

**Unidirectional and Bidirectional Transient Voltage Suppressors****Reverse Voltage 6.8 - 400 Volts**  
**Power Dissipation - 1500 Watts****Features**

- low leakage
- Uni and bidirectional unit
- Excellent clamping capability
- Fast response time

**Mechanical Data**

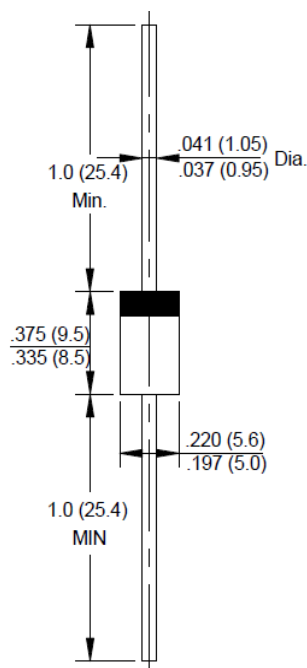
- Case: DO-201AE molded plastic

- Polarity: Color band denotes cathode

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

**Applications**

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET.

**DO-201AE****RoHS**  
COMPLIANT

Package Outline Dimensions in Inches (Millimeters)

**Maximum Ratings and Electrical Characteristics**

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| Characteristics                                                                                    | Symbol      | Value        | Unit               |
|----------------------------------------------------------------------------------------------------|-------------|--------------|--------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ $T_P=1\text{ms}$ (Note 1)                         | $P_{PK}$    | 1500 (Min)   | W                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$   | 200          | A                  |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$<br>Lead Lengths 0.375"(9.5mm), See Fig. 6 | $P_{M(AV)}$ | 5            | W                  |
| Maximum Instantaneous Forward Voltage at 50A for Unidirectional Devices Only (Note 2)              | $V_F$       | See Note 3   | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range                                                               | $T_J$       | -55 to + 150 | $^\circ\text{C}$   |
| Storage Temperature Range                                                                          | $T_{STG}$   | -55 to + 150 | $^\circ\text{C}$   |

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 1.

2. 8.3ms single half-wave duty cycle=4 pulses per minutes maximum (uni-directional units only).

3.  $V_F=3.5\text{V}$  on 1.5KE6.8 thru 1.5KE200A devices and  $V_F=5.0\text{V}$  on 1.5KE220 thru 1.5KE400A devices.



Fig. 1 - Maximum Non-Repetitive Peak Forward Surge Current

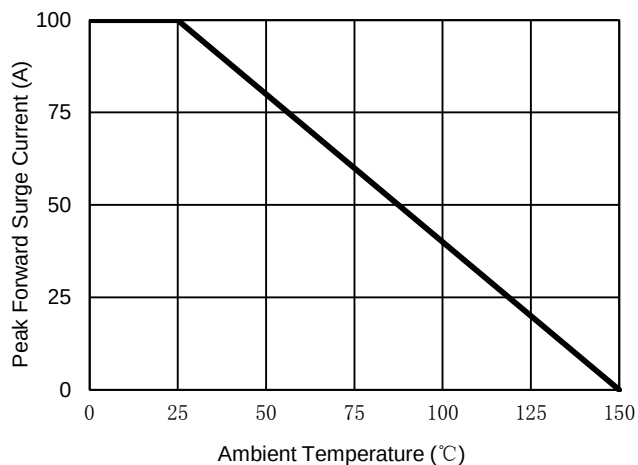


Fig. 2 - Maximum Non-Repetitive Surge Current

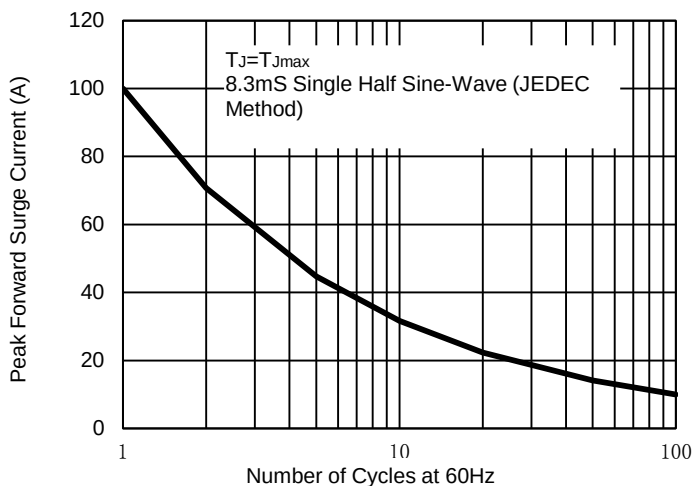


Fig. 3 - Pulse Waveform

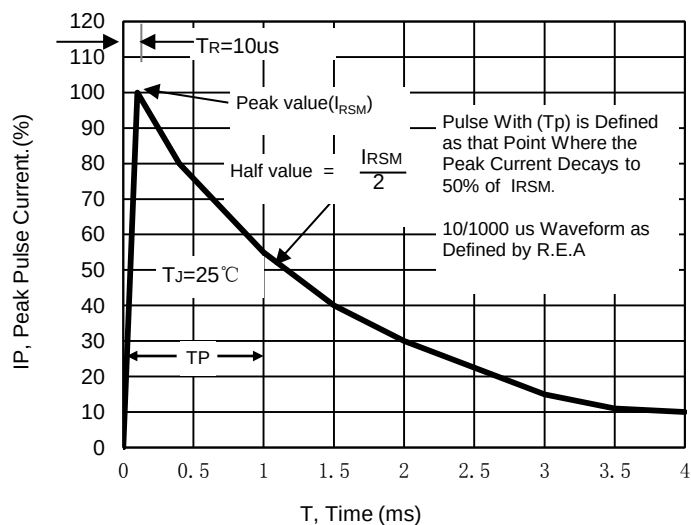


Fig.4- Typical Junction Capacitance

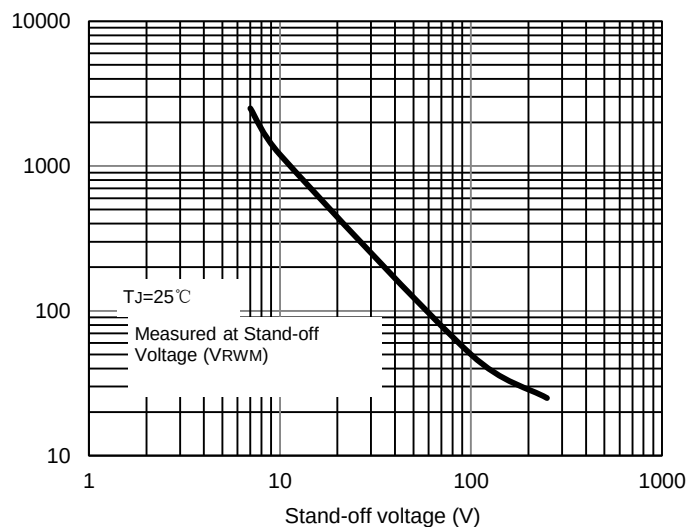


Fig. 5 - Pulse Rating Curve

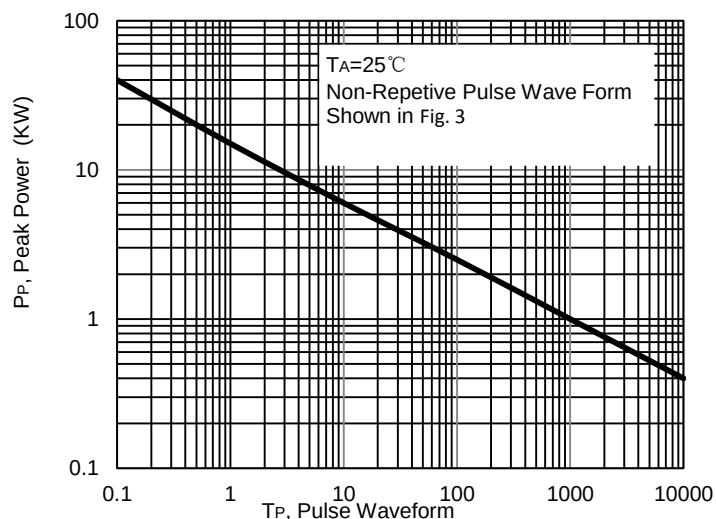
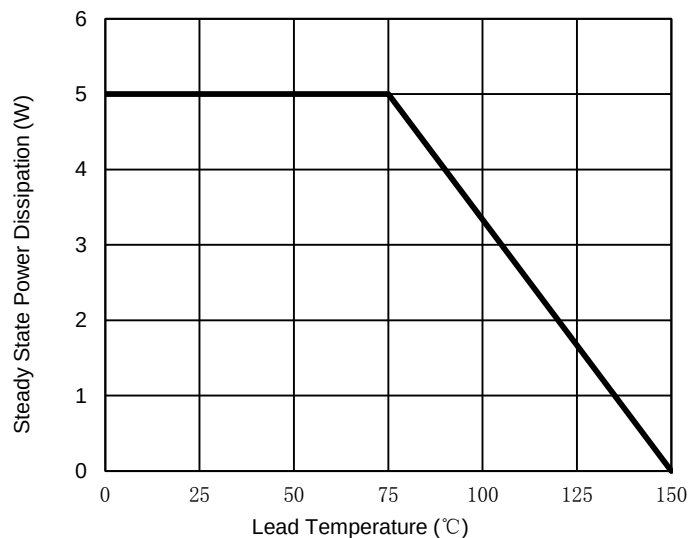


Fig. 6 - Steady State Power Derating Curve



The curve above is for reference only.

1P5KE\*-A/B-00/99-00/01

Rev. 11, 18-May-2020



# 1.5KE SERIES

| Device<br>Uni-directional | Device<br>Bi-directional | Reverse Stand<br>off Voltage | Breakdown Voltage at IT2<br>V(BR) (V) |        |        | Maximum<br>Reverse<br>Leakage at<br>VR | Maximum<br>Clamping<br>Voltage<br>at IPPM | Maximum<br>Peak Pulse<br>Surge<br>Current <sup>(3)</sup> | Max.<br>Voltage<br>Temp. |
|---------------------------|--------------------------|------------------------------|---------------------------------------|--------|--------|----------------------------------------|-------------------------------------------|----------------------------------------------------------|--------------------------|
|                           |                          |                              | Min(V)                                | Max(V) | It(mA) |                                        |                                           |                                                          |                          |
| (UNI)                     | (BI)                     | VR(V)                        | Min(V)                                | Max(V) | It(mA) | IR(μA)                                 | Vc(V)                                     | Ipp(A)                                                   | mV/°C                    |
| 1.5KE6.8A                 | 1.5KE6.8CA               | 5.80                         | 6.45                                  | 7.14   | 10     | 1000                                   | 10.5                                      | 143.0                                                    | 0.057                    |
| 1.5KE7.5A                 | 1.5KE7.5CA               | 6.40                         | 7.13                                  | 7.88   | 10     | 500                                    | 11.3                                      | 132.0                                                    | 0.061                    |
| 1.5KE8.2A                 | 1.5KE8.2CA               | 7.02                         | 7.79                                  | 8.61   | 10     | 200                                    | 12.1                                      | 124.0                                                    | 0.065                    |
| 1.5KE9.1A                 | 1.5KE9.1CA               | 7.78                         | 8.65                                  | 9.55   | 1      | 50                                     | 13.4                                      | 112.0                                                    | 0.068                    |
| 1.5KE10A                  | 1.5KE10CA                | 8.55                         | 9.50                                  | 10.50  | 1      | 10                                     | 14.5                                      | 103.0                                                    | 0.073                    |
| 1.5KE11A                  | 1.5KE11CA                | 9.40                         | 10.50                                 | 11.60  | 1      | 5                                      | 15.6                                      | 96.0                                                     | 0.075                    |
| 1.5KE12A                  | 1.5KE12CA                | 10.20                        | 11.40                                 | 12.60  | 1      | 5                                      | 16.7                                      | 90.0                                                     | 0.078                    |
| 1.5KE13A                  | 1.5KE13CA                | 11.10                        | 12.40                                 | 13.70  | 1      | 5                                      | 18.2                                      | 82.0                                                     | 0.081                    |
| 1.5KE15A                  | 1.5KE15CA                | 12.80                        | 14.30                                 | 15.80  | 1      | 5                                      | 21.2                                      | 71.0                                                     | 0.084                    |
| 1.5KE16A                  | 1.5KE16CA                | 13.60                        | 15.20                                 | 16.80  | 1      | 5                                      | 22.5                                      | 67.0                                                     | 0.086                    |
| 1.5KE18A                  | 1.5KE18CA                | 15.30                        | 17.10                                 | 18.90  | 1      | 5                                      | 25.2                                      | 59.5                                                     | 0.088                    |
| 1.5KE20A                  | 1.5KE20CA                | 17.10                        | 19.00                                 | 21.00  | 1      | 5                                      | 27.7                                      | 54.0                                                     | 0.090                    |
| 1.5KE22A                  | 1.5KE22CA                | 18.80                        | 20.90                                 | 23.10  | 1      | 5                                      | 30.6                                      | 49.0                                                     | 0.092                    |
| 1.5KE24A                  | 1.5KE24CA                | 20.50                        | 22.80                                 | 25.20  | 1      | 5                                      | 33.2                                      | 45.0                                                     | 0.094                    |
| 1.5KE27A                  | 1.5KE27CA                | 23.10                        | 25.70                                 | 28.40  | 1      | 5                                      | 37.5                                      | 40.0                                                     | 0.096                    |
| 1.5KE30A                  | 1.5KE30CA                | 25.60                        | 28.50                                 | 31.50  | 1      | 5                                      | 41.4                                      | 36.0                                                     | 0.097                    |
| 1.5KE33A                  | 1.5KE33CA                | 28.20                        | 31.40                                 | 34.70  | 1      | 5                                      | 45.7                                      | 33.0                                                     | 0.098                    |
| 1.5KE36A                  | 1.5KE36CA                | 30.80                        | 34.20                                 | 37.80  | 1      | 5                                      | 49.9                                      | 30.0                                                     | 0.099                    |
| 1.5KE39A                  | 1.5KE39CA                | 33.30                        | 37.10                                 | 41.00  | 1      | 5                                      | 53.9                                      | 28.0                                                     | 0.100                    |
| 1.5KE43A                  | 1.5KE43CA                | 36.80                        | 40.90                                 | 45.20  | 1      | 5                                      | 59.3                                      | 25.3                                                     | 0.101                    |
| 1.5KE47A                  | 1.5KE47CA                | 40.20                        | 44.70                                 | 49.40  | 1      | 5                                      | 64.8                                      | 23.2                                                     | 0.101                    |
| 1.5KE51A                  | 1.5KE51CA                | 43.60                        | 48.50                                 | 53.60  | 1      | 5                                      | 70.1                                      | 21.4                                                     | 0.102                    |
| 1.5KE56A                  | 1.5KE56CA                | 47.80                        | 53.20                                 | 58.80  | 1      | 5                                      | 77.0                                      | 19.5                                                     | 0.103                    |
| 1.5KE62A                  | 1.5KE62CA                | 53.0                         | 58.9                                  | 65.1   | 1      | 5                                      | 85.0                                      | 17.70                                                    | 0.104                    |
| 1.5KE68A                  | 1.5KE68CA                | 58.1                         | 64.6                                  | 71.4   | 1      | 5                                      | 92.0                                      | 16.30                                                    | 0.104                    |
| 1.5KE75A                  | 1.5KE75CA                | 64.7                         | 71.3                                  | 78.8   | 1      | 5                                      | 103.0                                     | 14.60                                                    | 0.105                    |
| 1.5KE82A                  | 1.5KE82CA                | 70.1                         | 77.9                                  | 86.1   | 1      | 5                                      | 113.0                                     | 13.30                                                    | 0.105                    |
| 1.5KE91A                  | 1.5KE91CA                | 77.8                         | 86.5                                  | 95.5   | 1      | 5                                      | 125.0                                     | 12.00                                                    | 0.106                    |
| 1.5KE100A                 | 1.5KE100CA               | 85.5                         | 95.0                                  | 105.0  | 1      | 5                                      | 137.0                                     | 11.00                                                    | 0.106                    |
| 1.5KE110A                 | 1.5KE110CA               | 94.0                         | 105.0                                 | 116.0  | 1      | 5                                      | 152.0                                     | 9.90                                                     | 0.107                    |
| 1.5KE120A                 | 1.5KE120CA               | 102.0                        | 114.0                                 | 126.0  | 1      | 5                                      | 165.0                                     | 9.10                                                     | 0.107                    |
| 1.5KE130A                 | 1.5KE130CA               | 111.0                        | 124.0                                 | 137.0  | 1      | 5                                      | 179.0                                     | 8.40                                                     | 0.107                    |
| 1.5KE150A                 | 1.5KE150CA               | 128.0                        | 143.0                                 | 158.0  | 1      | 5                                      | 207.0                                     | 7.20                                                     | 0.108                    |
| 1.5KE160A                 | 1.5KE160CA               | 136.0                        | 152.0                                 | 168.0  | 1      | 5                                      | 219.0                                     | 6.80                                                     | 0.108                    |
| 1.5KE170A                 | 1.5KE170CA               | 145.0                        | 162.0                                 | 179.0  | 1      | 5                                      | 234.0                                     | 6.40                                                     | 0.108                    |
| 1.5KE180A                 | 1.5KE180CA               | 154.0                        | 171.0                                 | 189.0  | 1      | 5                                      | 246.0                                     | 6.10                                                     | 0.108                    |
| 1.5KE200A                 | 1.5KE200CA               | 171.0                        | 190.0                                 | 210.0  | 1      | 5                                      | 274.0                                     | 5.50                                                     | 0.108                    |
| 1.5KE220A                 | 1.5KE220CA               | 185.0                        | 209.0                                 | 231.0  | 1      | 5                                      | 328.0                                     | 4.60                                                     | 0.108                    |
| 1.5KE250A                 | 1.5KE250CA               | 214.0                        | 237.0                                 | 263.0  | 1      | 5                                      | 344.4                                     | 5.00                                                     | 0.110                    |
| 1.5KE300A                 | 1.5KE300CA               | 256.0                        | 285.0                                 | 315.0  | 1      | 5                                      | 414.0                                     | 5.00                                                     | 0.110                    |
| 1.5KE350A                 | 1.5KE350CA               | 300.0                        | 332.0                                 | 368.0  | 1      | 5                                      | 482.0                                     | 4.00                                                     | 0.110                    |
| 1.5KE400A                 | 1.5KE400CA               | 342.0                        | 380.0                                 | 420.0  | 1      | 5                                      | 548.0                                     | 4.00                                                     | 0.110                    |

Notes: 1. Suffix'C' denotes bidirectional device . Suffix'A' denotes 5% tolerance device

2. For bidirectional devices having VR of 10volts and under ,the IR limit is doubled .

1P5KE\*-A/B-00/99-00/01

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