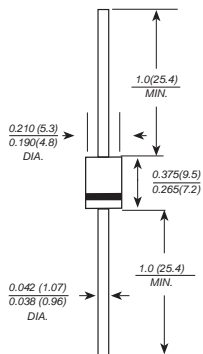


1.5KE6.8 THRU 1.5KE440CA

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage:6.8-440 Volts Peak Pulse Power:1500 Watts

DO-201AD



Dimensions in inches and (millimeters)

FEATURE

- ◆ 1500w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0v to V_{BR} for unidirectional and 5.0ns for bidirectional types.
- ◆ High temperature soldering guaranteed:
265°C/10S/9.5mm lead length at 5 lbs tension

MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic body over passivated junction

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

Polarity: Color band denotes cathode except for bidirectional types

Mounting Position: Any

Weight: 0.04 ounce, 1.10 grams

DEVICES FOR BIDIRECTIONAL APPLICATIONS

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

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| | SYMBOLS | VALUE | UNITS |
|--|-----------------------------------|--------------|-------|
| Peak power dissipation (Note 1) | PPM | Minimum 1500 | Watts |
| Peak pulse reverse current (Note 1, Fig.1) | IPPM | See Table 1 | Amps |
| Steady state power dissipation (Note 2) | PM(AV) | 5.0 | Watts |
| Peak forward surge current (Note 3) | IFSM | 200 | Amps |
| Maximum instantaneous forward voltage at 100A for unidirectional only (Note 4) | V _F | 3.5/5.0 | Volts |
| Operating junction and storage temperature range | T _{STG} , T _J | -55 to + 175 | °C |

Notes:

1. 10/1000μs waveform non-repetitive current pulse, per Fig.3 and derated above Ta=25°C per Fig.2
2. T_L=75°C, lead lengths 9.5mm, Mounted on copper pad area of (20x20mm) Fig.5
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
4. V_F=3.5V max. for devices of V(BR)<200V, and V_F=5.0V max. for devices of V(BR)>200V

ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

| Device Type | Breakdown Voltage V(BR) (Volts)(NOTES 1) | | Test Current I _t (mA) | Stand-off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (NOTE3)(μA) | Maximum Peak Pulse Reverse Current I _{PPM} (NOTE2) (Amps) | Maximum Clamping Voltage at I _{PPM} V _c (Volts) | Maximum Temperature Coefficient of V(BR) (%/°C) |
|-------------|--|------|----------------------------------|---|---|--|---|---|
| | MIN | MAX | | | | | | |
| 1.5KE6.8 | 6.12 | 7.48 | 10.0 | 5.50 | 1000.0 | 139 | 10.8 | 0.057 |
| 1.5KE6.8A | 6.45 | 7.14 | 10.0 | 5.80 | 1000.0 | 143 | 10.5 | 0.057 |
| 1.5KE7.5 | 6.75 | 8.25 | 10.0 | 6.05 | 500.0 | 128 | 11.7 | 0.061 |
| 1.5KE7.5A | 7.13 | 7.88 | 10.0 | 6.40 | 500.0 | 133 | 11.3 | 0.061 |
| 1.5KE8.2 | 7.38 | 9.02 | 10.0 | 6.63 | 200.0 | 120 | 12.5 | 0.065 |
| 1.5KE8.2A | 7.79 | 8.61 | 10.0 | 7.02 | 200.0 | 124 | 12.1 | 0.065 |
| 1.5KE9.1 | 8.19 | 10.0 | 1.0 | 7.37 | 50.0 | 109 | 13.8 | 0.068 |
| 1.5KE9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50.0 | 112 | 13.4 | 0.068 |
| 1.5KE10 | 9.00 | 11.0 | 1.0 | 8.10 | 10.0 | 100 | 15.0 | 0.073 |
| 1.5KE10A | 9.50 | 10.5 | 1.0 | 8.55 | 10.0 | 103 | 14.5 | 0.073 |
| 1.5KE11 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 92.6 | 16.2 | 0.075 |
| 1.5KE11A | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 96.2 | 15.6 | 0.075 |
| 1.5KE12 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 86.7 | 17.3 | 0.078 |
| 1.5KE12A | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 89.8 | 16.7 | 0.078 |
| 1.5KE13 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 78.9 | 19.0 | 0.081 |
| 1.5KE13A | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82.4 | 18.2 | 0.081 |
| 1.5KE15 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 68.2 | 22.0 | 0.084 |
| 1.5KE15A | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 70.8 | 21.2 | 0.084 |
| 1.5KE16 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 63.8 | 23.5 | 0.086 |
| 1.5KE16A | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 66.7 | 22.5 | 0.086 |
| 1.5KE18 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 56.6 | 26.5 | 0.088 |
| 1.5KE18A | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 59.5 | 25.5 | 0.088 |
| 1.5KE20 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 51.5 | 29.1 | 0.090 |
| 1.5KE20A | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 54.2 | 27.7 | 0.090 |
| 1.5KE22 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 47.0 | 31.9 | 0.092 |
| 1.5KE22A | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 49.0 | 30.6 | 0.092 |
| 1.5KE24 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 43.2 | 34.7 | 0.094 |
| 1.5KE24A | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 45.2 | 33.2 | 0.094 |
| 1.5KE27 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 38.4 | 39.1 | 0.096 |
| 1.5KE27A | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 40.0 | 37.5 | 0.096 |
| 1.5KE30 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 34.5 | 43.5 | 0.097 |
| 1.5KE30A | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 36.2 | 41.4 | 0.097 |
| 1.5KE33 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 31.4 | 47.7 | 0.098 |
| 1.5KE33A | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 32.8 | 45.7 | 0.098 |
| 1.5KE36 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 28.8 | 52.0 | 0.099 |
| 1.5KE36A | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 30.1 | 49.9 | 0.099 |
| 1.5KE39 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 26.6 | 56.4 | 0.100 |
| 1.5KE39A | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 27.8 | 53.9 | 0.100 |
| 1.5KE43 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 24.2 | 61.9 | 0.101 |
| 1.5KE43A | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 25.3 | 59.3 | 0.101 |
| 1.5KE47 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 22.1 | 67.8 | 0.101 |
| 1.5KE47A | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 23.1 | 64.8 | 0.101 |
| 1.5KE51 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.4 | 73.5 | 0.102 |
| 1.5KE51A | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.4 | 70.1 | 0.102 |
| 1.5KE56 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 18.6 | 80.5 | 0.103 |
| 1.5KE56A | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.5 | 77.0 | 0.103 |

ELECTRICAL CHARACTERISTICS (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Device Type | Breakdown Voltage $V_{(BR)}$ (Volts)(NOTES 1) | | Test Current I_T (mA) | Stand-off Voltage V_{WM} (Volts) | Maximum Reverse Leakage at V_{WM} I_D (NOTE3)(μA) | Maximum Peak Pulse Reverse Current I_{PPM} (NOTE2) (Amps) | Maximum Clamping Voltage at I_{PPM} V_C (Volts) | Maximum Temperature Coefficient of $V_{(BR)}$ (%/ $^{\circ}\text{C}$) |
|-------------|---|------|-------------------------|------------------------------------|--|---|---|--|
| | MIN | MAX | | | | | | |
| 1.5KE62 | 55.8 | 66.8 | 1.0 | 50.2 | 5.0 | 16.9 | 89.0 | 0.104 |
| 1.5KE62A | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.6 | 85.0 | 0.104 |
| 1.5KE68 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 | 0.104 |
| 1.5KE68A | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 | 0.104 |
| 1.5KE75 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 108 | 0.105 |
| 1.5KE75A | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 103 | 0.105 |
| 1.5KE82 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118 | 0.105 |
| 1.5KE82A | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113 | 0.105 |
| 1.5KE91 | 81.9 | 100 | 1.0 | 73.7 | 5.0 | 11.5 | 131 | 0.106 |
| 1.5KE91A | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.0 | 125 | 0.106 |
| 1.5KE100 | 90.0 | 110 | 1.0 | 81.0 | 5.0 | 10.4 | 144 | 0.106 |
| 1.5KE100A | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 10.9 | 137 | 0.106 |
| 1.5KE110 | 99.0 | 121 | 1.0 | 89.2 | 5.0 | 9.5 | 158 | 0.107 |
| 1.5KE110A | 105 | 116 | 1.0 | 94.0 | 5.0 | 9.9 | 152 | 0.107 |
| 1.5KE120 | 108 | 132 | 1.0 | 97.2 | 5.0 | 8.7 | 173 | 0.107 |
| 1.5KE120A | 114 | 126 | 1.0 | 102 | 5.0 | 9.1 | 165 | 0.107 |
| 1.5KE130 | 117 | 143 | 1.0 | 105 | 5.0 | 8.0 | 187 | 0.107 |
| 1.5KE130A | 124 | 137 | 1.0 | 111 | 5.0 | 8.4 | 179 | 0.107 |
| 1.5KE150 | 135 | 165 | 1.0 | 121 | 5.0 | 7.0 | 215 | 0.108 |
| 1.5KE150A | 143 | 158 | 1.0 | 128 | 5.0 | 7.2 | 207 | 0.108 |
| 1.5KE160 | 144 | 176 | 1.0 | 130 | 5.0 | 6.5 | 230 | 0.108 |
| 1.5KE160A | 152 | 168 | 1.0 | 136 | 5.0 | 6.8 | 219 | 0.108 |
| 1.5KE170 | 153 | 187 | 1.0 | 138 | 5.0 | 6.1 | 244 | 0.108 |
| 1.5KE170A | 162 | 179 | 1.0 | 145 | 5.0 | 6.4 | 234 | 0.108 |
| 1.5KE180 | 162 | 198 | 1.0 | 146 | 5.0 | 5.8 | 258 | 0.108 |
| 1.5KE180A | 171 | 189 | 1.0 | 154 | 5.0 | 6.1 | 246 | 0.108 |
| 1.5KE200 | 180 | 220 | 1.0 | 162 | 5.0 | 5.2 | 287 | 0.108 |
| 1.5KE200A | 190 | 210 | 1.0 | 171 | 5.0 | 5.5 | 274 | 0.108 |
| 1.5KE220 | 198 | 242 | 1.0 | 175 | 5.0 | 4.4 | 344 | 0.108 |
| 1.5KE220A | 209 | 231 | 1.0 | 185 | 5.0 | 4.6 | 328 | 0.108 |
| 1.5KE250 | 225 | 275 | 1.0 | 202 | 5.0 | 4.2 | 360 | 0.110 |
| 1.5KE250A | 237 | 263 | 1.0 | 214 | 5.0 | 4.4 | 344 | 0.110 |
| 1.5KE300 | 270 | 330 | 1.0 | 243 | 5.0 | 3.5 | 430 | 0.110 |
| 1.5KE300A | 285 | 315 | 1.0 | 256 | 5.0 | 3.6 | 414 | 0.110 |
| 1.5KE350 | 315 | 385 | 1.0 | 284 | 5.0 | 3.0 | 504 | 0.110 |
| 1.5KE350A | 332 | 368 | 1.0 | 300 | 5.0 | 3.1 | 482 | 0.110 |
| 1.5KE400 | 360 | 440 | 1.0 | 324 | 5.0 | 2.6 | 574 | 0.110 |
| 1.5KE400A | 380 | 420 | 1.0 | 342 | 5.0 | 2.7 | 548 | 0.110 |
| 1.5KE440 | 396 | 484 | 1.0 | 356 | 5.0 | 2.4 | 631 | 0.110 |
| 1.5KE440A | 418 | 462 | 1.0 | 376 | 5.0 | 2.5 | 602 | 0.110 |

NOTES:

1. $V_{(BR)}$ measured after I_T applied for $300\mu\text{s}$, I_T =square wave pulse or equivalent
2. Surge current waveform per Fig.3 and derated per Fig.2
3. For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled
4. All items and symbols are consistent with ANSI/IEEE C62.35

RATINGS AND CHARACTERISTIC CURVES 1.5KE6.8 THUR 1.5KE440CA

FIG. 1-PEAK PULSE POWER RATING CURVE

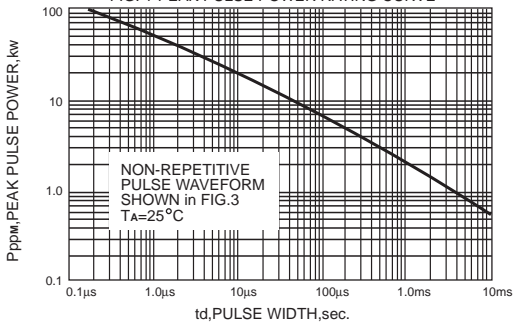


FIG. 2-PULSE DERATING CURVE

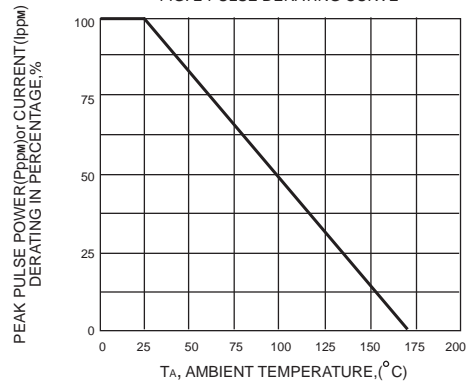


FIG.3-PULSE WAVEFORM

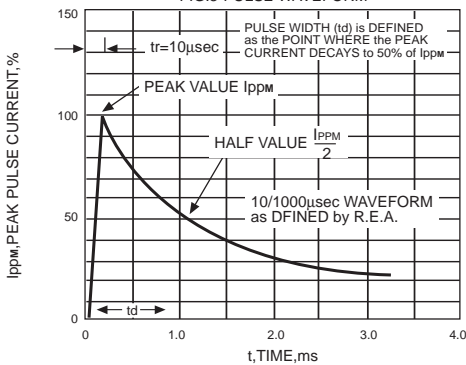


FIG. 4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

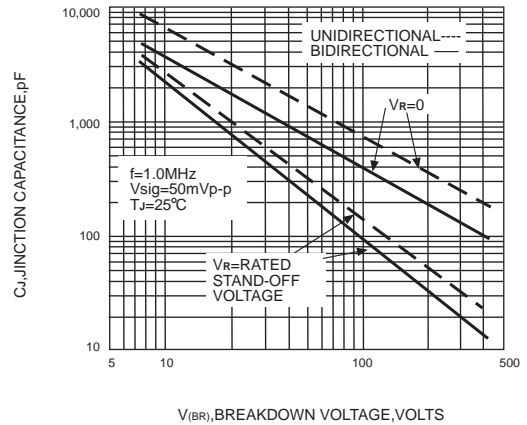


FIG.5-STEADY STATE POWER DERATING CURVE

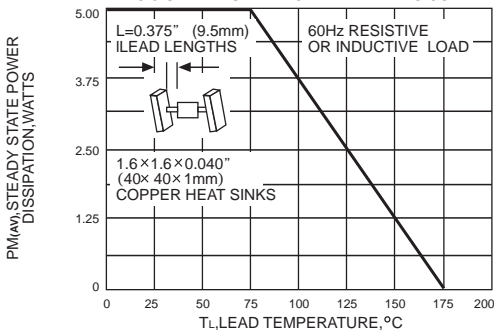


FIG.6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

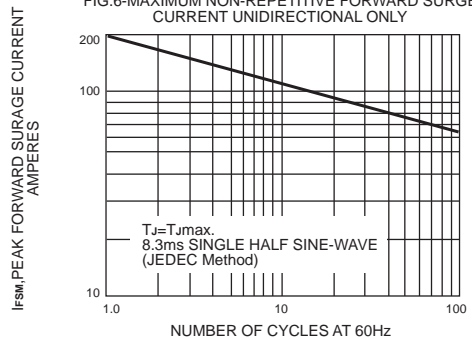


FIG.7-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

