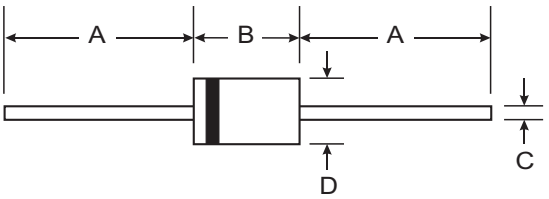
# 1.5KE6V8(C)A - 1.5KE400(C)A

## 1500W TRANSIENT VOLTAGE SUPPRESSOR

## Features

- 1500W Peak Pulse Power Dissipation
- Voltage Range 6.8V - 400V
- Constructed with Glass Passivated Die
- Uni and Bidirectional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead Free Finish, RoHS Compliant (Note 3)**




| DO-201 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 25.40 | — |
| **B** | 8.50 | 9.53 |
| **C** | 0.96 | 1.06 |
| **D** | 4.80 | 5.21 |
| **All Dimensions in mm** | | |

## Mechanical Data

- Case: DO-201
- Case Material: Transfer Molded Epoxy. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Tin. Leads: Axial, Solderable per MIL-STD-202 Method 208
- Ordering Information: See Page 4
- Marking: Unidirectional - Type Number and Cathode Band
- Marking: Bidirectional - Type Number Only
- Weight: 1.12 grams (approximate)

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Power Dissipation at $t_p$ = 1.0ms (Non-repetitive current pulse, derated above $T_A$ = 25°C) | $P_{pk}$ | 1500 | W |
| Steady State Power Dissipation at $T_L$ = 75°C Lead Lengths 9.5 mm | $P_d$ | 5.0 | W |
| Peak Forward Surge Current, 8.3 Single Half Sine Wave Superimposed on Rated Load (8.3ms Single Half Sine Wave, Duty Cycle = 4 pulses per minute maximum) | $I_{FSM}$ | 200 | A |
| Forward Voltage @ $I_F$ = 50A 300µs Square Wave Pulse, Unidirectional Only — $V_{BR}$ 100V / $V_{BR}$ > 100V | $V_F$ | 3.5 / 5.0 | V |
| Operating and Storage Temperature Range | $T_j$, $T_{STG}$ | -55 to +175 | °C |

Notes:
1. Suffix 'C' denotes bidirectional device.
2. For bidirectional devices having $V_R$ of 10 volts and under, the $I_R$ limit is doubled.
3. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7.*

| Type Number (Note 1) | Type Number (Note 1) | Reverse Standoff Voltage | Breakdown Voltage $V_{BR}$ @ $I_T$ | | Test Current | Max. Reverse Leakage (Note 2) @ $V_R$ | Max. Clamping Voltage @ $I_{pp}$ | Max. Peak Pulse Current | Max. Voltage Temp. Variation of $V_{BR}$ |
|---|---|---|---|---|---|---|---|---|---|
| (UNI) | (BI) | $V_{RWM}$ (V) | Min (V) | Max (V) | $I_t$ (mA) | $I_R$ A) | $V_C$ (V) | $I_{PP}$ (A) | %/°C |
| 1.5KE6V8A | 1.5KE6V8CA | 5.80 | 6.45 | 7.14 | 10 | 1000 | 10.5 | 143.0 | 0.057 |
| 1.5KE7V5A | 1.5KE7V5CA | 6.40 | 7.13 | 7.88 | 10 | 500 | 11.3 | 132.0 | 0.061 |
| 1.5KE8V2A | 1.5KE8V2CA | 7.02 | 7.79 | 8.61 | 10 | 200 | 12.1 | 124.0 | 0.065 |
| 1.5KE9V1A | 1.5KE9V1CA | 7.78 | 8.65 | 9.55 | 1.0 | 50 | 13.4 | 112.0 | 0.068 |
| 1.5KE10A | 1.5KE10CA | 8.55 | 9.50 | 10.50 | 1.0 | 10 | 14.5 | 103.0 | 0.073 |
| 1.5KE11A | 1.5KE11CA | 9.40 | 10.50 | 11.60 | 1.0 | 5.0 | 15.6 | 96.0 | 0.075 |
| 1.5KE12A | 1.5KE12CA | 10.20 | 11.40 | 12.60 | 1.0 | 5.0 | 16.7 | 90.0 | 0.078 |
| 1.5KE13A | 1.5KE13CA | 11.10 | 12.40 | 13.70 | 1.0 | 5.0 | 18.2 | 82.0 | 0.081 |
| 1.5KE15A | 1.5KE15CA | 12.80 | 14.30 | 15.80 | 1.0 | 5.0 | 21.2 | 71.0 | 0.084 |
| 1.5KE16A | 1.5KE16CA | 13.60 | 15.20 | 16.80 | 1.0 | 5.0 | 22.5 | 67.0 | 0.086 |
| 1.5KE18A | 1.5KE18CA | 15.30 | 17.10 | 18.90 | 1.0 | 5.0 | 25.2 | 59.5 | 0.088 |
| 1.5KE20A | 1.5KE20CA | 17.10 | 19.00 | 21.00 | 1.0 | 5.0 | 27.7 | 54.0 | 0.090 |
| 1.5KE22A | 1.5KE22CA | 18.80 | 20.90 | 23.10 | 1.0 | 5.0 | 30.6 | 49.0 | 0.092 |
| 1.5KE24A | 1.5KE24CA | 20.50 | 22.80 | 25.20 | 1.0 | 5.0 | 33.2 | 45.0 | 0.094 |
| 1.5KE27A | 1.5KE27CA | 23.10 | 25.70 | 28.40 | 1.0 | 5.0 | 37.5 | 40.0 | 0.096 |
| 1.5KE30A | 1.5KE30CA | 25.60 | 28.50 | 31.50 | 1.0 | 5.0 | 41.4 | 36.0 | 0.097 |
| 1.5KE33A | 1.5KE33CA | 28.20 | 31.40 | 34.70 | 1.0 | 5.0 | 45.7 | 33.0 | 0.098 |
| 1.5KE36A | 1.5KE36CA | 30.80 | 34.20 | 37.80 | 1.0 | 5.0 | 49.9 | 30.0 | 0.099 |
| 1.5KE39A | 1.5KE39CA | 33.30 | 37.10 | 41.00 | 1.0 | 5.0 | 53.9 | 28.0 | 0.100 |
| 1.5KE43A | 1.5KE43CA | 36.80 | 40.90 | 45.20 | 1.0 | 5.0 | 59.3 | 25.3 | 0.101 |
| 1.5KE47A | 1.5KE47CA | 40.20 | 44.70 | 49.40 | 1.0 | 5.0 | 64.8 | 23.2 | 0.101 |
| 1.5KE51A | 1.5KE51CA | 43.60 | 48.50 | 53.60 | 1.0 | 5.0 | 70.1 | 21.4 | 0.102 |
| 1.5KE56A | 1.5KE56CA | 47.80 | 53.20 | 58.80 | 1.0 | 5.0 | 77.0 | 19.5 | 0.103 |
| 1.5KE62A | 1.5KE62CA | 53.00 | 58.90 | 65.10 | 1.0 | 5.0 | 85.0 | 17.7 | 0.104 |
| 1.5KE68A | 1.5KE68CA | 58.10 | 64.60 | 71.40 | 1.0 | 5.0 | 92.0 | 16.3 | 0.104 |
| 1.5KE75A | 1.5KE75CA | 64.10 | 71.30 | 78.80 | 1.0 | 5.0 | 103.0 | 14.6 | 0.105 |
| 1.5KE82A | 1.5KE82CA | 70.10 | 77.90 | 86.10 | 1.0 | 5.0 | 113.0 | 13.3 | 0.105 |
| 1.5KE91A | 1.5KE91CA | 77.80 | 86.50 | 95.50 | 1.0 | 5.0 | 125.0 | 12.0 | 0.106 |
| 1.5KE100A | 1.5KE100CA | 85.50 | 95.00 | 105.00 | 1.0 | 5.0 | 137.0 | 11.0 | 0.106 |
| 1.5KE110A | 1.5KE110CA | 94.00 | 105.00 | 116.00 | 1.0 | 5.0 | 152.0 | 9.9 | 0.107 |
| 1.5KE120A | 1.5KE120CA | 102.00 | 114.00 | 126.00 | 1.0 | 5.0 | 165.0 | 9.1 | 0.107 |
| 1.5KE130A | 1.5KE130CA | 111.00 | 124.00 | 137.00 | 1.0 | 5.0 | 179.0 | 8.4 | 0.107 |
| 1.5KE150A | 1.5KE150CA | 128.00 | 143.00 | 158.00 | 1.0 | 5.0 | 207.0 | 7.2 | 0.108 |
| 1.5KE160A | 1.5KE160CA | 136.00 | 152.00 | 168.00 | 1.0 | 5.0 | 219.0 | 6.8 | 0.108 |
| 1.5KE170A | 1.5KE170CA | 145.00 | 162.00 | 179.00 | 1.0 | 5.0 | 234.0 | 6.4 | 0.108 |
| 1.5KE180A | 1.5KE180CA | 154.00 | 171.00 | 189.00 | 1.0 | 5.0 | 246.0 | 6.1 | 0.108 |
| 1.5KE200A | 1.5KE200CA | 171.00 | 190.00 | 210.00 | 1.0 | 5.0 | 274.0 | 5.5 | 0.108 |
| 1.5KE220A | 1.5KE220CA | 185.00 | 209.00 | 231.00 | 1.0 | 5.0 | 328.0 | 4.6 | 0.108 |
| 1.5KE250A | 1.5KE250CA | 214.00 | 237.00 | 263.00 | 1.0 | 5.0 | 344.0 | 5.0 | 0.110 |
| 1.5KE300A | 1.5KE300CA | 256.00 | 285.00 | 315.00 | 1.0 | 5.0 | 414.0 | 5.0 | 0.110 |
| 1.5KE350A | 1.5KE350CA | 300.00 | 332.00 | 368.00 | 1.0 | 5.0 | 482.0 | 4.0 | 0.110 |
| 1.5KE400A | 1.5KE400CA | 342.00 | 380.00 | 420.00 | 1.0 | 5.0 | 548.0 | 4.0 | 0.110 |

Notes: 1. Suffix 'C' denotes bidirectional device.
2. For bidirectional devices having $V_R$ of 10 volts and under, the $I_R$ limit is doubled.

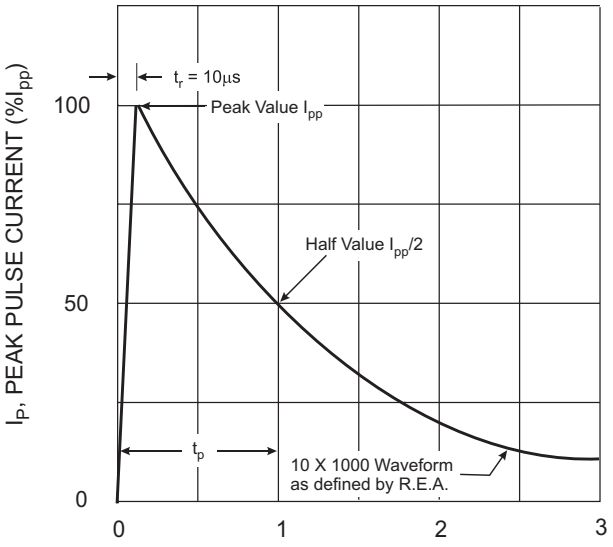



Fig. 1 Pulse Waveform

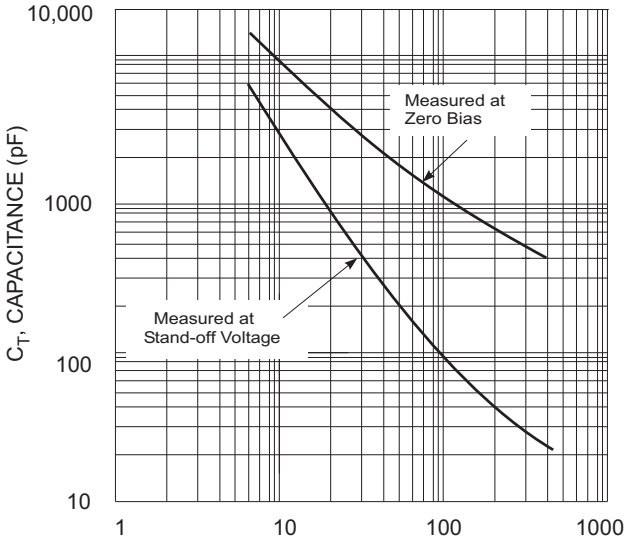



Fig. 2 Typical Total Capacitance

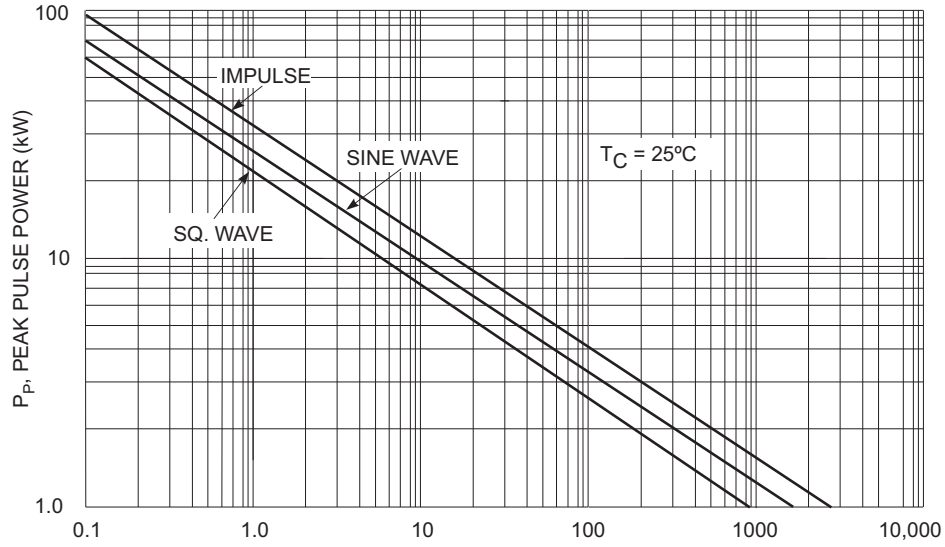



Fig. 3 Pulse Rating Curve

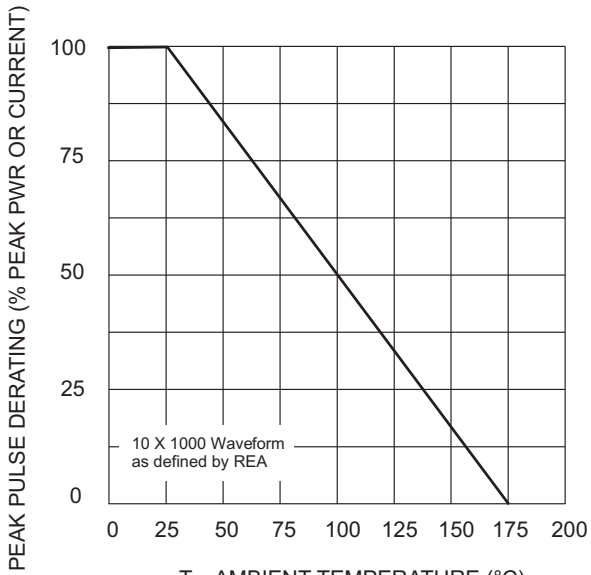



Fig. 4 Pulse Derating Curve

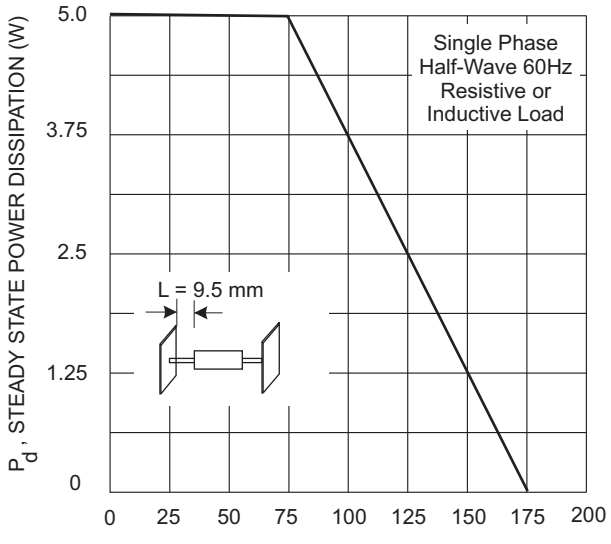



Fig. 5 Steady State Power Derating

## Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|---|---|---|
| (Type Number)-B* | DO-201 | 1K/Bulk |
| (Type Number)-T* | DO-201 | 1K/Tape & Reel, 13-inch |

Notes: 4. *Add "-B" or "-T" to the appropriate type number in Table 1. Example: 6.40 Reverse Standoff Voltage, UNI = 1.5KE7V5A-B.
5. For packaging details, visit our website at http://www.diodes.com/datasheets/ap02008.pdf.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Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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**Офис по работе с юридическими лицами:**

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9