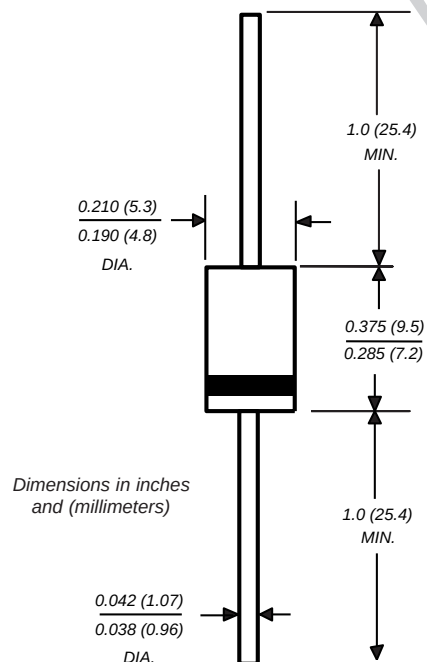


## TRANSZORB® Transient Voltage Suppressors

**V<sub>(BR)</sub> Unidirectional** 6.8 to 540V  
**V<sub>(BR)</sub> Bidirectional** 6.8 to 440V  
**Peak Pulse Power** 1500W

### Case Style 1.5KE



\*Voltages above 440V available Q2-2002

### Devices for Bidirectional Applications

For bi-directional, use C or CA suffix for types 1.5KE6.8 thru types 1.5KE440 (e.g. 1.5KE6.8C, 1.5KE440CA). Electrical characteristics apply in both directions.

### Maximum Ratings and Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter                                                                                           | Symbol                            | Limit          | Unit |
|-----------------------------------------------------------------------------------------------------|-----------------------------------|----------------|------|
| Peak power dissipation with a 10/1000μs waveform <sup>(1)</sup> (Fig. 1)                            | P <sub>PPM</sub>                  | 1500           | W    |
| Peak pulse current with a 10/1000μs waveform <sup>(1)</sup>                                         | I <sub>PPM</sub>                  | See Next Table | A    |
| Steady state power dissipation at T <sub>L</sub> = 75°C, lead lengths 0.375" (9.5mm) <sup>(2)</sup> | P <sub>M(AV)</sub>                | 6.5            | W    |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only <sup>(3)</sup>          | I <sub>FSM</sub>                  | 200            | A    |
| Maximum instantaneous forward voltage at 100A for unidirectional only <sup>(4)</sup>                | V <sub>F</sub>                    | 3.5/5.0        | V    |
| Typical thermal resistance junction-to-lead                                                         | R <sub>θJL</sub>                  | 20             | °C/W |
| Typical thermal resistance junction-to-ambient                                                      | R <sub>θJA</sub>                  | 75             | °C/W |
| Operating junction and storage temperature range                                                    | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175    | °C   |

**Notes:** (1) Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 25°C per Fig. 2

(2) Mounted on copper pad area of 1.6 x 1.6" (40 x 40mm) per Fig. 5

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

(4) V<sub>F</sub> = 3.5V for 1.5KE220(A) & below; V<sub>F</sub> = 5.0V for 1.5KE250(A) & above

### Features

- Underwriters Laboratory Recognition under UL standard for safety 497B: Isolated Loop Circuit Protection
- Glass passivated junction
- 1500W peak pulse power capability on 10/1000μs waveform, repetition rate (duty cycle): 0.05%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Includes 1N6267 thru 1N6303A

### Mechanical Data

**Case:** Molded plastic body over passivated junction

**Terminals:** Plated axial leads, solderable per MIL-STD-750, Method 2026

High temperature soldering guaranteed: 265°C/10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3 kg) tension

**Polarity:** For unidirectional types the color band denotes the cathode, which is positive with respect to the anode under normal TVS operation

**Mounting Position:** Any **Weight:** 0.045oz., 1.2g

**Flammability:** Epoxy is rated UL 94V-0

**Packaging Codes – Options (Antistatic):**

51 – 1K per Bulk box, 10K/carton

54 – 1.4K per 13" paper Reel

(52mm horiz. tape), 4.2K/carton

73 – 1K per horiz. tape & Ammo box, 10K/carton

# 1.5KE6.8 Series and 1N6267 thru 1N6303A



Vishay Semiconductors  
formerly General Semiconductor

## Electrical Characteristics (TA = 25°C unless otherwise noted)

| JEDEC<br>Type<br>Number | General<br>Semiconductor<br>Part<br>Number | Breakdown Voltage<br>V <sub>(BR)</sub> at I <sub>T</sub> <sup>(1)</sup><br>(V) |      | Test<br>Current<br>I <sub>T</sub><br>(mA) | Stand-off<br>Voltage<br>V <sub>WM</sub><br>(V) | Maximum<br>Reverse<br>Leakage<br>at V <sub>WM</sub><br>I <sub>D</sub> <sup>(4)</sup> (μA) | Maximum<br>Peak Pulse<br>Current<br>I <sub>PPM</sub> <sup>(2)</sup><br>(A) | Maximum<br>Clamping<br>Voltage<br>at I <sub>PPM</sub><br>V <sub>C</sub> (V) | Maximum<br>Temp.<br>Coefficient<br>of V <sub>(BR)</sub><br>(% / °C) |
|-------------------------|--------------------------------------------|--------------------------------------------------------------------------------|------|-------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                         |                                            | Min                                                                            | Max  |                                           |                                                |                                                                                           |                                                                            |                                                                             |                                                                     |
| 1N6267                  | +1.5KE6.8                                  | 6.12                                                                           | 7.48 | 10                                        | 5.50                                           | 1000                                                                                      | 139                                                                        | 10.8                                                                        | 0.057                                                               |
| 1N6267A                 | +1.5KE6.8A                                 | 6.45                                                                           | 7.14 | 10                                        | 5.80                                           | 1000                                                                                      | 143                                                                        | 10.5                                                                        | 0.057                                                               |
| 1N6268                  | +1.5KE7.5                                  | 6.75                                                                           | 8.25 | 10                                        | 6.05                                           | 500                                                                                       | 128                                                                        | 11.7                                                                        | 0.061                                                               |
| 1N6268A                 | +1.5KE7.5A                                 | 7.13                                                                           | 7.88 | 10                                        | 6.40                                           | 500                                                                                       | 133                                                                        | 11.3                                                                        | 0.061                                                               |
| 1N6269                  | +1.5KE8.2                                  | 7.38                                                                           | 9.02 | 10                                        | 6.63                                           | 200                                                                                       | 120                                                                        | 12.5                                                                        | 0.065                                                               |
| 1N6269A                 | +1.5KE8.2A                                 | 7.79                                                                           | 8.61 | 10                                        | 7.02                                           | 200                                                                                       | 124                                                                        | 12.1                                                                        | 0.065                                                               |
| 1N6270                  | +1.5KE9.1                                  | 8.19                                                                           | 10.0 | 1.0                                       | 7.37                                           | 50                                                                                        | 109                                                                        | 13.8                                                                        | 0.068                                                               |
| 1N6270A                 | +1.5KE9.1A                                 | 8.65                                                                           | 9.55 | 1.0                                       | 7.78                                           | 50                                                                                        | 112                                                                        | 13.4                                                                        | 0.068                                                               |
| 1N6271                  | +1.5KE10                                   | 9.00                                                                           | 11.0 | 1.0                                       | 8.10                                           | 10                                                                                        | 100                                                                        | 15.0                                                                        | 0.073                                                               |
| 1N6271A                 | +1.5KE10A                                  | 9.50                                                                           | 10.5 | 1.0                                       | 8.55                                           | 10                                                                                        | 103                                                                        | 14.5                                                                        | 0.073                                                               |
| 1N6272                  | +1.5KE11                                   | 9.90                                                                           | 12.1 | 1.0                                       | 8.92                                           | 5.0                                                                                       | 92.6                                                                       | 16.2                                                                        | 0.075                                                               |
| 1N6272A                 | +1.5KE11A                                  | 10.5                                                                           | 11.6 | 1.0                                       | 9.40                                           | 5.0                                                                                       | 96.2                                                                       | 15.6                                                                        | 0.075                                                               |
| 1N6273                  | +1.5KE12                                   | 10.8                                                                           | 13.2 | 1.0                                       | 9.72                                           | 5.0                                                                                       | 86.7                                                                       | 17.3                                                                        | 0.076                                                               |
| 1N6273A                 | +1.5KE12A                                  | 11.4                                                                           | 12.6 | 1.0                                       | 10.2                                           | 5.0                                                                                       | 89.8                                                                       | 16.7                                                                        | 0.078                                                               |
| 1N6274                  | +1.5KE13                                   | 11.7                                                                           | 14.3 | 1.0                                       | 10.5                                           | 5.0                                                                                       | 78.9                                                                       | 19.0                                                                        | 0.081                                                               |
| 1N6274A                 | +1.5KE13A                                  | 12.4                                                                           | 13.7 | 1.0                                       | 11.1                                           | 5.0                                                                                       | 82.4                                                                       | 18.2                                                                        | 0.081                                                               |
| 1N6275                  | +1.5KE15                                   | 13.5                                                                           | 16.5 | 1.0                                       | 12.1                                           | 1.0                                                                                       | 68.2                                                                       | 22.0                                                                        | 0.084                                                               |
| 1N6275A                 | +1.5KE15A                                  | 14.3                                                                           | 15.8 | 1.0                                       | 12.8                                           | 1.0                                                                                       | 70.8                                                                       | 21.2                                                                        | 0.084                                                               |
| 1N6276                  | +1.5KE16                                   | 14.4                                                                           | 17.6 | 1.0                                       | 12.9                                           | 1.0                                                                                       | 63.8                                                                       | 23.5                                                                        | 0.086                                                               |
| 1N6276A                 | +1.5KE16A                                  | 15.2                                                                           | 16.8 | 1.0                                       | 13.6                                           | 1.0                                                                                       | 66.7                                                                       | 22.5                                                                        | 0.086                                                               |
| 1N6277                  | +1.5KE18                                   | 16.2                                                                           | 19.8 | 1.0                                       | 14.5                                           | 1.0                                                                                       | 56.6                                                                       | 26.5                                                                        | 0.088                                                               |
| 1N6277A                 | +1.5KE18A                                  | 17.1                                                                           | 18.9 | 1.0                                       | 15.3                                           | 1.0                                                                                       | 59.5                                                                       | 25.2                                                                        | 0.089                                                               |
| 1N6278                  | +1.5KE20                                   | 18.0                                                                           | 22.0 | 1.0                                       | 16.2                                           | 1.0                                                                                       | 51.5                                                                       | 29.1                                                                        | 0.090                                                               |
| 1N6278A                 | +1.5KE20A                                  | 19.0                                                                           | 21.0 | 1.0                                       | 17.1                                           | 1.0                                                                                       | 54.2                                                                       | 27.7                                                                        | 0.090                                                               |
| 1N6279                  | +1.5KE22                                   | 19.8                                                                           | 24.2 | 1.0                                       | 17.8                                           | 1.0                                                                                       | 47.0                                                                       | 31.9                                                                        | 0.092                                                               |
| 1N6279A                 | +1.5KE22A                                  | 20.9                                                                           | 23.1 | 1.0                                       | 18.8                                           | 1.0                                                                                       | 49.0                                                                       | 30.6                                                                        | 0.092                                                               |
| 1N6280                  | +1.5KE24                                   | 21.6                                                                           | 26.4 | 1.0                                       | 19.4                                           | 1.0                                                                                       | 43.2                                                                       | 34.7                                                                        | 0.094                                                               |
| 1N6280A                 | +1.5KE24A                                  | 22.8                                                                           | 25.2 | 1.0                                       | 20.5                                           | 1.0                                                                                       | 45.2                                                                       | 33.2                                                                        | 0.094                                                               |
| 1N6281                  | +1.5KE27                                   | 24.3                                                                           | 29.7 | 1.0                                       | 21.8                                           | 1.0                                                                                       | 38.4                                                                       | 39.1                                                                        | 0.096                                                               |
| 1N6281A                 | +1.5KE27A                                  | 25.7                                                                           | 28.4 | 1.0                                       | 23.1                                           | 1.0                                                                                       | 40.0                                                                       | 37.5                                                                        | 0.096                                                               |
| 1N6282                  | +1.5KE30                                   | 27.0                                                                           | 33.0 | 1.0                                       | 24.3                                           | 1.0                                                                                       | 34.5                                                                       | 43.5                                                                        | 0.097                                                               |
| 1N6282A                 | +1.5KE30A                                  | 28.5                                                                           | 31.5 | 1.0                                       | 25.6                                           | 1.0                                                                                       | 36.2                                                                       | 41.4                                                                        | 0.097                                                               |
| 1N6283                  | +1.5KE33                                   | 29.7                                                                           | 36.3 | 1.0                                       | 26.8                                           | 1.0                                                                                       | 31.4                                                                       | 47.7                                                                        | 0.098                                                               |
| 1N6283A                 | +1.5KE33A                                  | 31.4                                                                           | 34.7 | 1.0                                       | 28.2                                           | 1.0                                                                                       | 32.8                                                                       | 45.7                                                                        | 0.098                                                               |
| 1N6284                  | +1.5KE36                                   | 32.4                                                                           | 39.6 | 1.0                                       | 29.1                                           | 1.0                                                                                       | 28.8                                                                       | 52.0                                                                        | 0.099                                                               |
| 1N6284A                 | +1.5KE36A                                  | 34.2                                                                           | 37.8 | 1.0                                       | 30.8                                           | 1.0                                                                                       | 30.1                                                                       | 49.9                                                                        | 0.099                                                               |
| 1N6285                  | +1.5KE39                                   | 35.1                                                                           | 42.9 | 1.0                                       | 31.6                                           | 1.0                                                                                       | 26.6                                                                       | 56.4                                                                        | 0.100                                                               |
| 1N6285A                 | +1.5KE39A                                  | 37.1                                                                           | 41.0 | 1.0                                       | 33.3                                           | 1.0                                                                                       | 27.8                                                                       | 53.9                                                                        | 0.100                                                               |
| 1N6286                  | +1.5KE43                                   | 38.7                                                                           | 47.3 | 1.0                                       | 34.8                                           | 1.0                                                                                       | 24.2                                                                       | 61.9                                                                        | 0.101                                                               |
| 1N6286A                 | +1.5KE43A                                  | 40.9                                                                           | 45.2 | 1.0                                       | 36.8                                           | 1.0                                                                                       | 25.3                                                                       | 59.3                                                                        | 0.101                                                               |
| 1N6287                  | +1.5KE47                                   | 42.3                                                                           | 51.7 | 1.0                                       | 38.1                                           | 1.0                                                                                       | 22.1                                                                       | 67.8                                                                        | 0.101                                                               |
| 1N6287A                 | +1.5KE47A                                  | 44.7                                                                           | 49.4 | 1.0                                       | 40.2                                           | 1.0                                                                                       | 23.1                                                                       | 64.8                                                                        | 0.101                                                               |
| 1N6288                  | +1.5KE51                                   | 45.9                                                                           | 56.1 | 1.0                                       | 41.3                                           | 1.0                                                                                       | 20.4                                                                       | 73.5                                                                        | 0.102                                                               |
| 1N6288A                 | +1.5KE51A                                  | 48.5                                                                           | 53.6 | 1.0                                       | 43.6                                           | 1.0                                                                                       | 21.4                                                                       | 70.1                                                                        | 0.102                                                               |
| 1N6289                  | +1.5KE56                                   | 50.4                                                                           | 61.8 | 1.0                                       | 45.4                                           | 1.0                                                                                       | 18.6                                                                       | 80.5                                                                        | 0.103                                                               |
| 1N6289A                 | +1.5KE56A                                  | 53.2                                                                           | 58.8 | 1.0                                       | 47.8                                           | 1.0                                                                                       | 19.5                                                                       | 77.0                                                                        | 0.103                                                               |
| 1N6290                  | +1.5KE62                                   | 55.8                                                                           | 68.2 | 1.0                                       | 50.2                                           | 1.0                                                                                       | 16.9                                                                       | 89.0                                                                        | 0.104                                                               |
| 1N6290A                 | +1.5KE62A                                  | 58.9                                                                           | 65.1 | 1.0                                       | 53.0                                           | 1.0                                                                                       | 17.6                                                                       | 85.0                                                                        | 0.104                                                               |
| 1N6291                  | +1.5KE68                                   | 61.2                                                                           | 74.8 | 1.0                                       | 55.1                                           | 1.0                                                                                       | 15.3                                                                       | 98.0                                                                        | 0.104                                                               |
| 1N6291A                 | +1.5KE68A                                  | 64.6                                                                           | 71.4 | 1.0                                       | 58.1                                           | 1.0                                                                                       | 16.3                                                                       | 92.0                                                                        | 0.104                                                               |
| 1N6292                  | +1.5KE75                                   | 67.5                                                                           | 82.5 | 1.0                                       | 60.7                                           | 1.0                                                                                       | 13.9                                                                       | 109                                                                         | 0.105                                                               |

**Electrical Characteristics (Cont'd)** (TA = 25°C unless otherwise noted)

| JEDEC<br>Type<br>Number | General<br>Semiconductor<br>Part<br>Number | Breakdown Voltage<br>V(BR) at I <sub>T</sub> <sup>(1)</sup><br>(V) |       | Test<br>Current<br>I <sub>T</sub><br>(mA) | Stand-off<br>Voltage<br>V <sub>WM</sub><br>(V) | Maximum<br>Reverse<br>Leakage<br>at V <sub>WM</sub><br>I <sub>0</sub> <sup>(4)</sup> (μA) | Maximum<br>Peak Pulse<br>Current<br>I <sub>PPM</sub> <sup>(2)</sup><br>(A) | Maximum<br>Clamping<br>Voltage<br>at I <sub>PPM</sub><br>V <sub>C</sub> (V) | Maximum<br>Temp.<br>Coefficient<br>of V(BR)<br>(% / °C) |
|-------------------------|--------------------------------------------|--------------------------------------------------------------------|-------|-------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------|
|                         |                                            | Min                                                                | Max   |                                           |                                                |                                                                                           |                                                                            |                                                                             |                                                         |
| 1N6292A                 | +1.5KE75A                                  | 71.3                                                               | 78.8  | 1.0                                       | 64.1                                           | 1.0                                                                                       | 14.6                                                                       | 104                                                                         | 0.105                                                   |
| 1N6293                  | +1.5KE82                                   | 73.8                                                               | 90.2  | 1.0                                       | 66.4                                           | 1.0                                                                                       | 12.7                                                                       | 118                                                                         | 0.105                                                   |
| 1N6293A                 | +1.5KE82A                                  | 77.9                                                               | 86.1  | 1.0                                       | 70.1                                           | 1.0                                                                                       | 13.3                                                                       | 113                                                                         | 0.105                                                   |
| 1N6294                  | +1.5KE91                                   | 81.9                                                               | 100.0 | 1.0                                       | 73.7                                           | 1.0                                                                                       | 11.5                                                                       | 131                                                                         | 0.106                                                   |
| 1N6294A                 | +1.5KE91A                                  | 86.5                                                               | 95.5  | 1.0                                       | 77.8                                           | 1.0                                                                                       | 12.0                                                                       | 125                                                                         | 0.106                                                   |
| 1N6295                  | +1.5KE100                                  | 90.0                                                               | 110   | 1.0                                       | 81.0                                           | 1.0                                                                                       | 10.4                                                                       | 144                                                                         | 0.106                                                   |
| 1N6295A                 | +1.5KE100A                                 | 95.0                                                               | 105   | 1.0                                       | 85.5                                           | 1.0                                                                                       | 10.9                                                                       | 137                                                                         | 0.106                                                   |
| 1N6296                  | +1.5KE110                                  | 99.0                                                               | 121   | 1.0                                       | 89.2                                           | 1.0                                                                                       | 9.5                                                                        | 158                                                                         | 0.107                                                   |
| 1N6296A                 | +1.5KE 110A                                | 105                                                                | 116   | 1.0                                       | 94.0                                           | 1.0                                                                                       | 9.9                                                                        | 152                                                                         | 0.107                                                   |
| 1N6297                  | +1.5KE120                                  | 108                                                                | 132   | 1.0                                       | 97.2                                           | 1.0                                                                                       | 8.7                                                                        | 173                                                                         | 0.107                                                   |
| 1N6297A                 | +1.5KE120A                                 | 114                                                                | 126   | 1.0                                       | 102                                            | 1.0                                                                                       | 9.1                                                                        | 165                                                                         | 0.107                                                   |
| 1N6298                  | +1.5KE130                                  | 117                                                                | 143   | 1.0                                       | 105                                            | 1.0                                                                                       | 8.0                                                                        | 187                                                                         | 0.107                                                   |
| 1N6298A                 | +1.5KE130A                                 | 124                                                                | 137   | 1.0                                       | 111                                            | 1.0                                                                                       | 8.4                                                                        | 179                                                                         | 0.107                                                   |
| 1N6299                  | +1.5KE150                                  | 136                                                                | 165   | 1.0                                       | 121                                            | 1.0                                                                                       | 7.0                                                                        | 215                                                                         | 0.108                                                   |
| 1N6299A                 | +1.5KE150A                                 | 143                                                                | 158   | 1.0                                       | 128                                            | 1.0                                                                                       | 7.2                                                                        | 207                                                                         | 0.106                                                   |
| 1N6300                  | +1.5KE160                                  | 144                                                                | 176   | 1.0                                       | 130                                            | 1.0                                                                                       | 6.5                                                                        | 230                                                                         | 0.106                                                   |
| 1N6300A                 | +1.5KE160A                                 | 152                                                                | 168   | 1.0                                       | 136                                            | 1.0                                                                                       | 6.8                                                                        | 219                                                                         | 0.108                                                   |
| 1N6301                  | +1.5KE170                                  | 153                                                                | 187   | 1.0                                       | 138                                            | 1.0                                                                                       | 6.1                                                                        | 244                                                                         | 0.108                                                   |
| 1N6301A                 | +1.5KE170A                                 | 162                                                                | 179   | 1.0                                       | 145                                            | 1.0                                                                                       | 6.4                                                                        | 234                                                                         | 0.108                                                   |
| 1N6302                  | 1.5KE180                                   | 162                                                                | 198   | 1.0                                       | 146                                            | 1.0                                                                                       | 5.8                                                                        | 258                                                                         | 0.108                                                   |
| 1N6302A                 | 1.5KE180A                                  | 171                                                                | 189   | 1.0                                       | 154                                            | 1.0                                                                                       | 6.1                                                                        | 246                                                                         | 0.108                                                   |
| 1N6303                  | 1.5KE200                                   | 180                                                                | 220   | 1.0                                       | 162                                            | 1.0                                                                                       | 5.2                                                                        | 287                                                                         | 0.108                                                   |
| 1N6303A                 | 1.5KE200A*                                 | 190                                                                | 210   | 1.0                                       | 171                                            | 1.0                                                                                       | 5.5                                                                        | 274                                                                         | 0.108                                                   |
|                         | 1.5KE220                                   | 198                                                                | 242   | 1.0                                       | 175                                            | 1.0                                                                                       | 4.4                                                                        | 344                                                                         | 0.108                                                   |
|                         | 1.5KE220A*                                 | 209                                                                | 231   | 1.0                                       | 185                                            | 1.0                                                                                       | 4.6                                                                        | 328                                                                         | 0.108                                                   |
|                         | 1.5KE250                                   | 225                                                                | 275   | 1.0                                       | 202                                            | 1.0                                                                                       | 4.2                                                                        | 360                                                                         | 0.110                                                   |
|                         | 1.5KE250A                                  | 237                                                                | 263   | 1.0                                       | 214                                            | 1.0                                                                                       | 4.4                                                                        | 344                                                                         | 0.110                                                   |
|                         | 1.5KE300                                   | 270                                                                | 330   | 1.0                                       | 243                                            | 1.0                                                                                       | 3.5                                                                        | 430                                                                         | 0.110                                                   |
|                         | 1.5KE300A                                  | 285                                                                | 315   | 1.0                                       | 256                                            | 1.0                                                                                       | 3.6                                                                        | 414                                                                         | 0.110                                                   |
|                         | 1.5KE350                                   | 315                                                                | 385   | 1.0                                       | 284                                            | 1.0                                                                                       | 3.0                                                                        | 504                                                                         | 0.110                                                   |
|                         | 1.5KE350A                                  | 333                                                                | 368   | 1.0                                       | 300                                            | 1.0                                                                                       | 3.1                                                                        | 482                                                                         | 0.110                                                   |
|                         | 1.5KE400                                   | 360                                                                | 440   | 1.0                                       | 324                                            | 1.0                                                                                       | 2.6                                                                        | 574                                                                         | 0.110                                                   |
|                         | 1.5KE400A                                  | 380                                                                | 420   | 1.0                                       | 342                                            | 1.0                                                                                       | 2.7                                                                        | 548                                                                         | 0.110                                                   |
|                         | 1.5KE440                                   | 396                                                                | 484   | 1.0                                       | 356                                            | 1.0                                                                                       | 2.4                                                                        | 631                                                                         | 0.110                                                   |
|                         | 1.5KE440A                                  | 418                                                                | 462   | 1.0                                       | 376                                            | 1.0                                                                                       | 2.5                                                                        | 602                                                                         | 0.110                                                   |
|                         | 1.5KE480                                   | 432                                                                | 528   | 1.0                                       | 389                                            | 1.0                                                                                       | 2.19                                                                       | 686                                                                         | 0.110                                                   |
|                         | 1.5KE480A                                  | 456                                                                | 504   | 1.0                                       | 408                                            | 1.0                                                                                       | 2.28                                                                       | 658                                                                         | 0.110                                                   |
|                         | 1.5KE510                                   | 459                                                                | 561   | 1.0                                       | 413                                            | 1.0                                                                                       | 2.06                                                                       | 729                                                                         | 0.110                                                   |
|                         | 1.5KE510A                                  | 485                                                                | 535   | 1.0                                       | 434                                            | 1.0                                                                                       | 2.15                                                                       | 698                                                                         | 0.110                                                   |
|                         | 1.5KE540                                   | 486                                                                | 594   | 1.0                                       | 437                                            | 1.0                                                                                       | 1.94                                                                       | 772                                                                         | 0.110                                                   |
|                         | 1.5KE540A                                  | 513                                                                | 567   | 1.0                                       | 459                                            | 1.0                                                                                       | 2.03                                                                       | 740                                                                         | 0.110                                                   |

**Notes:** (1) Pulse test: t<sub>p</sub> ≤ 50ms

(2) Surge current waveform per Fig. 3 and derate per Fig. 2

(3) All terms and symbols are consistent with ANSI/IEEE CA62.35

(4) For bidirectional types with V<sub>R</sub> 10 volts and less the I<sub>0</sub> limit is doubled

\* Bidirectional versions are UL approved under component across the line protection, ULV1414 file number E108274 (1.5KE200CA, 1.5KE220CA)

+ Underwriters Laboratory Recognition for the classification of protectors (QVQG2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

**Application**

- This series of Silicon Transient Suppressors is used in applications where large voltage transients can permanently damage voltage-sensitive components.
- The TVS diode can be used in applications where induced lightning on rural or remote transmission lines presents a hazard to electronic circuitry (ref: R.E.A. specification P.E. 60).
- This Transient Voltage Suppressor diode has a pulse power rating of 1500 watts for one millisecond. The response time of TVS diode clamping action is effectively instantaneous (1 x 10<sup>-9</sup> seconds bidirectional); therefore, they can protect integrated circuits, MOS devices, hybrids, and other voltage sensitive semi-conductors and components. TVS diodes can also be used in series or parallel to increase the peak power ratings.

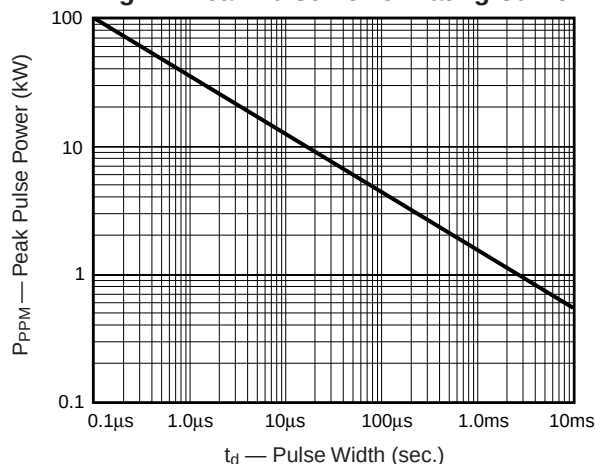
# 1.5KE6.8 Series and 1N6267 thru 1N6303A



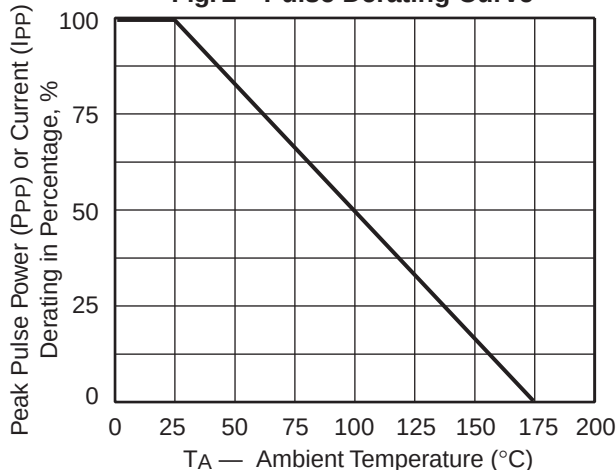
Vishay Semiconductors  
formerly General Semiconductor

## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

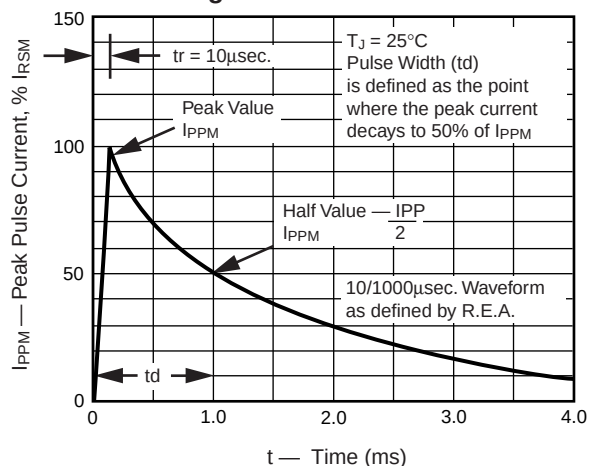
**Fig. 1 – Peak Pulse Power Rating Curve**



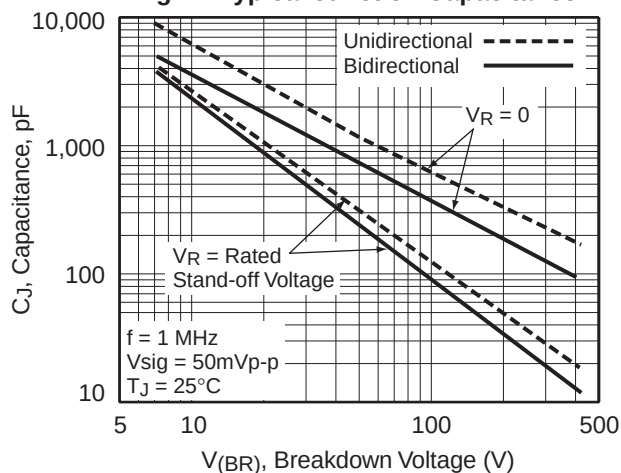
**Fig. 2 – Pulse Derating Curve**



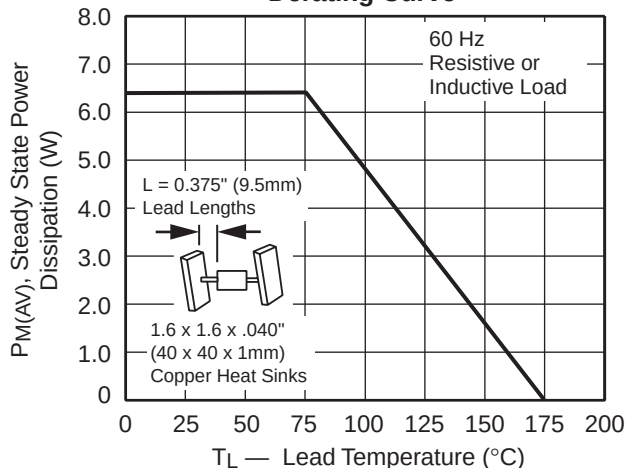
**Fig. 3 – Pulse Waveform**



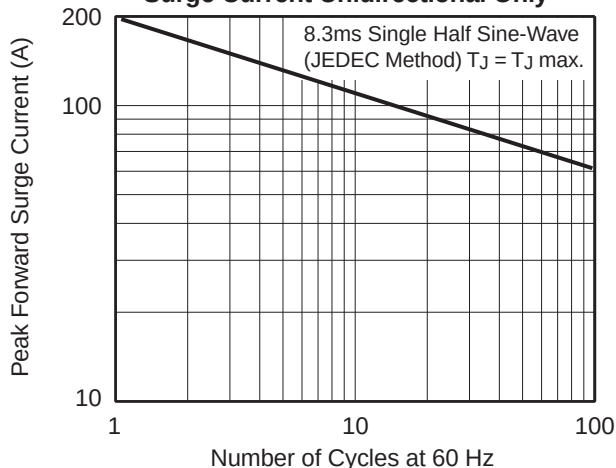
**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 – Steady State Power Derating Curve**



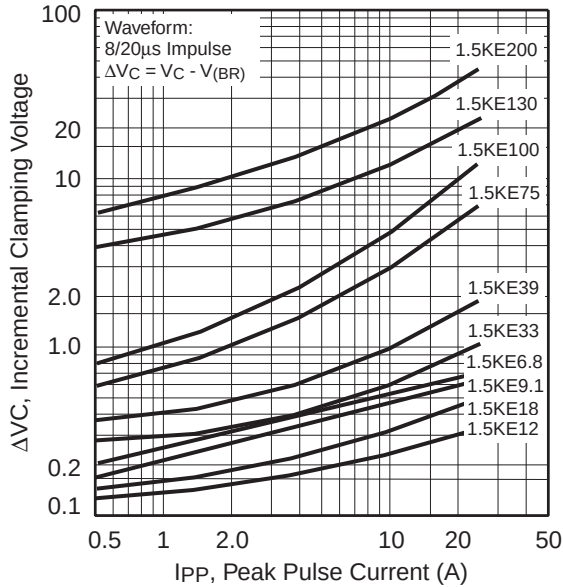
**Fig. 6 - Maximum Non-repetitive Peak Forward Surge Current Unidirectional Only**



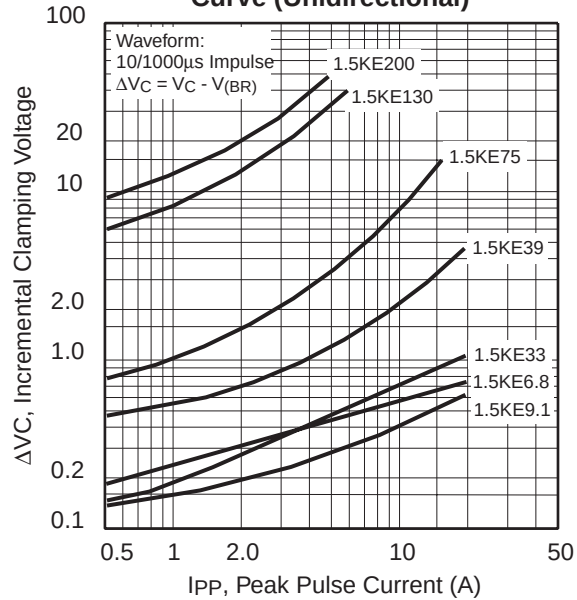


## Ratings and Characteristic Curves (T<sub>A</sub> = 25°C unless otherwise noted)

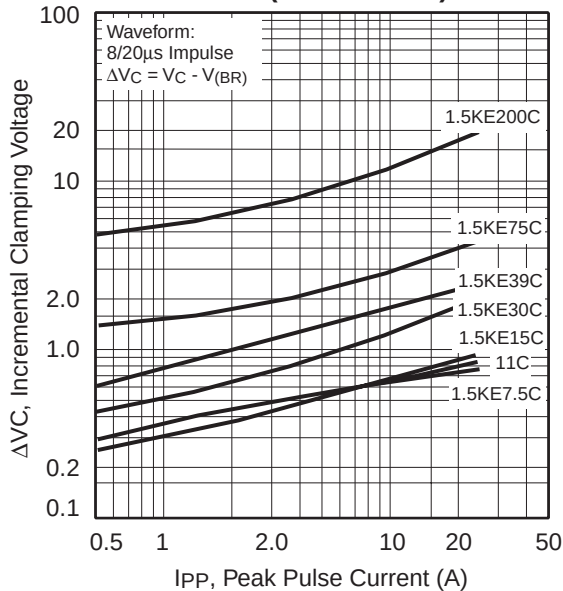
**Fig. 7 – Incremental Clamping Voltage  
Curve (Unidirectional)**



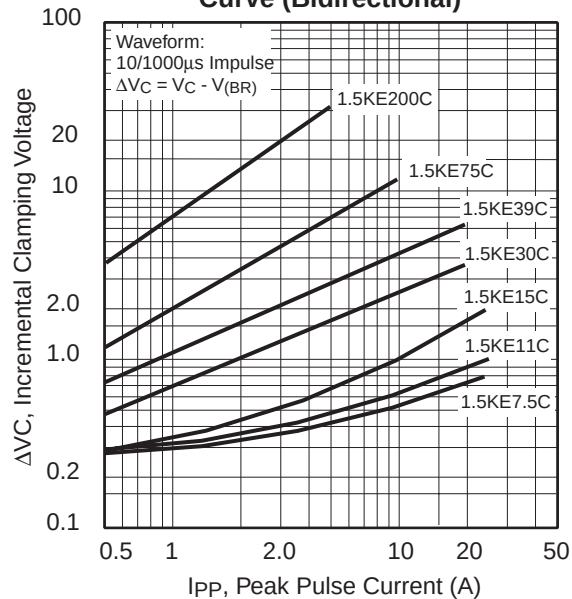
**Fig. 8 – Incremental Clamping Voltage  
Curve (Unidirectional)**



**Fig. 7 – Incremental Clamping Voltage  
Curve (Bidirectional)**



**Fig. 10 – Incremental Clamping Voltage  
Curve (Bidirectional)**



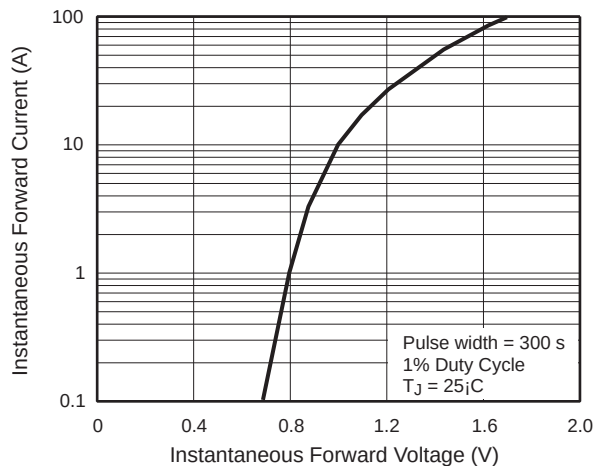
# 1.5KE6.8 Series and 1N6267 thru 1N6303A



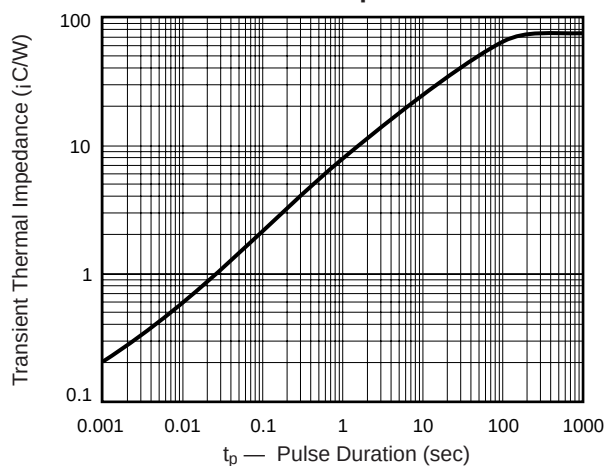
Vishay Semiconductors  
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## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

**Fig. 11 – Instantaneous Forward Voltage Characteristics Curve**



**Fig. 12 – Typical Transient Thermal Impedance**



**Fig. 13 – Typical Reverse Leakage Characteristics**

