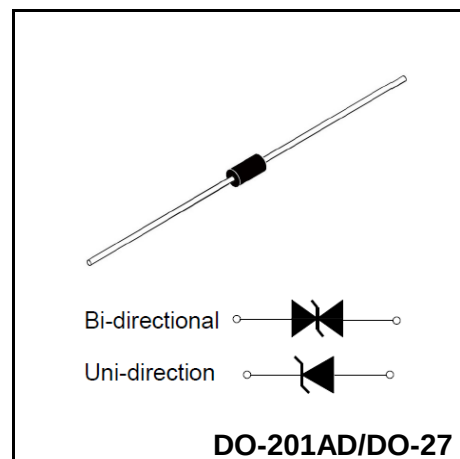


**Transient voltage suppressor power 1500 watts**

### FEATURES

- ◆  $P_{PP}$  **1500W**
- ◆  $V_{RWM}$  **6.8V~540V**
- ◆ Glass passivated chip



### MECHANICAL DATA

- ◆ Case: DO-201AD/ DO-27
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.98g / 0.0345oz

### Limiting Values(Absolute Maximum Rating)

| Parameter                                          | Symbol         | Conditions                                          | Value          | Unit               |
|----------------------------------------------------|----------------|-----------------------------------------------------|----------------|--------------------|
| Peak power dissipation                             | $P_{PPM}$      | with a 10/1000us waveform                           | 1500           | W                  |
| Peak forward surge current                         | $I_{FSM}$      | 8.3 ms single half sine-wave<br>unidirectional only | 200            | A                  |
| Peak pulse current                                 | $I_{PPM}$      | with a 10/1000us waveform                           | See Next Table | A                  |
| Power dissipation                                  | $P_D$          | on infinite heat sink at $T_L=75^{\circ}\text{C}$   | 6.5            | W                  |
| Operating junction and storage<br>emperature range | $T_J, T_{STG}$ |                                                     | -55 to +175    | $^{\circ}\text{C}$ |

### Electrical Characteristics( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

| Parameter                                    | Symbol          | Conditions                                         | Value   | Unit                 |
|----------------------------------------------|-----------------|----------------------------------------------------|---------|----------------------|
| Maximum instantaneous forward<br>Voltage (1) | $P_{PPM}$       | at 25A for unidirectional only                     | 3.5/5.0 | V                    |
| Thermal resistance                           | $R_{\theta JL}$ | junction to lead                                   | 75      | $^{\circ}\text{C/W}$ |
|                                              | $R_{\theta JA}$ | junction to ambient,<br>$L_{Lead} = 10 \text{ mm}$ | 15.4    | $^{\circ}\text{C/W}$ |

#### NOTES:

1.  $V_F = 3.5 \text{ V}$  for 1.5KE220(A) and below;  $V_F = 5.0 \text{ V}$  for 1.5KE250(A) and above

| Part Number(U ni) | Part Number(Bi) | Breakdown Voltage $V_{BR}@I_T$ |         |        | Maximum Reverse Leakage $I_R$ @ $V_{WM}$ ( $\mu$ A) | Working Peak Reverse Voltage $V_{RWM}$ (V) | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V) | Maximum Temperature Coefficient of $V_{BR}$ (%/ $^{\circ}$ C) |
|-------------------|-----------------|--------------------------------|---------|--------|-----------------------------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
|                   |                 | Min(V)                         | Max (V) | IT(mA) |                                                     |                                            |                                       |                                               |                                                               |
| 1.5KE6.8          | 1.5KE6.8C       | 6.12                           | 7.48    | 10     | 1000                                                | 5.50                                       | 139                                   | 10.8                                          | 0.057                                                         |
| 1.5KE6.8A         | 1.5KE6.8CA      | 6.45                           | 7.14    | 10     | 1000                                                | 5.80                                       | 143                                   | 10.5                                          | 0.057                                                         |
| 1.5KE7.5          | 1.5KE7.5C       | 6.75                           | 8.25    | 10     | 500                                                 | 6.05                                       | 128                                   | 11.7                                          | 0.061                                                         |
| 1.5KE7.5A         | 1.5KE7.5CA      | 7.13                           | 7.88    | 10     | 500                                                 | 6.40                                       | 133                                   | 11.3                                          | 0.061                                                         |
| 1.5KE8.2          | 1.5KE8.2C       | 7.38                           | 9.02    | 10     | 200                                                 | 6.63                                       | 120                                   | 12.5                                          | 0.065                                                         |
| 1.5KE8.2A         | 1.5KE8.2CA      | 7.79                           | 8.61    | 10     | 200                                                 | 7.02                                       | 124                                   | 12.1                                          | 0.065                                                         |
| 1.5KE9.1          | 1.5KE9.1C       | 8.19                           | 10.0    | 1.0    | 50                                                  | 7.37                                       | 109                                   | 13.8                                          | 0.068                                                         |
| 1.5KE9.1A         | 1.5KE9.1CA      | 8.65                           | 9.55    | 1.0    | 50                                                  | 7.78                                       | 112                                   | 13.4                                          | 0.068                                                         |
| 1.5KE10           | 1.5KE10C        | 9.00                           | 11.0    | 1.0    | 10                                                  | 8.10                                       | 100                                   | 15.0                                          | 0.073                                                         |
| 1.5KE10A          | 1.5KE10CA       | 9.50                           | 10.5    | 1.0    | 10                                                  | 8.55                                       | 103                                   | 14.5                                          | 0.073                                                         |
| 1.5KE11           | 1.5KE11C        | 9.90                           | 12.1    | 1.0    | 5.0                                                 | 8.92                                       | 92.6                                  | 16.2                                          | 0.075                                                         |
| 1.5KE11A          | 1.5KE11CA       | 10.5                           | 11.6    | 1.0    | 5.0                                                 | 9.40                                       | 96.2                                  | 15.6                                          | 0.075                                                         |
| 1.5KE12           | 1.5KE12C        | 10.8                           | 13.2    | 1.0    | 5.0                                                 | 9.72                                       | 86.7                                  | 17.3                                          | 0.076                                                         |
| 1.5KE12A          | 1.5KE12CA       | 11.4                           | 12.6    | 1.0    | 5.0                                                 | 10.2                                       | 89.8                                  | 16.7                                          | 0.078                                                         |
| 1.5KE13           | 1.5KE13C        | 11.7                           | 14.3    | 1.0    | 5.0                                                 | 10.5                                       | 78.9                                  | 19.0                                          | 0.081                                                         |
| 1.5KE13A          | 1.5KE13CA       | 12.4                           | 13.7    | 1.0    | 5.0                                                 | 11.1                                       | 82.4                                  | 18.2                                          | 0.081                                                         |
| 1.5KE15           | 1.5KE15C        | 13.5                           | 16.5    | 1.0    | 1.0                                                 | 12.1                                       | 68.2                                  | 22.0                                          | 0.084                                                         |
| 1.5KE15A          | 1.5KE15CA       | 14.3                           | 15.8    | 1.0    | 1.0                                                 | 12.8                                       | 70.8                                  | 21.2                                          | 0.084                                                         |
| 1.5KE16           | 1.5KE16C        | 14.4                           | 17.6    | 1.0    | 1.0                                                 | 12.9                                       | 63.8                                  | 23.5                                          | 0.086                                                         |
| 1.5KE16A          | 1.5KE16CA       | 15.2                           | 16.8    | 1.0    | 1.0                                                 | 13.6                                       | 66.7                                  | 22.5                                          | 0.086                                                         |
| 1.5KE18           | 1.5KE18C        | 16.2                           | 19.8    | 1.0    | 1.0                                                 | 14.5                                       | 56.6                                  | 26.5                                          | 0.088                                                         |
| 1.5KE18A          | 1.5KE18CA       | 17.1                           | 18.9    | 1.0    | 1.0                                                 | 15.3                                       | 59.5                                  | 25.2                                          | 0.089                                                         |
| 1.5KE20           | 1.5KE20C        | 18.0                           | 22.0    | 1.0    | 1.0                                                 | 16.2                                       | 51.5                                  | 29.1                                          | 0.090                                                         |
| 1.5KE20A          | 1.5KE20CA       | 19.0                           | 21.0    | 1.0    | 1.0                                                 | 17.1                                       | 54.2                                  | 27.7                                          | 0.090                                                         |
| 1.5KE22           | 1.5KE22C        | 19.8                           | 24.2    | 1.0    | 1.0                                                 | 17.8                                       | 47.0                                  | 31.9                                          | 0.092                                                         |
| 1.5KE22A          | 1.5KE22CA       | 20.9                           | 23.1    | 1.0    | 1.0                                                 | 18.8                                       | 49.0                                  | 30.6                                          | 0.092                                                         |
| 1.5KE24           | 1.5KE24C        | 21.6                           | 26.4    | 1.0    | 1.0                                                 | 19.4                                       | 43.2                                  | 34.7                                          | 0.094                                                         |
| 1.5KE24A          | 1.5KE24CA       | 22.8                           | 25.2    | 1.0    | 1.0                                                 | 20.5                                       | 45.2                                  | 33.2                                          | 0.094                                                         |
| 1.5KE27           | 1.5KE27C        | 24.3                           | 29.7    | 1.0    | 1.0                                                 | 21.8                                       | 38.4                                  | 39.1                                          | 0.096                                                         |
| 1.5KE27A          | 1.5KE27CA       | 25.7                           | 28.4    | 1.0    | 1.0                                                 | 23.1                                       | 40.0                                  | 37.5                                          | 0.096                                                         |
| 1.5KE30           | 1.5KE30C        | 27.0                           | 33.0    | 1.0    | 1.0                                                 | 24.3                                       | 34.5                                  | 43.5                                          | 0.097                                                         |
| 1.5KE30A          | 1.5KE30CA       | 28.5                           | 31.5    | 1.0    | 1.0                                                 | 25.6                                       | 36.2                                  | 41.4                                          | 0.097                                                         |
| 1.5KE33           | 1.5KE33C        | 29.7                           | 36.3    | 1.0    | 1.0                                                 | 26.8                                       | 31.4                                  | 47.7                                          | 0.098                                                         |
| 1.5KE33A          | 1.5KE33CA       | 31.4                           | 34.7    | 1.0    | 1.0                                                 | 28.2                                       | 32.8                                  | 45.7                                          | 0.098                                                         |
| 1.5KE36           | 1.5KE36C        | 32.4                           | 39.6    | 1.0    | 1.0                                                 | 29.1                                       | 28.8                                  | 52.0                                          | 0.099                                                         |
| 1.5KE36A          | 1.5KE36CA       | 34.2                           | 37.8    | 1.0    | 1.0                                                 | 30.8                                       | 30.1                                  | 49.9                                          | 0.099                                                         |

| Part Number(Uni) | Part Number(Bi) | Breakdown Voltage $V_{BR}@I_T$ |         |        | Maximum Reverse Leakage $I_R$ @ $V_{WM}$ ( $\mu A$ ) | Working Peak Reverse Voltage $V_{RWM}$ (V) | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V) | Maximum Temperature Coefficient of $V_{BR}$ (%/°C) |
|------------------|-----------------|--------------------------------|---------|--------|------------------------------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------------------|----------------------------------------------------|
|                  |                 | Min(V)                         | Max (V) | IT(mA) |                                                      |                                            |                                       |                                               |                                                    |
| 1.5KE39          | 1.5KE39C        | 35.1                           | 42.9    | 1.0    | 1.0                                                  | 31.6                                       | 26.6                                  | 56.4                                          | 0.100                                              |
| 1.5KE39A         | 1.5KE39CA       | 37.1                           | 41.0    | 1.0    | 1.0                                                  | 33.3                                       | 27.8                                  | 53.9                                          | 0.100                                              |
| 1.5KE43          | 1.5KE43C        | 38.7                           | 47.3    | 1.0    | 1.0                                                  | 34.8                                       | 24.2                                  | 61.9                                          | 0.101                                              |
| 1.5KE43A         | 1.5KE43CA       | 40.9                           | 45.2    | 1.0    | 1.0                                                  | 36.8                                       | 25.3                                  | 59.3                                          | 0.101                                              |
| 1.5KE47          | 1.5KE47C        | 42.3                           | 51.7    | 1.0    | 1.0                                                  | 38.1                                       | 22.1                                  | 67.8                                          | 0.101                                              |
| 1.5KE47A         | 1.5KE47CA       | 44.7                           | 49.4    | 1.0    | 1.0                                                  | 40.2                                       | 23.1                                  | 64.8                                          | 0.101                                              |
| 1.5KE51          | 1.5KE51C        | 45.9                           | 56.1    | 1.0    | 1.0                                                  | 41.3                                       | 20.4                                  | 73.5                                          | 0.102                                              |
| 1.5KE51A         | 1.5KE51CA       | 48.5                           | 53.6    | 1.0    | 1.0                                                  | 43.6                                       | 21.4                                  | 70.1                                          | 0.102                                              |
| 1.5KE56          | 1.5KE56C        | 50.4                           | 61.8    | 1.0    | 1.0                                                  | 45.4                                       | 18.6                                  | 80.5                                          | 0.103                                              |
| 1.5KE56A         | 1.5KE56CA       | 53.2                           | 58.8    | 1.0    | 1.0                                                  | 47.8                                       | 19.5                                  | 77.0                                          | 0.103                                              |
| 1.5KE62          | 1.5KE62C        | 55.8                           | 68.2    | 1.0    | 1.0                                                  | 50.2                                       | 16.9                                  | 89.0                                          | 0.104                                              |
| 1.5KE62A         | 1.5KE62CA       | 58.9                           | 65.1    | 1.0    | 1.0                                                  | 53.0                                       | 17.6                                  | 85.0                                          | 0.104                                              |
| 1.5KE68          | 1.5KE68C        | 61.2                           | 74.8    | 1.0    | 1.0                                                  | 55.1                                       | 15.3                                  | 98.0                                          | 0.104                                              |
| 1.5KE68A         | 1.5KE68CA       | 64.6                           | 71.4    | 1.0    | 1.0                                                  | 58.1                                       | 16.3                                  | 92.0                                          | 0.104                                              |
| 1.5KE75          | 1.5KE75C        | 67.5                           | 82.5    | 1.0    | 1.0                                                  | 60.7                                       | 13.9                                  | 109                                           | 0.105                                              |
| 1.5KE75A         | 1.5KE75CA       | 71.3                           | 78.8    | 1.0    | 1.0                                                  | 64.1                                       | 14.6                                  | 104                                           | 0.105                                              |
| 1.5KE82          | 1.5KE82C        | 73.8                           | 90.2    | 1.0    | 1.0                                                  | 66.4                                       | 12.7                                  | 118                                           | 0.105                                              |
| 1.5KE82A         | 1.5KE82CA       | 77.9                           | 86.1    | 1.0    | 1.0                                                  | 70.1                                       | 13.3                                  | 113                                           | 0.105                                              |
| 1.5KE91          | 1.5KE91C        | 81.9                           | 100.0   | 1.0    | 1.0                                                  | 73.7                                       | 11.5                                  | 131                                           | 0.106                                              |
| 1.5KE91A         | 1.5KE91CA       | 86.5                           | 95.5    | 1.0    | 1.0                                                  | 77.8                                       | 12.0                                  | 125                                           | 0.106                                              |
| 1.5KE100         | 1.5KE100C       | 90.0                           | 110     | 1.0    | 1.0                                                  | 81.0                                       | 10.4                                  | 144                                           | 0.106                                              |
| 1.5KE100A        | 1.5KE100CA      | 95.0                           | 105     | 1.0    | 1.0                                                  | 85.5                                       | 10.9                                  | 137                                           | 0.106                                              |
| 1.5KE110         | 1.5KE110C       | 99.0                           | 121     | 1.0    | 1.0                                                  | 89.2                                       | 9.5                                   | 158                                           | 0.107                                              |
| 1.5KE110A        | 1.5KE110CA      | 105                            | 116     | 1.0    | 1.0                                                  | 94.0                                       | 9.9                                   | 152                                           | 0.107                                              |
| 1.5KE120         | 1.5KE120C       | 108                            | 132     | 1.0    | 1.0                                                  | 97.2                                       | 8.7                                   | 173                                           | 0.107                                              |
| 1.5KE120A        | 1.5KE120CA      | 114                            | 126     | 1.0    | 1.0                                                  | 102                                        | 9.1                                   | 165                                           | 0.107                                              |
| 1.5KE130         | 1.5KE130C       | 117                            | 143     | 1.0    | 1.0                                                  | 105                                        | 8.0                                   | 187                                           | 0.107                                              |
| 1.5KE130         | 1.5KE130CA      | 124                            | 137     | 1.0    | 1.0                                                  | 111                                        | 8.4                                   | 179                                           | 0.107                                              |
| 1.5KE150         | 1.5KE150C       | 136                            | 165     | 1.0    | 1.0                                                  | 121                                        | 7.0                                   | 215                                           | 0.108                                              |
| 1.5KE150A        | 1.5KE150CA      | 143                            | 158     | 1.0    | 1.0                                                  | 128                                        | 7.2                                   | 207                                           | 0.106                                              |
| 1.5KE160         | 1.5KE160C       | 144                            | 176     | 1.0    | 1.0                                                  | 130                                        | 6.5                                   | 230                                           | 0.106                                              |
| 1.5KE160A        | 1.5KE160CA      | 152                            | 168     | 1.0    | 1.0                                                  | 136                                        | 6.8                                   | 219                                           | 0.108                                              |
| 1.5KE170         | 1.5KE170C       | 153                            | 187     | 1.0    | 1.0                                                  | 138                                        | 6.1                                   | 244                                           | 0.108                                              |
| 1.5KE170A        | 1.5KE170CA      | 162                            | 179     | 1.0    | 1.0                                                  | 145                                        | 6.4                                   | 234                                           | 0.108                                              |
| 1.5KE180         | 1.5KE180C       | 162                            | 198     | 1.0    | 1.0                                                  | 146                                        | 5.8                                   | 258                                           | 0.108                                              |
| 1.5KE180A        | 1.5KE180CA      | 171                            | 189     | 1.0    | 1.0                                                  | 154                                        | 6.1                                   | 246                                           | 0.108                                              |

| Part Number(Uni) | Part Number(Bi) | Breakdown Voltage $V_{BR}@I_T$ |         |           | Maximum Reverse Leakage $I_R @ V_{WM} (\mu A)$ | Working Peak Reverse Voltage $V_{RWM} (V)$ | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage $V_C @ I_{PP} (V)$ | Maximum Temperature Coefficient of $V_{BR} (\%/^{\circ}C)$ |
|------------------|-----------------|--------------------------------|---------|-----------|------------------------------------------------|--------------------------------------------|---------------------------------------|---------------------------------------------|------------------------------------------------------------|
|                  |                 | Min(V)                         | Max (V) | $I_T(mA)$ |                                                |                                            |                                       |                                             |                                                            |
| 1.5KE200         | 1.5KE200C       | 180                            | 220     | 1.0       | 1.0                                            | 162                                        | 5.2                                   | 287                                         | 0.108                                                      |
| 1.5KE200A        | 1.5KE200CA      | 190                            | 210     | 1.0       | 1.0                                            | 171                                        | 5.5                                   | 274                                         | 0.108                                                      |
| 1.5KE220         | 1.5KE220C       | 198                            | 242     | 1.0       | 1.0                                            | 175                                        | 4.4                                   | 344                                         | 0.108                                                      |
| 1.5KE220A        | 1.5KE220CA      | 209                            | 231     | 1.0       | 1.0                                            | 185                                        | 4.6                                   | 328                                         | 0.108                                                      |
| 1.5KE250         | 1.5KE250C       | 225                            | 275     | 1.0       | 1.0                                            | 202                                        | 4.2                                   | 360                                         | 0.110                                                      |
| 1.5KE250A        | 1.5KE250CA      | 237                            | 263     | 1.0       | 1.0                                            | 214                                        | 4.4                                   | 344                                         | 0.110                                                      |
| 1.5KE300         | 1.5KE300C       | 270                            | 330     | 1.0       | 1.0                                            | 243                                        | 3.5                                   | 430                                         | 0.110                                                      |
| 1.5KE300A        | 1.5KE300CA      | 285                            | 315     | 1.0       | 1.0                                            | 256                                        | 3.6                                   | 414                                         | 0.110                                                      |
| 1.5KE350         | 1.5KE350C       | 315                            | 385     | 1.0       | 1.0                                            | 284                                        | 3.0                                   | 504                                         | 0.110                                                      |
| 1.5KE350A        | 1.5KE350CA      | 333                            | 368     | 1.0       | 1.0                                            | 300                                        | 3.1                                   | 482                                         | 0.110                                                      |
| 1.5KE400         | 1.5KE400C       | 360                            | 440     | 1.0       | 1.0                                            | 324                                        | 2.6                                   | 574                                         | 0.110                                                      |
| 1.5KE400A        | 1.5KE400CA      | 380                            | 420     | 1.0       | 1.0                                            | 342                                        | 2.7                                   | 548                                         | 0.110                                                      |
| 1.5KE440         | 1.5KE440C       | 396                            | 484     | 1.0       | 1.0                                            | 356                                        | 2.4                                   | 631                                         | 0.110                                                      |
| 1.5KE440A        | 1.5KE440CA      | 418                            | 462     | 1.0       | 1.0                                            | 376                                        | 2.5                                   | 602                                         | 0.110                                                      |
| 1.5KE480         | 1.5KE480C       | 432                            | 528     | 1.0       | 1.0                                            | 389                                        | 2.19                                  | 686                                         | 0.110                                                      |
| 1.5KE480A        | 1.5KE480CA      | 456                            | 504     | 1.0       | 1.0                                            | 408                                        | 2.28                                  | 658                                         | 0.110                                                      |
| 1.5KE510         | 1.5KE510C       | 459                            | 561     | 1.0       | 1.0                                            | 413                                        | 2.06                                  | 729                                         | 0.110                                                      |
| 1.5KE510A        | 1.5KE510CA      | 485                            | 535     | 1.0       | 1.0                                            | 434                                        | 2.15                                  | 698                                         | 0.110                                                      |
| 1.5KE540         | 1.5KE540C       | 486                            | 594     | 1.0       | 1.0                                            | 437                                        | 1.94                                  | 772                                         | 0.110                                                      |
| 1.5KE540A        | 1.5KE540CA      | 513                            | 567     | 1.0       | 1.0                                            | 459                                        | 2.03                                  | 740                                         | 0.110                                                      |

FIG1: Peak Pulse Power Rating Curve

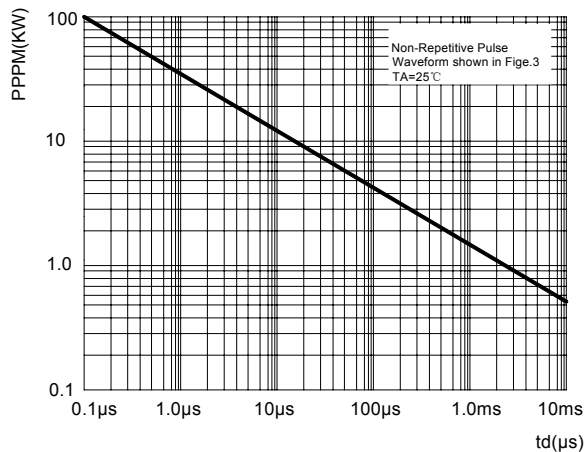


FIG2: Pulse Power or Current vs. Initial Junction Temperature

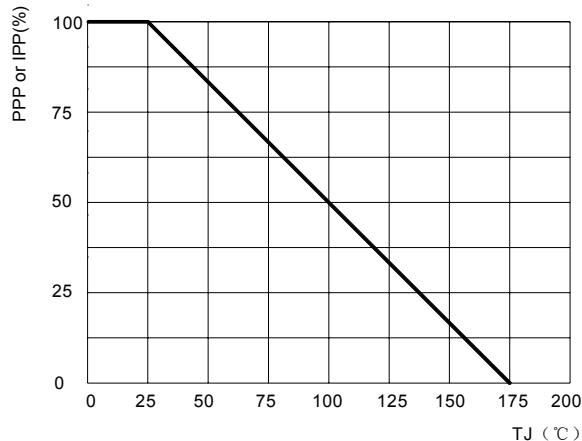


FIG3: Pulse Waveform

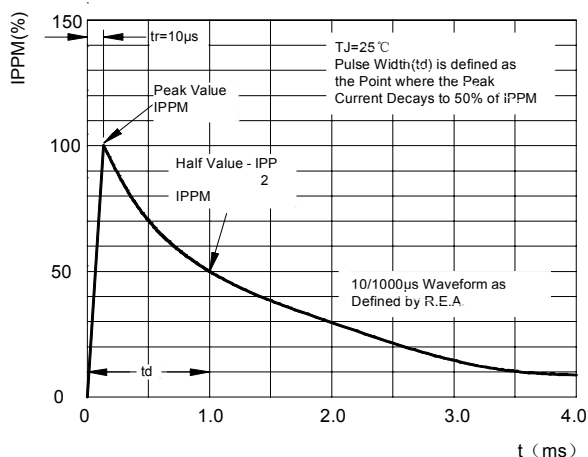


FIG4: Power Derating Curve

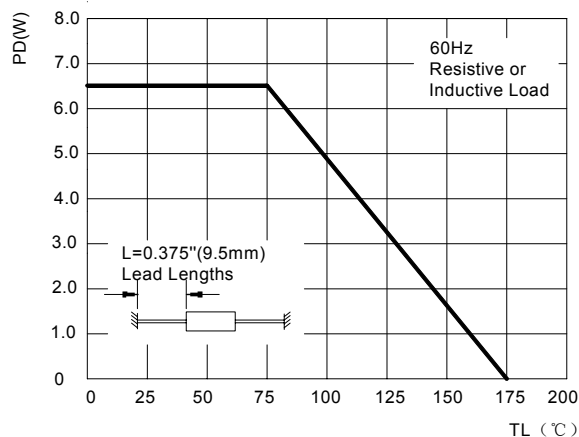


FIG5: Maximum Non-Repetitive Surge Current

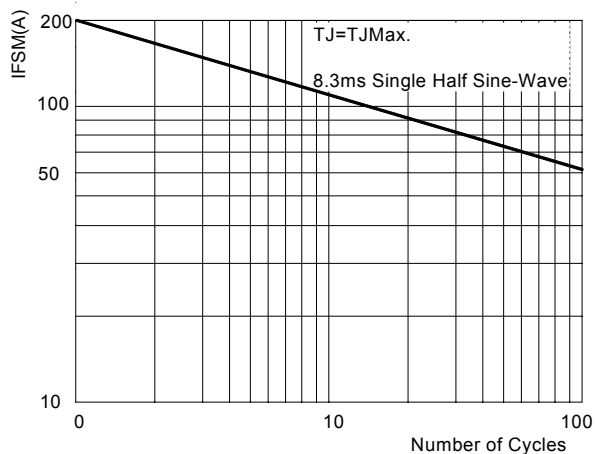
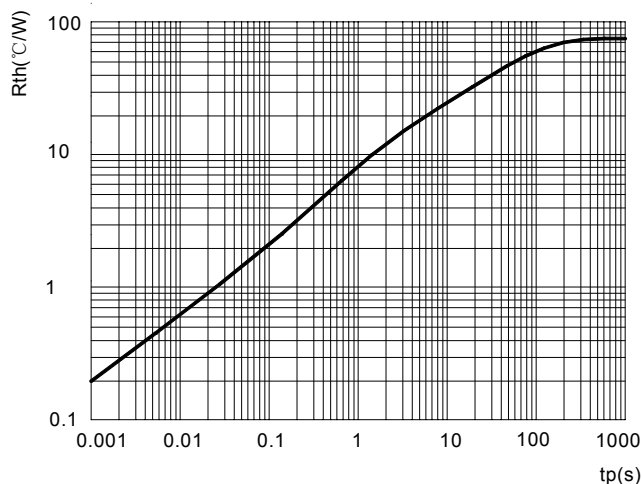
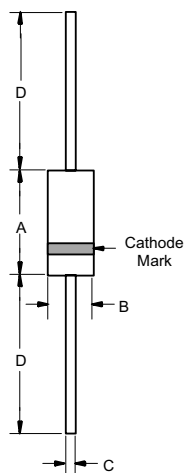


FIG6: Typical Transient Thermal Impedance



Package Outline DO-201AD(DO-27)



| DIMENSIONS |        |      |       |      |      |
|------------|--------|------|-------|------|------|
| DIM        | INCHES |      | MM    |      | NOTE |
|            | MIN    | MAX  | MIN   | MAX  |      |
| A          | ---    | .370 | ---   | 9.50 |      |
| B          | ---    | .250 | ---   | 6.40 |      |
| C          | .048   | .052 | 1.20  | 1.30 |      |
| D          | 1.000  | ---  | 25.40 | ---  |      |

Summary of Packing Options

| Package         | Packing Description | Packing Quantity | Industry Standard |
|-----------------|---------------------|------------------|-------------------|
| DO-201AD(DO-27) | BOX                 | 250/1000/1250    | EIA-481-1         |