

# 15KPA17A thru 15KPA280CA

Transient Voltage Suppressors  
Peak Pulse Power 15KW Stand-off Voltage 17V to 280V

## Features

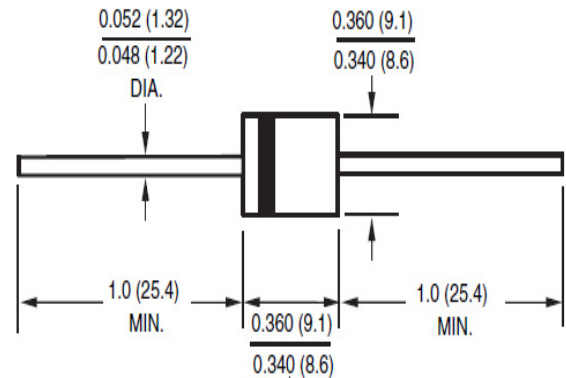
- Glass passivated chip
- 15000 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- Low Leakage
- Excellent clamping capability
- Fast response time
- RoHS compliant



Package: P600

## Mechanical Data

- Case: molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-202, method 208 guaranteed
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                                                                                  | Symbol         | Value          | UNIT               |
|--------------------------------------------------------------------------------------------|----------------|----------------|--------------------|
| Peak Power Dissipation with a 10/1000 $\mu$ s Waveform <sup>(1)</sup>                      | $P_{PP}$       | 15000          | W                  |
| Peak Pulse Current with a 10/1000 $\mu$ s Waveform <sup>(1)</sup>                          | $I_{PP}$       | See Next Table | A                  |
| Power Dissipation on Infinite Heatsink at $T_L = 75^{\circ}\text{C}$                       | $P_D$          | 8.0            | W                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Unidirectional Only <sup>(2)</sup> | $I_{FSM}$      | 500            | A                  |
| Operating Junction and Storage Temperature Range                                           | $T_J, T_{STG}$ | -55 to +150    | $^{\circ}\text{C}$ |

Note:

(1) Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25^{\circ}\text{C}$  per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

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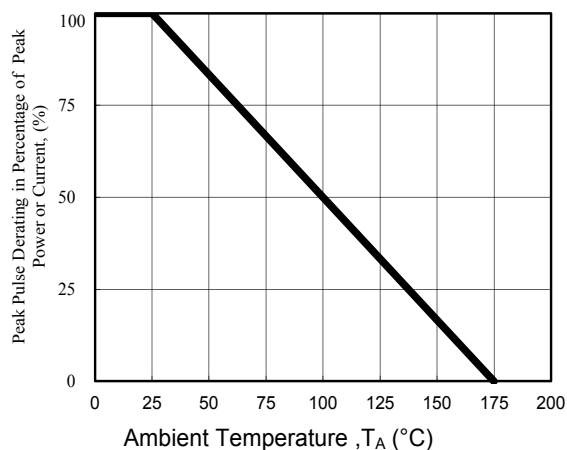
## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

| Part Number (Uni) | Part Number (Bi) | Breakdown Voltage VBR @ IT |         | Maximum Reverse Leakage IR @VRWM (uA) | Working Peak Reverse Voltage VRWM (V) | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage VC @IPP (V) |
|-------------------|------------------|----------------------------|---------|---------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
|                   |                  | Min (V)                    | IT (mA) |                                       |                                       |                                       |                                      |
| 15KPA17A          | 15KPA17CA        | 18.99                      | 50      | 5000                                  | 17                                    | 515.4                                 | 29.3                                 |
| 15KPA18A          | 15KPA18CA        | 20.11                      | 50      | 5000                                  | 18                                    | 488.7                                 | 30.9                                 |
| 15KPA20A          | 15KPA20CA        | 22.34                      | 20      | 1500                                  | 20                                    | 440.2                                 | 34.3                                 |
| 15KPA22A          | 15KPA22CA        | 24.57                      | 10      | 500                                   | 22                                    | 407.0                                 | 37.1                                 |
| 15KPA24A          | 15KPA24CA        | 26.81                      | 5       | 150                                   | 24                                    | 371.0                                 | 40.7                                 |
| 15KPA26A          | 15KPA26CA        | 29.04                      | 5       | 50                                    | 26                                    | 343.2                                 | 44.0                                 |
| 15KPA28A          | 15KPA28CA        | 31.28                      | 5       | 25                                    | 28                                    | 317.9                                 | 47.5                                 |
| 15KPA30A          | 15KPA30CA        | 33.51                      | 5       | 15                                    | 30                                    | 297.8                                 | 50.7                                 |
| 15KPA33A          | 15KPA33CA        | 36.90                      | 5       | 2                                     | 33                                    | 276.1                                 | 54.7                                 |
| 15KPA36A          | 15KPA36CA        | 40.20                      | 5       | 2                                     | 36                                    | 252.5                                 | 59.8                                 |
| 15KPA40A          | 15KPA40CA        | 44.70                      | 5       | 2                                     | 40                                    | 229.5                                 | 65.8                                 |
| 15KPA43A          | 15KPA43CA        | 48.00                      | 5       | 2                                     | 43                                    | 216.3                                 | 69.8                                 |
| 15KPA45A          | 15KPA45CA        | 50.30                      | 5       | 2                                     | 45                                    | 207.4                                 | 72.8                                 |
| 15KPA48A          | 15KPA48CA        | 53.60                      | 5       | 2                                     | 48                                    | 194.3                                 | 77.7                                 |
| 15KPA51A          | 15KPA51CA        | 57.00                      | 5       | 2                                     | 51                                    | 182.1                                 | 82.9                                 |
| 15KPA54A          | 15KPA54CA        | 60.30                      | 5       | 2                                     | 54                                    | 172.2                                 | 87.7                                 |
| 15KPA58A          | 15KPA58CA        | 64.80                      | 5       | 2                                     | 58                                    | 161.0                                 | 93.8                                 |
| 15KPA60A          | 15KPA60CA        | 67.00                      | 5       | 2                                     | 60                                    | 155.0                                 | 97.4                                 |
| 15KPA64A          | 15KPA64CA        | 71.50                      | 5       | 2                                     | 64                                    | 144.9                                 | 104.2                                |
| 15KPA70A          | 15KPA70CA        | 78.20                      | 5       | 2                                     | 70                                    | 132.9                                 | 113.6                                |
| 15KPA75A          | 15KPA75CA        | 83.80                      | 5       | 2                                     | 75                                    | 123.8                                 | 122.0                                |
| 15KPA78A          | 15KPA78CA        | 87.10                      | 5       | 2                                     | 78                                    | 119.7                                 | 126.1                                |
| 15KPA85A          | 15KPA85CA        | 94.90                      | 5       | 2                                     | 85                                    | 109.7                                 | 137.6                                |
| 15KPA90A          | 15KPA90CA        | 100.50                     | 5       | 2                                     | 90                                    | 103.7                                 | 145.6                                |
| 15KPA100A         | 15KPA100CA       | 111.70                     | 5       | 2                                     | 100                                   | 93.6                                  | 161.3                                |
| 15KPA110A         | 15KPA110CA       | 122.90                     | 5       | 2                                     | 110                                   | 84.5                                  | 178.6                                |
| 15KPA120A         | 15KPA120CA       | 134.00                     | 5       | 2                                     | 120                                   | 78.5                                  | 192.3                                |
| 15KPA130A         | 15KPA130CA       | 145.20                     | 5       | 2                                     | 130                                   | 72.5                                  | 208.3                                |
| 15KPA150A         | 15KPA150CA       | 167.60                     | 5       | 2                                     | 150                                   | 62.4                                  | 241.9                                |
| 15KPA160A         | 15KPA160CA       | 178.70                     | 5       | 2                                     | 160                                   | 58.4                                  | 258.6                                |
| 15KPA170A         | 15KPA170CA       | 189.90                     | 5       | 2                                     | 170                                   | 55.4                                  | 272.7                                |
| 15KPA180A         | 15KPA180CA       | 201.10                     | 5       | 2                                     | 180                                   | 52.3                                  | 288.5                                |
| 15KPA200A         | 15KPA200CA       | 223.40                     | 5       | 2                                     | 200                                   | 47.3                                  | 319.1                                |
| 15KPA220A         | 15KPA220CA       | 245.70                     | 5       | 2                                     | 220                                   | 35.2                                  | 428.6                                |
| 15KPA240A         | 15KPA240CA       | 268.10                     | 5       | 2                                     | 240                                   | 39.3                                  | 384.6                                |
| 15KPA260A         | 15KPA260CA       | 290.40                     | 5       | 2                                     | 260                                   | 36.2                                  | 416.7                                |
| 15KPA280A         | 15KPA280CA       | 312.80                     | 5       | 2                                     | 280                                   | 33.2                                  | 454.5                                |

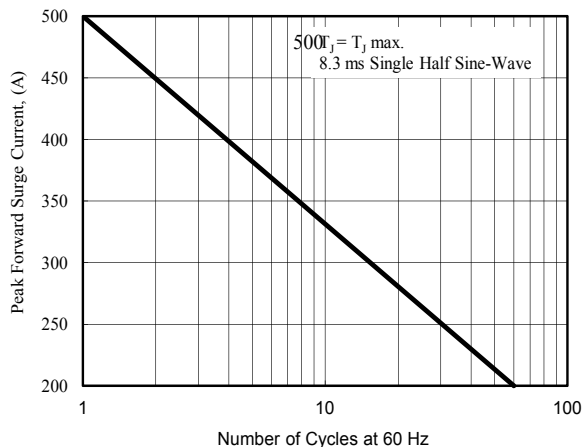
### Note:

1.For Bi-Directional devices having V<sub>R</sub> of 30 volts and under, the I<sub>R</sub> limit is double

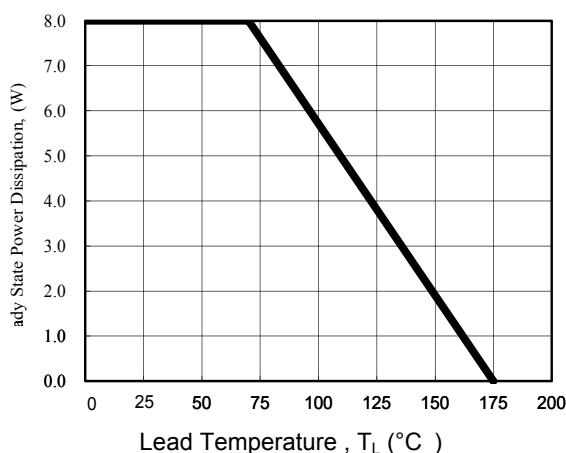
## Typical Characteristic Curves



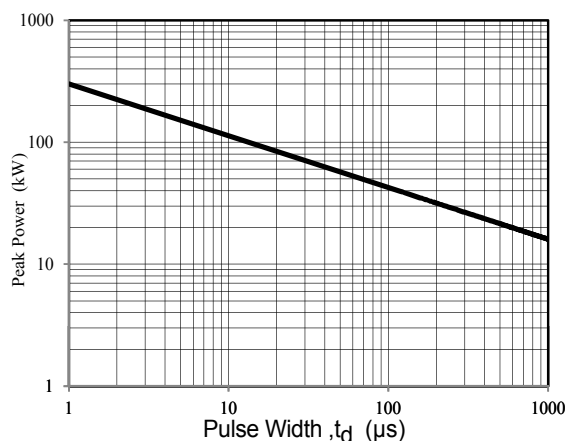
**Fig. 1 - Pulse Derating Curve**



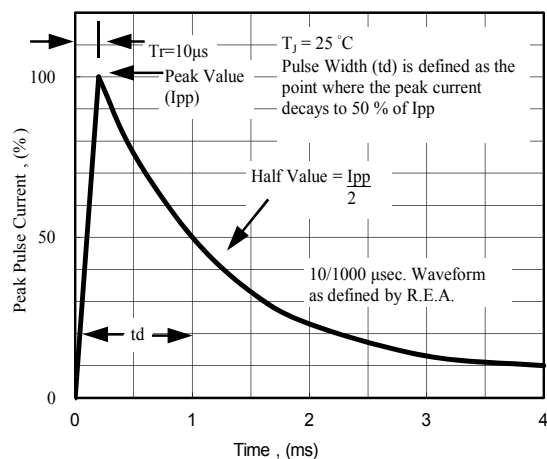
**Fig. 2 - Maximum Non-Repetitive Surge Current**



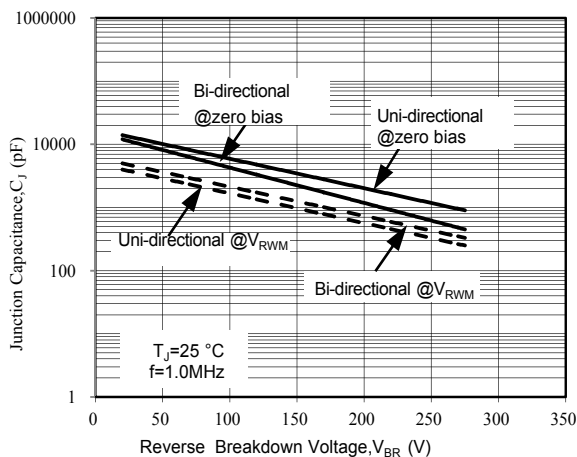
**Fig. 3 - Steady State Power Derating Curve**



**Fig. 4 - Peak Pulse Power Rating Curve**



**Fig. 5 - Pulse Waveform**



**Fig. 6 - Typical Junction Capacitance**