                                 | 0.110                                                     |
| 1.5KE440CA  | 418                                                | 462  | 1.0                              | 376                                       | 5.0                                                                   | 2.5                                                                | 602                                                                 | 0.110                                                     |

### NOTES:

- 1.V<sub>BR</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub>=square wave pulse or equivalent
- 2.Surge current waveform per Fig.3 and derated per Fig.2
- 3.For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled
- 4.All items and symbols are consistent with ANSI/IEEE C62.35
- 5.For parts without A, the V<sub>BR</sub> is ± 10% and V<sub>C</sub> is 5% higher than with A parts, the parts without A are currently available, but not recommended for new designs. The parts with A are preferred.

The electrical characteristics above is for reference only.

FIG. 1-PEAK PULSE POWER RATING CURVE

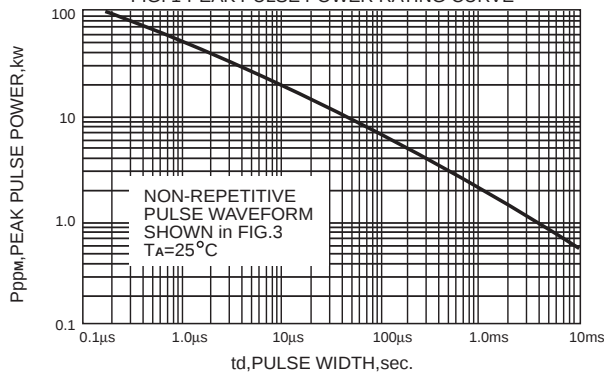


FIG. 2-PULSE DERATING CURVE

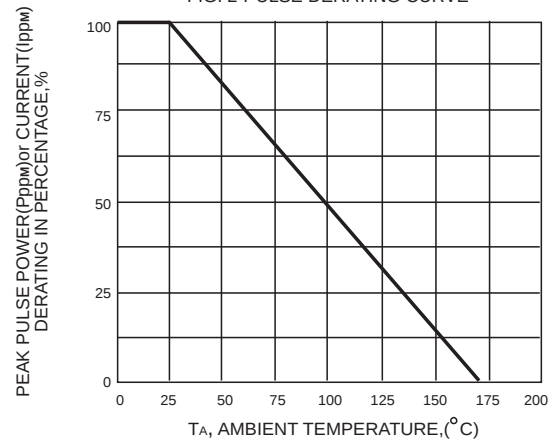


FIG.3-PULSE WAVEFORM

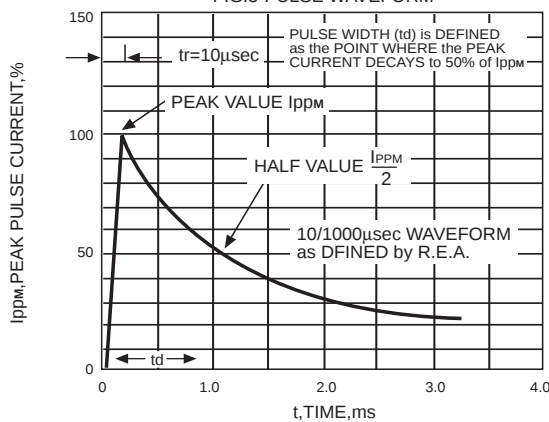


FIG. 4-TYPICAL JUNCTIONAL CAPACITANCE UNIDIRECTIONAL

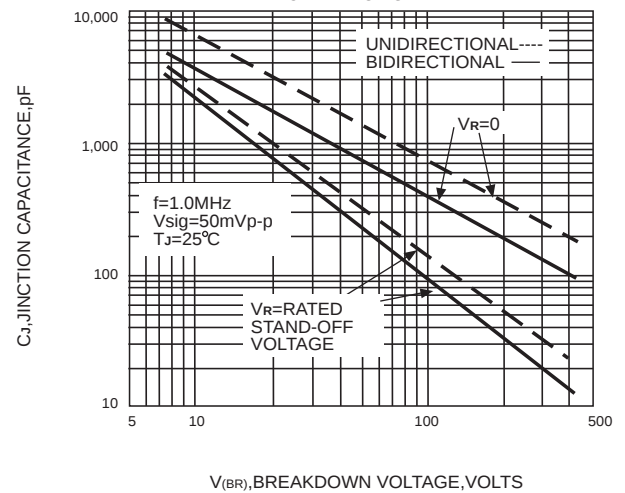


FIG.5-STEADY STATE POWER DERATING CURVE

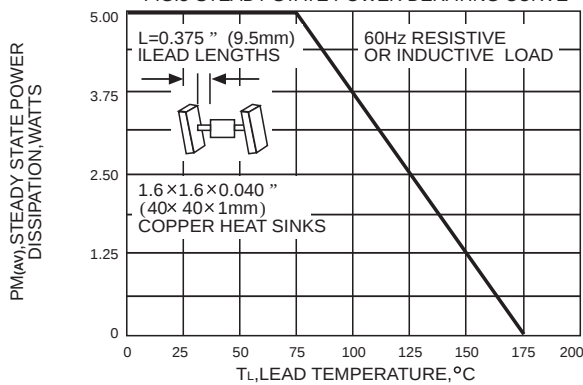


FIG.7-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

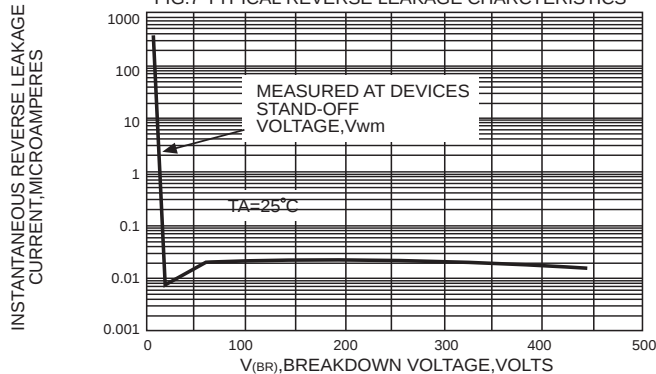
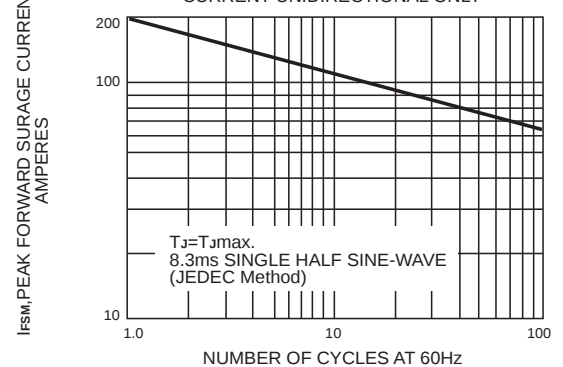


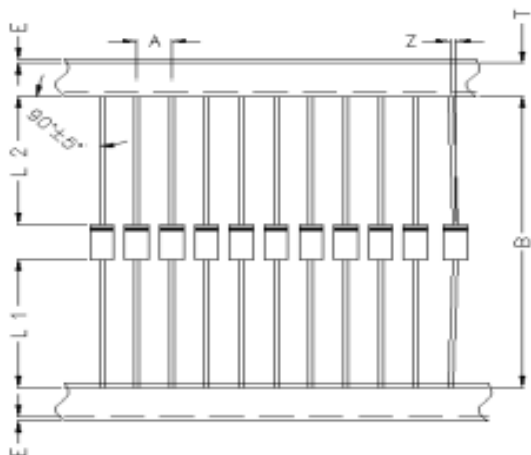
FIG.6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY



The curve characteristics above is for reference only.

## Package Information

### Taping Specifications



| Item                | Symbol | Specifications(mm) |
|---------------------|--------|--------------------|
| Component Pitch     | A      | 10.0±0.5           |
| Inner Tape Pitch    | B      | 52.4±1.5           |
| Component alignment | Z      | 1.2 Max            |
| Tape width          | T      | 6.0±0.5            |
| Exposed adhesive    | E      | 0.8 Max            |
| Body eccentricity   | L1-L2  | 1.0 Max            |

### Ammunition Package Specifications

| Package    | Inner Box Size (mm) | QTY/Box (pcs) | Carton Size (mm) | Q'TY/Carton (pcs) |
|------------|---------------------|---------------|------------------|-------------------|
| DO - 201AD | 255*74*145          | 1000          | 410*275*340      | 10000             |

### Bulk Package Specifications

| Package    | Inner Box Size (mm) | QTY/Box (pcs) | Carton Size (mm) | Q'TY/Carton (pcs) |
|------------|---------------------|---------------|------------------|-------------------|
| DO - 201AD | 198*86*21           | 200           | 460*220*250      | 10000             |