

### 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 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)

| 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<br>Rated Load (8.3ms Single Half Sine Wave,<br>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,<br>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:
- Suffix 'C' denotes bidirectional device.
  - For bidirectional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is doubled.
  - RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7*.

| Type Number<br>(Note 1) | Type Number<br>(Note 1) | Reverse Standoff Voltage | Breakdown Voltage<br>$V_{BR}$ @ $I_T$ |         | Test Current | Max. Reverse Leakage<br>(Note 2)<br>@ $V_R$ | Max. Clamping Voltage<br>@ $I_{PP}$ | 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:
- \*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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