

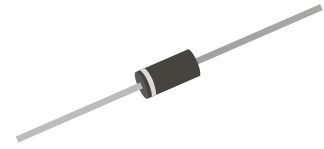
## 1.5KE-HF Series

**Breakdown Voltage: 6.8 to 600 Volts**


**Peak Pulse Power: 1500 Watts**

**RoHS Device**

**Halogen Free**

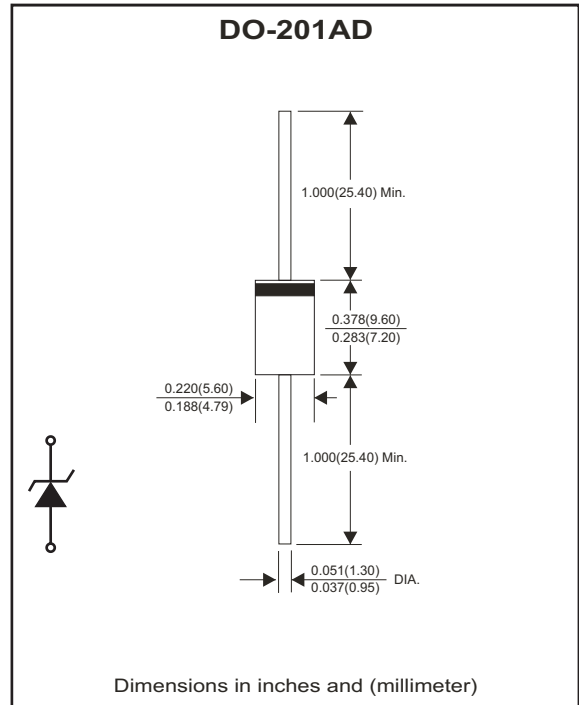


### Features

- Glass passivated chip.
- 1500W peak pulse power capability with a 10/1000 $\mu$ s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- UL recognized file # E349157  Range: 1.5KE6.8(C)A thru. 1.5KE120(C)A

### Mechanical Data

- Case: Molded plastic, DO-201
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-202, method 208 guranteed.
- Polarity: Color band denotes cathode end except Bipolar.
- Mounting position: Any
- Weight: 0.844 grams(approx.).



### Maximum Ratings (TA=25°C unless otherwise noted)

| Parameter   | Symbol   | Value          | Unit |
|---|----------|----------------|------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1)                                     | PPP      | 1500           | W    |
| Peak pulse current with a 10/1000 $\mu$ s waveform (Note 1)   | IPP      | See Next Table | A    |
| Power dissipation on infinite heatsink at TL=75°C   | PD       | 6.5            | W    |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (JEDEC method) (Note 2) | IFSM     | 200            | A    |
| Maximum instantaneous forward voltage at 100 A for unidirectional only (Note 3)                     | VF       | 3.5/5.0        | V    |
| Operating junction and storage temperature range  | TJ, TSTG | -55 to +150    | °C   |

NTOES:

(1) Non-repetitive current pulse, per fig.5 and derated above TA=25°C per fig.1

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

(3) VF<3.5V for devices of VBR<200V and VF<5.0V for devices of VBR>201V

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## RATING AND CHARACTERISTIC CURVES (1.5KE6.8-HF Thru. 1.5KE600-HF)

Fig.1 - Pulse Derating Curve



Fig.2 - Max. Non-repetitive Surge Current

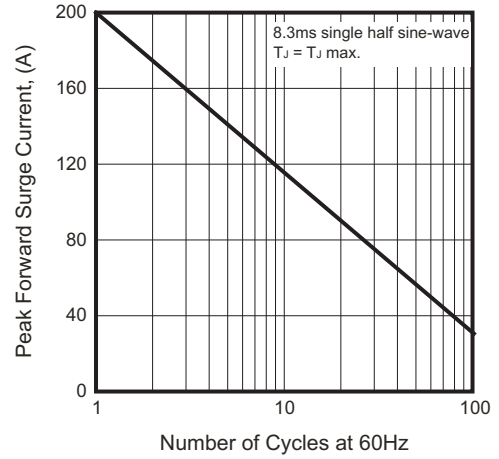


Fig.3 - Steady State Power Derating Curve

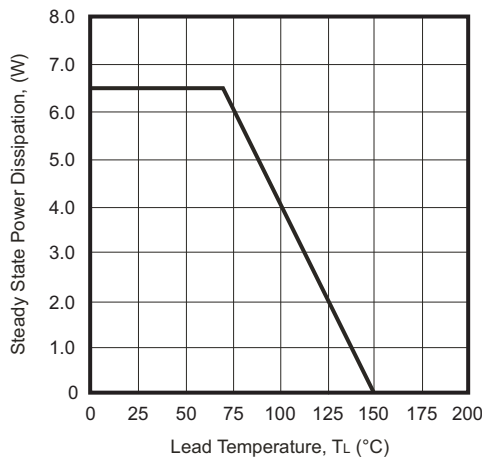


Fig.4 - Peak Pulse Power Rating Curve

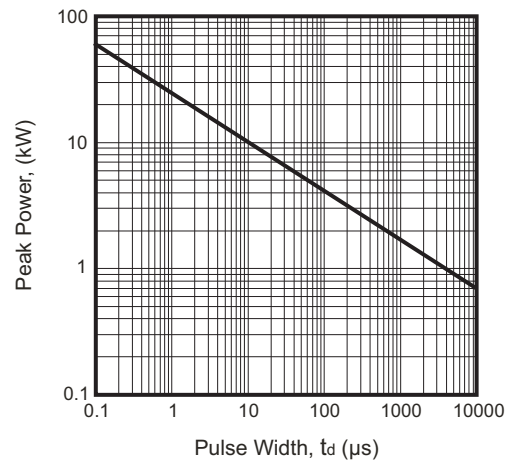


Fig.5 - Pulse Waveform

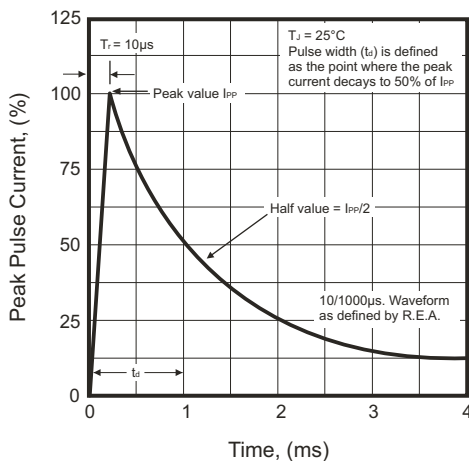
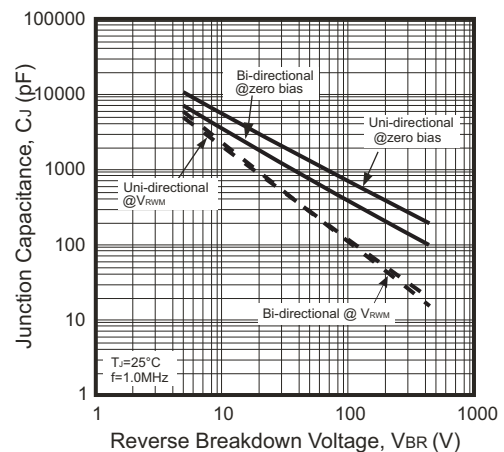


Fig.6 - Typical Junction Capacitance



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# 1500W Transient Voltage Suppressor



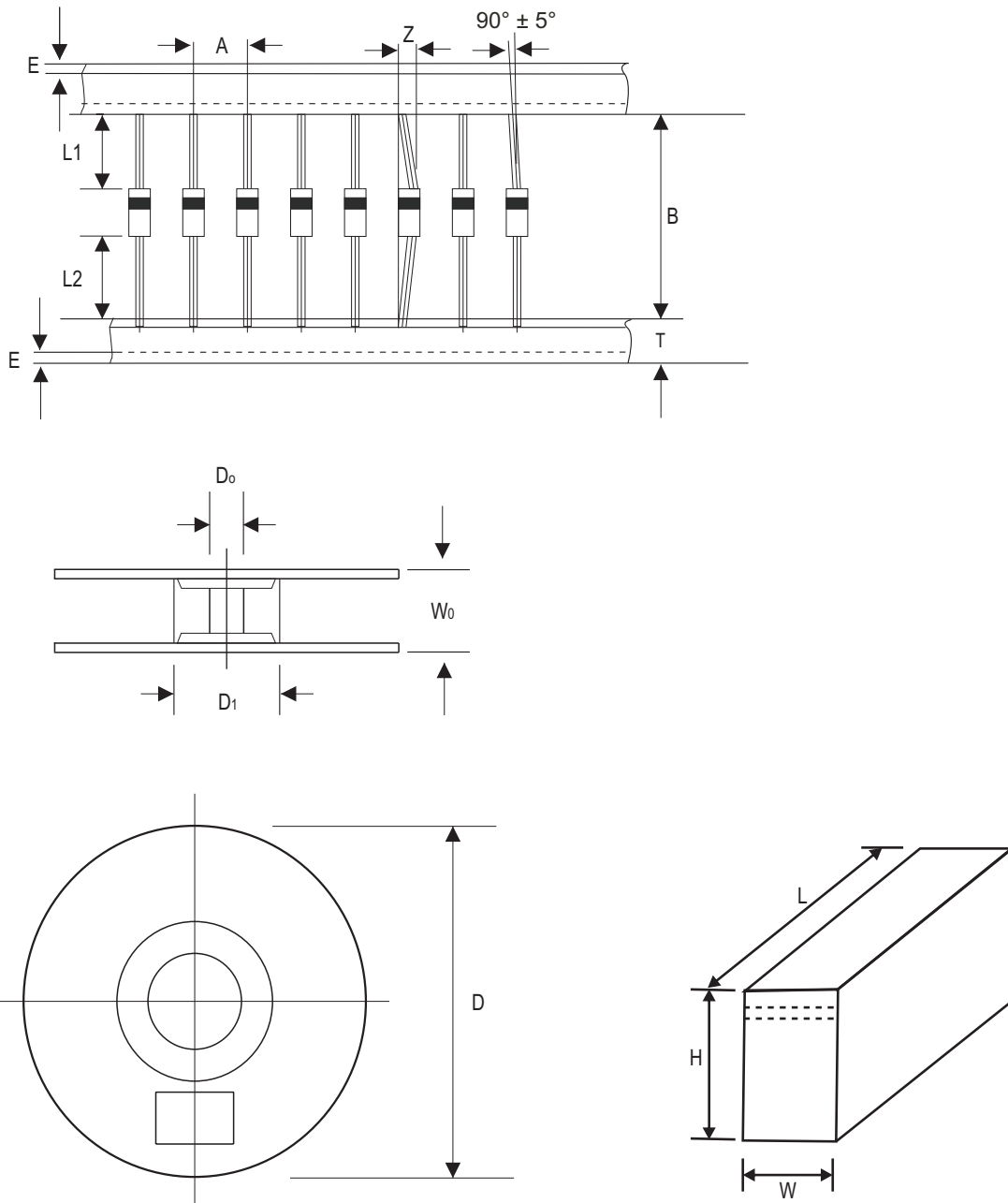
## Electrical Characteristics (1.5KE6.8-HF Thru. 1.5KE600-HF)

| Part No.        | Breakdown voltage<br>VBR @ IT |          |         | Maximum Reverse Leakage<br>@VRWM<br>IR (uA) | Working Peak Reverse Voltage<br>VRWM (V) | Maximum Reverse Surge Current<br>IPP (A) | Maximum Clamping Voltage<br>@IPP<br>Vc (V) | Marking Code |            |
|-----------------|-------------------------------|----------|---------|---|--|--|--|--------------|------------|
|                 | Min. (V)                      | Max. (V) | IT (mA) |   |  |  |  | UNI          | BI         |
| 1.5KE6.8(C)A-HF | 6.46                          | 7.14     | 10      | 1000  | 5.8                                      | 142.86                                   | 10.5                                       | 1.5KE6.8A    | 1.5KE6.8CA |
| 1.5KE7.5(C)A-HF | 7.13                          | 7.88     | 10      | 500   | 6.4                                      | 132.74                                   | 11.3                                       | 1.5KE7.5A    | 1.5KE7.5CA |
| 1.5KE8.2(C)A-HF | 7.79                          | 8.61     | 10      | 200   | 7.0                                      | 123.97                                   | 12.1                                       | 1.5KE8.2A    | 1.5KE8.2CA |
| 1.5KE9.1(C)A-HF | 8.65                          | 9.56     | 1.0     | 50  | 7.8                                      | 111.94                                   | 13.4                                       | 1.5KE9.1A    | 1.5KE9.1CA |
| 1.5KE10(C)A-HF  | 9.50                          | 10.50    | 1.0     | 10  | 8.6                                      | 103.45                                   | 14.5                                       | 1.5KE10A     | 1.5KE10CA  |
| 1.5KE11(C)A-HF  | 10.45                         | 11.55    | 1.0     | 5.0   | 9.4                                      | 96.15                                    | 15.6                                       | 1.5KE11A     | 1.5KE11CA  |
| 1.5KE12(C)A-HF  | 11.40                         | 12.60    | 1.0     | 5.0   | 10.2                                     | 89.82                                    | 16.7                                       | 1.5KE12A     | 1.5KE12CA  |
| 1.5KE13(C)A-HF  | 12.35                         | 13.65    | 1.0     | 1.0   | 11.1                                     | 82.42                                    | 18.2                                       | 1.5KE13A     | 1.5KE13CA  |
| 1.5KE15(C)A-HF  | 14.25                         | 15.75    | 1.0     | 1.0   | 12.8                                     | 70.75                                    | 21.2                                       | 1.5KE15A     | 1.5KE15CA  |
| 1.5KE16(C)A-HF  | 15.20                         | 16.80    | 1.0     | 1.0   | 13.6                                     | 66.67                                    | 22.5                                       | 1.5KE16A     | 1.5KE16CA  |
| 1.5KE18(C)A-HF  | 17.10                         | 18.90    | 1.0     | 1.0   | 15.3                                     | 59.52                                    | 25.2                                       | 1.5KE18A     | 1.5KE18CA  |
| 1.5KE20(C)A-HF  | 19.00                         | 21.00    | 1.0     | 1.0   | 17.1                                     | 54.15                                    | 27.7                                       | 1.5KE20A     | 1.5KE20CA  |
| 1.5KE22(C)A-HF  | 20.90                         | 23.10    | 1.0     | 1.0   | 18.8                                     | 49.02                                    | 30.6                                       | 1.5KE22A     | 1.5KE22CA  |
| 1.5KE24(C)A-HF  | 22.80                         | 25.20    | 1.0     | 1.0   | 20.5                                     | 45.18                                    | 33.2                                       | 1.5KE24A     | 1.5KE24CA  |
| 1.5KE27(C)A-HF  | 25.65                         | 28.35    | 1.0     | 1.0   | 23.1                                     | 40.00                                    | 37.5                                       | 1.5KE27A     | 1.5KE27CA  |
| 1.5KE30(C)A-HF  | 28.50                         | 31.50    | 1.0     | 1.0   | 25.6                                     | 36.23                                    | 41.4                                       | 1.5KE30A     | 1.5KE30CA  |
| 1.5KE33(C)A-HF  | 31.35                         | 34.65    | 1.0     | 1.0   | 28.2                                     | 32.82                                    | 45.7                                       | 1.5KE33A     | 1.5KE33CA  |
| 1.5KE36(C)A-HF  | 34.20                         | 37.80    | 1.0     | 1.0   | 30.8                                     | 30.06                                    | 49.9                                       | 1.5KE36A     | 1.5KE36CA  |
| 1.5KE39(C)A-HF  | 37.05                         | 40.95    | 1.0     | 1.0   | 33.3                                     | 27.83                                    | 53.9                                       | 1.5KE39A     | 1.5KE39CA  |
| 1.5KE43(C)A-HF  | 40.85                         | 45.15    | 1.0     | 1.0   | 36.8                                     | 25.30                                    | 59.3                                       | 1.5KE43A     | 1.5KE43CA  |
| 1.5KE47(C)A-HF  | 44.65                         | 49.35    | 1.0     | 1.0   | 40.2                                     | 23.15                                    | 64.8                                       | 1.5KE47A     | 1.5KE47CA  |
| 1.5KE51(C)A-HF  | 48.45                         | 53.55    | 1.0     | 1.0   | 43.6                                     | 21.40                                    | 70.1                                       | 1.5KE51A     | 1.5KE51CA  |
| 1.5KE56(C)A-HF  | 53.20                         | 58.80    | 1.0     | 1.0   | 47.8                                     | 19.48                                    | 77.0                                       | 1.5KE56A     | 1.5KE56CA  |
| 1.5KE62(C)A-HF  | 58.90                         | 65.10    | 1.0     | 1.0   | 53.0                                     | 17.65                                    | 85.0                                       | 1.5KE62A     | 1.5KE62CA  |
| 1.5KE68(C)A-HF  | 64.60                         | 71.40    | 1.0     | 1.0   | 58.1                                     | 16.30                                    | 92.0                                       | 1.5KE68A     | 1.5KE68CA  |
| 1.5KE75(C)A-HF  | 71.25                         | 78.75    | 1.0     | 1.0   | 64.1                                     | 14.56                                    | 103.0                                      | 1.5KE75A     | 1.5KE75CA  |
| 1.5KE82(C)A-HF  | 77.90                         | 86.10    | 1.0     | 1.0   | 70.1                                     | 13.27                                    | 113.0                                      | 1.5KE82A     | 1.5KE82CA  |
| 1.5KE91(C)A-HF  | 86.45                         | 95.55    | 1.0     | 1.0   | 77.8                                     | 12.00                                    | 125.0                                      | 1.5KE91A     | 1.5KE91CA  |
| 1.5KE100(C)A-HF | 95.00                         | 105.00   | 1.0     | 1.0   | 85.5                                     | 10.95                                    | 137.0                                      | 1.5KE100A    | 1.5KE100CA |
| 1.5KE110(C)A-HF | 104.50                        | 115.50   | 1.0     | 1.0   | 94.0                                     | 9.87                                     | 152.0                                      | 1.5KE110A    | 1.5KE110CA |
| 1.5KE120(C)A-HF | 114.00                        | 126.00   | 1.0     | 1.0   | 102.0                                    | 9.09                                     | 165.0                                      | 1.5KE120A    | 1.5KE120CA |
| 1.5KE130(C)A-HF | 123.50                        | 136.50   | 1.0     | 1.0   | 111.0                                    | 8.38                                     | 179.0                                      | 1.5KE130A    | 1.5KE130CA |
| 1.5KE150(C)A-HF | 142.50                        | 157.50   | 1.0     | 1.0   | 128.0                                    | 7.25                                     | 207.0                                      | 1.5KE150A    | 1.5KE150CA |
| 1.5KE160(C)A-HF | 152.00                        | 168.00   | 1.0     | 1.0   | 136.0                                    | 6.85                                     | 219.0                                      | 1.5KE160A    | 1.5KE160CA |
| 1.5KE170(C)A-HF | 161.50                        | 178.50   | 1.0     | 1.0   | 145.0                                    | 6.41                                     | 234.0                                      | 1.5KE170A    | 1.5KE170CA |
| 1.5KE180(C)A-HF | 171.00                        | 189.00   | 1.0     | 1.0   | 154.0                                    | 6.10                                     | 246.0                                      | 1.5KE180A    | 1.5KE180CA |
| 1.5KE200(C)A-HF | 190.00                        | 210.00   | 1.0     | 1.0   | 171.0                                    | 5.47                                     | 274.0                                      | 1.5KE200A    | 1.5KE200CA |
| 1.5KE220(C)A-HF | 209.00                        | 231.00   | 1.0     | 1.0   | 185.0                                    | 4.57                                     | 328.0                                      | 1.5KE220A    | 1.5KE220CA |
| 1.5KE250(C)A-HF | 237.50                        | 262.50   | 1.0     | 1.0   | 214.0                                    | 4.36                                     | 344.0                                      | 1.5KE250A    | 1.5KE250CA |
| 1.5KE300(C)A-HF | 285.00                        | 315.00   | 1.0     | 1.0   | 256.0                                    | 3.62                                     | 414.0                                      | 1.5KE300A    | 1.5KE300CA |
| 1.5KE350(C)A-HF | 332.50                        | 367.50   | 1.0     | 1.0   | 299.3                                    | 3.11                                     | 482.0                                      | 1.5KE350A    | 1.5KE350CA |
| 1.5KE380(C)A-HF | 361.00                        | 399.00   | 1.0     | 1.0   | 324.9                                    | 2.86                                     | 524.4                                      | 1.5KE380A    | 1.5KE380CA |
| 1.5KE400(C)A-HF | 380.00                        | 420.00   | 1.0     | 1.0   | 342.0                                    | 2.72                                     | 548.0                                      | 1.5KE400A    | 1.5KE400CA |
| 1.5KE440(C)A-HF | 418.00                        | 462.00   | 1.0     | 1.0   | 376.2                                    | 2.47                                     | 602.0                                      | 1.5KE440A    | 1.5KE440CA |
| 1.5KE500(C)A-HF | 475.00                        | 525.00   | 1.0     | 1.0   | 427.5                                    | 2.17                                     | 690.0                                      | 1.5KE500A    | 1.5KE500CA |
| 1.5KE520(C)A-HF | 494.00                        | 546.00   | 1.0     | 1.0   | 444.6                                    | 2.09                                     | 717.6                                      | 1.5KE520A    | 1.5KE520CA |
| 1.5KE550(C)A-HF | 522.50                        | 577.50   | 1.0     | 1.0   | 470.3                                    | 1.98                                     | 759.0                                      | 1.5KE550A    | 1.5KE550CA |
| 1.5KE600(C)A-HF | 570.00                        | 630.00   | 1.0     | 1.0   | 513.0                                    | 1.81                                     | 828.0                                      | 1.5KE600A    | 1.5KE600CA |

- Note: 1) Suffix A denotes 5% tolerance devices.  
 2) Add suffix "C" or "CA" after part number to specify Bi-directional devices.  
 3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

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## Taping Specification For Axial Lead Diodes



| DO-201 | SYMBOL | A             | B             | Z           | T             | E           | L1-L2       |
|--------|--------|---------------|---------------|-------------|---------------|-------------|-------------|
|        | (mm)   | 10.00 ± 0.50  | 52.40 ± 1.50  | 1.60 (max)  | 6.00 ± 0.40   | 3.00 (max)  | 1.00 (max)  |
|        | (inch) | 0.394 ± 0.020 | 2.063 ± 0.059 | 0.063 (max) | 0.236 ± 0.016 | 0.118 (max) | 0.039 (max) |

| DO-201 | SYMBOL | D1            | D0            | D      | W0            | L              | W             | H             |
|--------|--------|---------------|---------------|--------|---------------|----------------|---------------|---------------|
|        | (mm)   | 85.70 ± 0.30  | 16.60 ± 0.40  | 330.00 | 72.00 ± 3.00  | 260 ± 5.00     | 75 ± 5.00     | 145 ± 5.00    |
|        | (inch) | 3.374 ± 0.012 | 0.654 ± 0.016 | 13.000 | 2.835 ± 0.118 | 10.236 ± 0.197 | 2.953 ± 0.197 | 5.709 ± 0.197 |

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