



1.5KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 1500 Watt

BREAKDOWN VOLTAGE

6.8 to 440 Volt

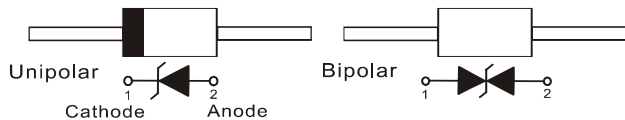
Recongized File # E210467 (1.5KE6.8~1.5KE300CA)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated chip junction in DO-201AE package
- 1500W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1ps from 0 volts to BV min
- High temperature soldering guaranteed: 260°C/10 seconds/0.375" (9.5mm) lead length/5lbs. (2.3kg) tension
- ESD IEC-61000-4-2 Air \pm 30kV, Contact \pm 30kV
- Lead free in ccompliance with EU RoHS 2.0

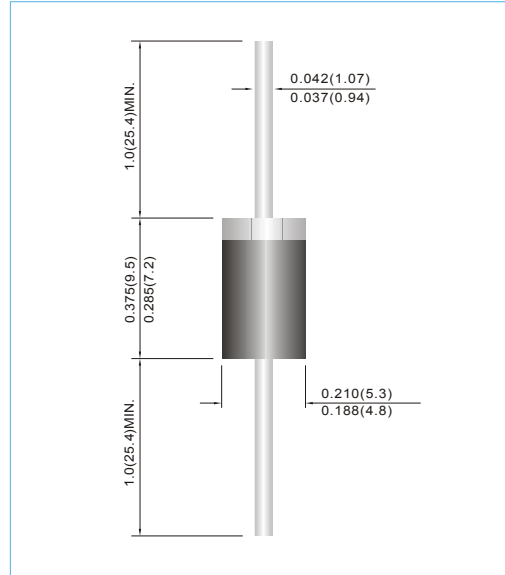
MECHANICAL DATA

- Case: JEDEC DO-201AE molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Approx. Weight: 0.04 ounce, 1.12 gram



DO-201AE

Unit : inch(mm)



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru types 1.5KE440.
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Units |
|----------------------------------------------------------------------------------------------|-----------------|----------------------|-----------------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$, $t_p=1\text{ms}$ (Notes 1) | P_{PP} | 1500 | Watts |
| Typical Thermal Resistance Junction to Air Lead Lengths 0.375", (9.5mm) (Notes 2) | $R_{\theta JA}$ | 30 | $^\circ\text{C} / \text{W}$ |
| Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1) | I_{PPM} | see Table | Amps |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3) | I_{FSM} | 200 | Amps |
| ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact) | V_{ESD} | ± 30 ± 30 | kV |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of $0.79 \text{ in}^2 (20\text{mm}^2)$.
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.
4. A transient suppressor is selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level.



1.5KE SERIES

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000µs | Peak Pulse Current 10/1000µs | Marking Code | |
|------------------------------------|------------|----------------------------|----------------------------------|------|----------------|-----------------------------------|------|----------------------------------|------------------------------|--------------|------------|
| | | V _{RWM} (Notes 4) | V _{BR} @ I _T | | I _T | I _R @ V _{RWM} | | V _C @ I _{PP} | I _{PP} | | |
| | | | Min. | Max. | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI |
| 1500W Transient Voltage Suppressor | | | | | | | | | | | |
| 1.5KE6.8 | 1.5KE6.8C | 5.5 | 6.12 | 7.48 | 10 | 1000 | 2000 | 10.8 | 139 | 1.5KE6.8 | 1.5KE6.8C |
| 1.5KE6.8A | 1.5KE6.8CA | 5.8 | 6.45 | 7.14 | 10 | 1000 | 2000 | 10.5 | 143 | 1.5KE6.8A | 1.5KE6.8CA |
| 1.5KE7.5 | 1.5KE7.5C | 6.05 | 6.75 | 8.25 | 10 | 500 | 1000 | 11.7 | 128 | 1.5KE7.5 | 1.5KE7.5C |
| 1.5KE7.5A | 1.5KE7.5CA | 6.4 | 7.13 | 7.88 | 10 | 500 | 1000 | 11.3 | 132 | 1.5KE7.5A | 1.5KE7.5CA |
| 1.5KE8.2 | 1.5KE8.2C | 6.63 | 7.38 | 9.02 | 10 | 200 | 400 | 12.5 | 120 | 1.5KE8.2 | 1.5KE8.2C |
| 1.5KE8.2A | 1.5KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 200 | 400 | 12.1 | 124 | 1.5KE8.2A | 1.5KE8.2CA |
| 1.5KE9.1 | 1.5KE9.1C | 7.37 | 8.19 | 10 | 1 | 50 | 100 | 13.8 | 109 | 1.5KE9.1 | 1.5KE9.1C |
| 1.5KE9.1A | 1.5KE9.1CA | 7.78 | 8.65 | 9.5 | 1 | 50 | 100 | 13.4 | 112 | 1.5KE9.1A | 1.5KE9.1CA |
| 1.5KE10 | 1.5KE10C | 8.1 | 9 | 11 | 1 | 10 | 20 | 15 | 100 | 1.5KE10 | 1.5KE10C |
| 1.5KE10A | 1.5KE10CA | 8.55 | 9.5 | 10.5 | 1 | 10 | 20 | 14.5 | 103 | 1.5KE10A | 1.5KE10CA |
| 1.5KE11 | 1.5KE11C | 8.92 | 9.9 | 12.1 | 1 | 5 | 10 | 16.2 | 93 | 1.5KE11 | 1.5KE11C |
| 1.5KE11A | 1.5KE11CA | 9.4 | 10.5 | 11.6 | 1 | 5 | 10 | 15.6 | 96 | 1.5KE11A | 1.5KE11CA |
| 1.5KE12 | 1.5KE12C | 9.72 | 10.8 | 13.2 | 1 | 5 | 5 | 17.3 | 87 | 1.5KE12 | 1.5KE12C |
| 1.5KE12A | 1.5KE12CA | 10.2 | 11.4 | 12.6 | 1 | 5 | 5 | 16.7 | 90 | 1.5KE12A | 1.5KE12CA |
| 1.5KE13 | 1.5KE13C | 10.5 | 11.7 | 14.3 | 1 | 1 | 1 | 19 | 79 | 1.5KE13 | 1.5KE13C |
| 1.5KE13A | 1.5KE13CA | 11.1 | 12.4 | 13.7 | 1 | 1 | 1 | 18.2 | 82 | 1.5KE13A | 1.5KE13CA |
| 1.5KE15 | 1.5KE15C | 12.1 | 13.5 | 16.5 | 1 | 1 | 1 | 22 | 68 | 1.5KE15 | 1.5KE15C |
| 1.5KE15A | 1.5KE15CA | 12.8 | 14.3 | 15.8 | 1 | 1 | 1 | 21.2 | 71 | 1.5KE15A | 1.5KE15CA |
| 1.5KE16 | 1.5KE16C | 12.9 | 14.4 | 17.6 | 1 | 1 | 1 | 23.5 | 64 | 1.5KE16 | 1.5KE16C |
| 1.5KE16A | 1.5KE16CA | 13.6 | 15.2 | 16.8 | 1 | 1 | 1 | 22.5 | 67 | 1.5KE16A | 1.5KE16CA |
| 1.5KE18 | 1.5KE18C | 14.5 | 16.2 | 19.8 | 1 | 1 | 1 | 26.5 | 56.5 | 1.5KE18 | 1.5KE18C |
| 1.5KE18A | 1.5KE18CA | 15.3 | 17.1 | 18.9 | 1 | 1 | 1 | 25.2 | 59.5 | 1.5KE18A | 1.5KE18CA |
| 1.5KE20 | 1.5KE20C | 16.2 | 18 | 22 | 1 | 1 | 1 | 29.1 | 51.5 | 1.5KE20 | 1.5KE20C |
| 1.5KE20A | 1.5KE20CA | 17.1 | 19 | 21 | 1 | 1 | 1 | 27.7 | 54 | 1.5KE20A | 1.5KE20CA |
| 1.5KE22 | 1.5KE22C | 17.8 | 19.8 | 24.2 | 1 | 1 | 1 | 31.9 | 47 | 1.5KE22 | 1.5KE22C |
| 1.5KE22A | 1.5KE22CA | 18.8 | 20.9 | 23.1 | 1 | 1 | 1 | 30.6 | 49 | 1.5KE22A | 1.5KE22CA |
| 1.5KE24 | 1.5KE24C | 19.4 | 21.6 | 26.4 | 1 | 1 | 1 | 34.7 | 43 | 1.5KE24 | 1.5KE24C |
| 1.5KE24A | 1.5KE24CA | 20.5 | 22.8 | 25.2 | 1 | 1 | 1 | 33.2 | 45 | 1.5KE24A | 1.5KE24CA |
| 1.5KE27 | 1.5KE27C | 21.8 | 24.3 | 29.7 | 1 | 1 | 1 | 39.1 | 38.5 | 1.5KE27 | 1.5KE27C |
| 1.5KE27A | 1.5KE27CA | 23.1 | 25.7 | 28.4 | 1 | 1 | 1 | 37.5 | 40 | 1.5KE27A | 1.5KE27CA |
| 1.5KE30 | 1.5KE30C | 24.3 | 27 | 33 | 1 | 1 | 1 | 43.5 | 34.5 | 1.5KE30 | 1.5KE30C |
| 1.5KE30A | 1.5KE30CA | 25.6 | 28.5 | 31.5 | 1 | 1 | 1 | 41.4 | 36 | 1.5KE30A | 1.5KE30CA |
| 1.5KE33 | 1.5KE33C | 26.8 | 29.7 | 36.3 | 1 | 1 | 1 | 47.7 | 31.5 | 1.5KE33 | 1.5KE33C |
| 1.5KE33A | 1.5KE33CA | 28.2 | 31.4 | 34.7 | 1 | 1 | 1 | 45.7 | 33 | 1.5KE33A | 1.5KE33CA |
| 1.5KE36 | 1.5KE36C | 29.1 | 32.4 | 39.6 | 1 | 1 | 1 | 52 | 29 | 1.5KE36 | 1.5KE36C |
| 1.5KE36A | 1.5KE36CA | 30.8 | 34.2 | 37.8 | 1 | 1 | 1 | 49.9 | 30 | 1.5KE36A | 1.5KE36CA |
| 1.5KE39 | 1.5KE39C | 31.6 | 35.1 | 42.9 | 1 | 1 | 1 | 56.4 | 26.5 | 1.5KE39 | 1.5KE39C |
| 1.5KE39A | 1.5KE39CA | 33.3 | 37.1 | 41 | 1 | 1 | 1 | 53.9 | 28 | 1.5KE39A | 1.5KE39CA |
| 1.5KE43 | 1.5KE43C | 34.8 | 38.7 | 47.3 | 1 | 1 | 1 | 61.9 | 24 | 1.5KE43 | 1.5KE43C |
| 1.5KE43A | 1.5KE43CA | 36.8 | 40.9 | 45.2 | 1 | 1 | 1 | 59.3 | 25.3 | 1.5KE43A | 1.5KE43CA |
| 1.5KE47 | 1.5KE47C | 38.1 | 42.3 | 51.7 | 1 | 1 | 1 | 67.8 | 22.2 | 1.5KE47 | 1.5KE47C |
| 1.5KE47A | 1.5KE47CA | 40.2 | 44.7 | 49.4 | 1 | 1 | 1 | 64.8 | 23.2 | 1.5KE47A | 1.5KE47CA |
| 1.5KE51 | 1.5KE51C | 41.3 | 45.9 | 56.1 | 1 | 1 | 1 | 73.5 | 20.4 | 1.5KE51 | 1.5KE51C |



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| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000µs | Peak Pulse Current 10/1000µs | Marking Code | |
|------------------------------------|------------|-------------------------------|----------------------------------|------|----------------|-----------------------------------|----|----------------------------------|---------------------------------|--------------|------------|
| | | V _{RWM} (Notes 4) | V _{BR} @ I _T | | I _T | I _R @ V _{RWM} | | V _C @ I _{PP} | I _{PP} | | |
| | | | Min. | Max. | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI |
| 1500W Transient Voltage Suppressor | | | | | | | | | | | |
| 1.5KE51A | 1.5KE51CA | 43.6 | 48.5 | 53.6 | 1 | 1 | 1 | 70.1 | 21.4 | 1.5KE51A | 1.5KE51CA |
| 1.5KE56 | 1.5KE56C | 45.6 | 50.4 | 61.6 | 1 | 1 | 1 | 80.5 | 18.6 | 1.5KE56 | 1.5KE56C |
| 1.5KE56A | 1.5KE56CA | 47.8 | 53.2 | 58.8 | 1 | 1 | 1 | 77 | 19.5 | 1.5KE56A | 1.5KE56CA |
| 1.5KE62 | 1.5KE62C | 50.2 | 55.8 | 68.2 | 1 | 1 | 1 | 89 | 16.9 | 1.5KE62 | 1.5KE62C |
| 1.5KE62A | 1.5KE62CA | 53 | 58.9 | 65.1 | 1 | 1 | 1 | 85 | 17.7 | 1.5KE62A | 1.5KE62CA |
| 1.5KE68 | 1.5KE68C | 55.1 | 61.2 | 74.8 | 1 | 1 | 1 | 98 | 15.3 | 1.5KE68 | 1.5KE68C |
| 1.5KE68A | 1.5KE68CA | 58.1 | 64.6 | 71.4 | 1 | 1 | 1 | 92 | 16.3 | 1.5KE68A | 1.5KE68CA |
| 1.5KE75 | 1.5KE75C | 60.7 | 67.5 | 82.5 | 1 | 1 | 1 | 108 | 13.9 | 1.5KE75 | 1.5KE75C |
| 1.5KE75A | 1.5KE75CA | 64.1 | 71.3 | 78.8 | 1 | 1 | 1 | 103 | 14.6 | 1.5KE75A | 1.5KE75CA |
| 1.5KE82 | 1.5KE82C | 66.4 | 73.8 | 90.2 | 1 | 1 | 1 | 118 | 12.7 | 1.5KE82 | 1.5KE82C |
| 1.5KE82A | 1.5KE82CA | 70.1 | 77.9 | 86.1 | 1 | 1 | 1 | 113 | 13.3 | 1.5KE82A | 1.5KE82CA |
| 1.5KE91 | 1.5KE91C | 73.7 | 81.9 | 100 | 1 | 1 | 1 | 131 | 11.4 | 1.5KE91 | 1.5KE91C |
| 1.5KE91A | 1.5KE91CA | 77.8 | 86.5 | 95.5 | 1 | 1 | 1 | 125 | 12 | 1.5KE91A | 1.5KE91CA |
| 1.5KE100 | 1.5KE100C | 81 | 90 | 110 | 1 | 1 | 1 | 144 | 10.4 | 1.5KE100 | 1.5KE100C |
| 1.5KE100A | 1.5KE100CA | 85.5 | 95 | 105 | 1 | 1 | 1 | 137 | 11 | 1.5KE100A | 1.5KE100CA |
| 1.5KE110 | 1.5KE110C | 89.2 | 99 | 121 | 1 | 1 | 1 | 158 | 9.5 | 1.5KE110 | 1.5KE110C |
| 1.5KE110A | 1.5KE110CA | 94 | 105 | 116 | 1 | 1 | 1 | 152 | 9.9 | 1.5KE110A | 1.5KE110CA |
| 1.5KE120 | 1.5KE120C | 97.2 | 108 | 132 | 1 | 1 | 1 | 173 | 8.7 | 1.5KE120 | 1.5KE120C |
| 1.5KE120A | 1.5KE120CA | 102 | 114 | 126 | 1 | 1 | 1 | 165 | 9.1 | 1.5KE120A | 1.5KE120CA |
| 1.5KE130 | 1.5KE130C | 105 | 117 | 143 | 1 | 1 | 1 | 187 | 8 | 1.5KE130 | 1.5KE130C |
| 1.5KE130A | 1.5KE130CA | 111 | 124 | 137 | 1 | 1 | 1 | 179 | 8.4 | 1.5KE130A | 1.5KE130CA |
| 1.5KE150 | 1.5KE150C | 121 | 135 | 165 | 1 | 1 | 1 | 215 | 7 | 1.5KE150 | 1.5KE150C |
| 1.5KE150A | 1.5KE150CA | 128 | 143 | 158 | 1 | 1 | 1 | 207 | 7.2 | 1.5KE150A | 1.5KE150CA |
| 1.5KE160 | 1.5KE160C | 130 | 144 | 176 | 1 | 1 | 1 | 230 | 6.5 | 1.5KE160 | 1.5KE160C |
| 1.5KE160A | 1.5KE160CA | 136 | 152 | 168 | 1 | 1 | 1 | 219 | 6.8 | 1.5KE160A | 1.5KE160CA |
| 1.5KE170 | 1.5KE170C | 138 | 153 | 187 | 1 | 1 | 1 | 244 | 6.2 | 1.5KE170 | 1.5KE170C |
| 1.5KE170A | 1.5KE170CA | 145 | 162 | 179 | 1 | 1 | 1 | 234 | 6.4 | 1.5KE170A | 1.5KE170CA |
| 1.5KE180 | 1.5KE180C | 146 | 162 | 198 | 1 | 1 | 1 | 258 | 5.8 | 1.5KE180 | 1.5KE180C |
| 1.5KE180A | 1.5KE180CA | 154 | 171 | 189 | 1 | 1 | 1 | 246 | 6.1 | 1.5KE180A | 1.5KE180CA |
| 1.5KE200 | 1.5KE200C | 162 | 180 | 220 | 1 | 1 | 1 | 287 | 5.2 | 1.5KE200 | 1.5KE200C |
| 1.5KE200A | 1.5KE200CA | 171 | 190 | 210 | 1 | 1 | 1 | 274 | 5.5 | 1.5KE200A | 1.5KE200CA |
| 1.5KE220 | 1.5KE220C | 175 | 198 | 242 | 1 | 1 | 1 | 344 | 4.3 | 1.5KE220 | 1.5KE220C |
| 1.5KE220A | 1.5KE220CA | 185 | 209 | 231 | 1 | 1 | 1 | 328 | 4.6 | 1.5KE220A | 1.5KE220CA |
| 1.5KE250 | 1.5KE250C | 202 | 225 | 275 | 1 | 1 | 1 | 360 | 4.3 | 1.5KE250 | 1.5KE250C |
| 1.5KE250A | 1.5KE250CA | 214 | 237 | 263 | 1 | 1 | 1 | 344 | 4.5 | 1.5KE250A | 1.5KE250CA |
| 1.5KE300 | 1.5KE300C | 243 | 270 | 330 | 1 | 1 | 1 | 430 | 3.6 | 1.5KE300 | 1.5KE300C |
| 1.5KE300A | 1.5KE300CA | 256 | 285 | 315 | 1 | 1 | 1 | 414 | 3.8 | 1.5KE300A | 1.5KE300CA |
| 1.5KE350 | 1.5KE350C | 284 | 315 | 385 | 1 | 1 | 1 | 504 | 3.1 | 1.5KE350 | 1.5KE350C |
| 1.5KE350A | 1.5KE350CA | 300 | 332 | 368 | 1 | 1 | 1 | 482 | 3.2 | 1.5KE350A | 1.5KE350CA |
| 1.5KE400 | 1.5KE400C | 324 | 360 | 440 | 1 | 1 | 1 | 574 | 2.7 | 1.5KE400 | 1.5KE400C |
| 1.5KE400A | 1.5KE400CA | 342 | 380 | 420 | 1 | 1 | 1 | 548 | 2.8 | 1.5KE400A | 1.5KE400CA |
| 1.5KE440 | 1.5KE440C | 356 | 396 | 484 | 1 | 1 | 1 | 631 | 2.4 | 1.5KE440 | 1.5KE440C |
| 1.5KE440A | 1.5KE440CA | 376 | 418 | 462 | 1 | 1 | 1 | 600 | 2.6 | 1.5KE440A | 1.5KE440CA |



1.5KE SERIES

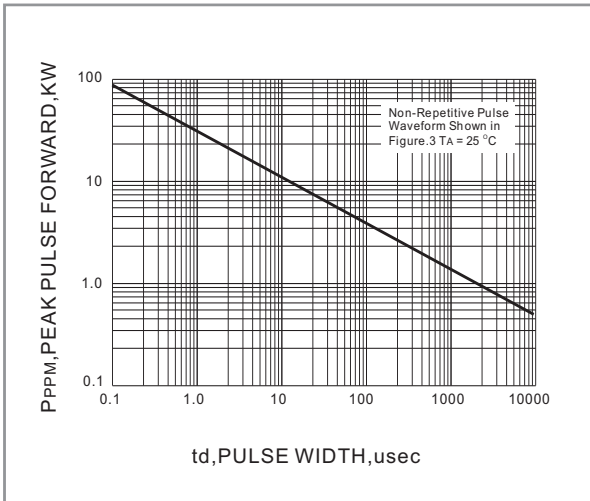


Fig.1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE

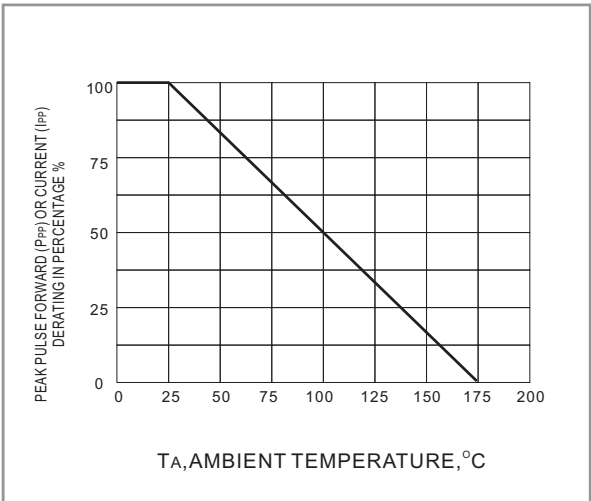


Fig.2 PULSE DERATING CURVE

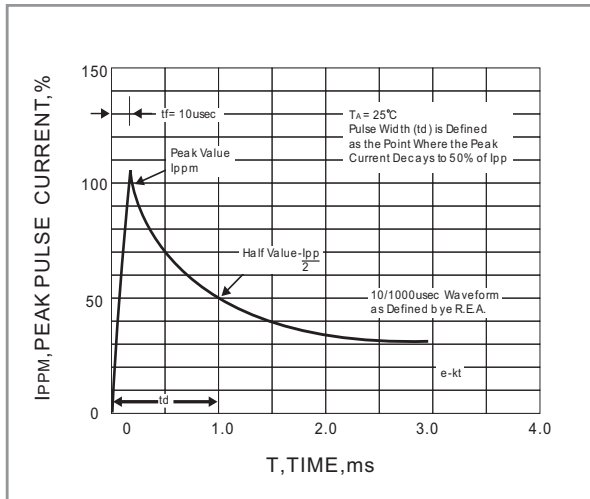


Fig.3 PULSE WAVEFORM

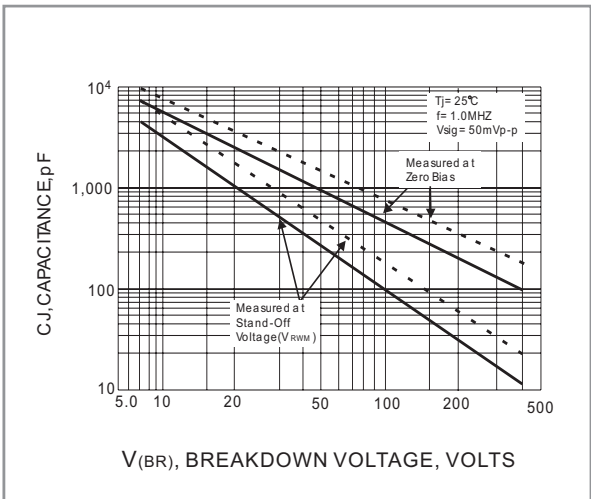


Fig.4 TYPICAL JUNCTION CAPACITANCE

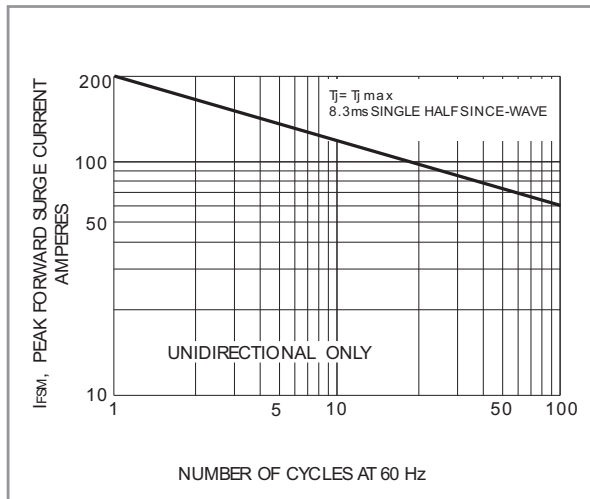


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL

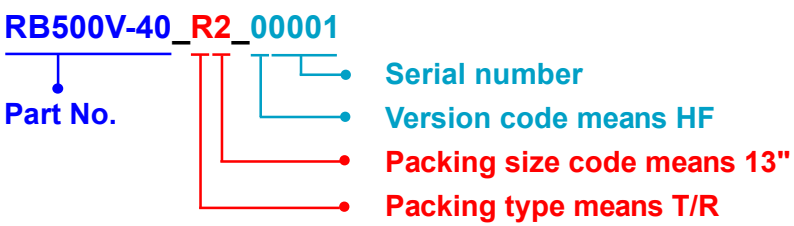


1.5KE SERIES

Part No._packing code_Version

- 1.5KE6.8_AY_00001
- 1.5KE6.8_AY_10001
- 1.5KE6.8_B0_00001
- 1.5KE6.8_B0_10001
- 1.5KE6.8_R2_00001
- 1.5KE6.8_R2_10001

For example :



| Packing Code XX | | | | Version Code XXXXX | | |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type | 1 st Code | Packing size code | 2 nd Code | HF or RoHS | 1 st Code | 2 nd ~5 th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |