

### 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)**



### Mechanical Data

- Case: DO-201
- Case Material: Transfer Molding 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)

| 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 |       |      |

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

| Characteristic   | Symbol         | Value       | Unit             |
|--|----------------|-------------|------------------|
| Peak Power Dissipation at $t_p = 1.0\text{ms}$<br>(Non-repetitive current pulse, derated above $T_A = 25^\circ\text{C}$ )                                | $P_{pk}$       | 1500        | W                |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ 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 @ $I_F = 50\text{A}$ 300 $\mu\text{s}$ Square Wave Pulse, Unidirectional Only  | $V_F$          | 3.5<br>5.0  | V                |
| Operating and Storage Temperature Range  | $T_j, T_{STG}$ | -55 to +175 | $^\circ\text{C}$ |

- 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)   |              |                                       |                                  |                         |  |
| 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:
- \*Add "-B" or "-T" to the appropriate type number in Table 1. Example: 6.40 Reverse Standoff Voltage, UNI = 1.5KE7V5A-B.
  - For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

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