



P6KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

BREAK DOWN VOLTAGE

6.8 to 550 Volt

DO-15

Unit : inch(mm)

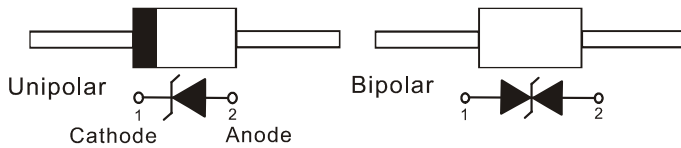
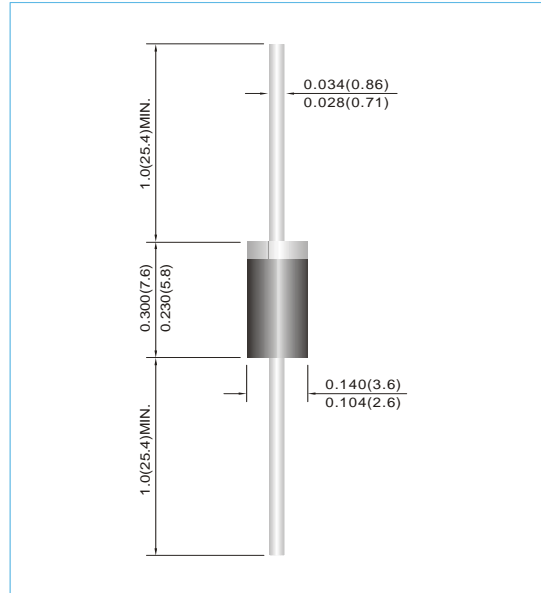
Recongized File # E210467

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 600W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1 ps from 0 volts to BV min
- ESD IEC-61000-4-2 Air \pm 30kV, Contact \pm 30kV
- Lead free in compliance with EU RoHS 2011/65/EU directive

MECHANICAL DATA

- Case: JEDEC DO-15 Molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.014 ounce, 0.4 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.
For Capacitive load derate current by 20%.

| Rating | Symbol | Value | Units |
|--|------------------------------------|----------------------|-----------------------------|
| Power Dissipation on $T_A=25^\circ\text{C}$, $t_p=1\text{ms}$ (Notes 1) | P_{PP} | 600 | Watts |
| Typical Thermal Resistance (Notes 2) | $R_{\theta JA}$ $R_{\theta JC}$ | 70 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} | 100 | 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 48cm² FR-4 PCB.
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.



P6KE 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 _{BR} @ I _T | | | I _R @ V _{RWM} | | | | | |
| | | | Min. | Max. | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI |
| 600W Transient Voltage Suppressor | | | | | | | | | | | |
| P6KE6.8 | P6KE6.8C | 5.5 | 6.12 | 7.48 | 10 | 1000 | 2000 | 10.8 | 56 | P6KE6.8 | P6KE6.8C |
| P6KE6.8A | P6KE6.8CA | 5.8 | 6.45 | 7.14 | 10 | 1000 | 2000 | 10.5 | 57 | P6KE6.8A | P6KE6.8CA |
| P6KE7.5 | P6KE7.5C | 6.05 | 6.75 | 8.25 | 10 | 500 | 1000 | 11.7 | 51 | P6KE7.5 | P6KE7.5C |
| P6KE7.5A | P6KE7.5CA | 6.4 | 7.13 | 7.88 | 10 | 500 | 1000 | 11.3 | 53 | P6KE7.5A | P6KE7.5CA |
| P6KE8.2 | P6KE8.2C | 6.63 | 7.38 | 9.02 | 10 | 200 | 400 | 12.5 | 48 | P6KE8.2 | P6KE8.2C |
| P6KE8.2A | P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 200 | 400 | 12.1 | 50 | P6KE8.2A | P6KE8.2CA |
| P6KE9.1 | P6KE9.1C | 7.37 | 8.19 | 10 | 1 | 50 | 100 | 13.8 | 44 | P6KE9.1 | P6KE9.1C |
| P6KE9.1A | P6KE9.1CA | 7.78 | 8.65 | 9.50 | 1 | 50 | 100 | 13.4 | 45 | P6KE9.1A | P6KE9.1CA |
| P6KE10 | P6KE10C | 8.1 | 9 | 11 | 1 | 10 | 20 | 15 | 40 | P6KE10 | P6KE10C |
| P6KE10A | P6KE10CA | 8.55 | 9.5 | 10.50 | 1 | 10 | 20 | 14.5 | 41 | P6KE10A | P6KE10CA |
| P6KE11 | P6KE11C | 8.92 | 9.9 | 12 | 1 | 5 | 10 | 16.2 | 37 | P6KE11 | P6KE11C |
| P6KE11A | P6KE11CA | 9.4 | 10.5 | 12 | 1 | 5 | 10 | 15.6 | 38 | P6KE11A | P6KE11CA |
| P6KE12 | P6KE12C | 9.72 | 10.8 | 13 | 1 | 5 | 5 | 17.3 | 35 | P6KE12 | P6KE12C |
| P6KE12A | P6KE12CA | 10.2 | 11.4 | 13 | 1 | 5 | 5 | 16.7 | 36 | P6KE12A | P6KE12CA |
| P6KE13 | P6KE13C | 10.5 | 11.7 | 14 | 1 | 1 | 1 | 19 | 32 | P6KE13 | P6KE13C |
| P6KE13A | P6KE13CA | 11.1 | 12.4 | 14 | 1 | 1 | 1 | 18.2 | 33 | P6KE13A | P6KE13CA |
| P6KE15 | P6KE15C | 12.1 | 13.5 | 16.5 | 1 | 1 | 1 | 22 | 27 | P6KE15 | P6KE15C |
| P6KE15A | P6KE15CA | 12.8 | 14.3 | 15.8 | 1 | 1 | 1 | 21.2 | 28 | P6KE15A | P6KE15CA |
| P6KE16 | P6KE16C | 12.9 | 14.4 | 17.6 | 1 | 1 | 1 | 23.5 | 26 | P6KE16 | P6KE16C |
| P6KE16A | P6KE16CA | 13.6 | 15.2 | 16.8 | 1 | 1 | 1 | 22.5 | 27 | P6KE16A | P6KE16CA |
| P6KE18 | P6KE18C | 14.5 | 16.2 | 19.8 | 1 | 1 | 1 | 26.5 | 23 | P6KE18 | P6KE18C |
| P6KE18A | P6KE18CA | 15.3 | 17.1 | 18.9 | 1 | 1 | 1 | 25.2 | 24 | P6KE18A | P6KE18CA |
| P6KE20 | P6KE20C | 16.2 | 18 | 22 | 1 | 1 | 1 | 29.1 | 21 | P6KE20 | P6KE20C |
| P6KE20A | P6KE20CA | 17.1 | 19 | 21 | 1 | 1 | 1 | 27.7 | 22 | P6KE20A | P6KE20CA |
| P6KE22 | P6KE22C | 17.8 | 19.8 | 24.2 | 1 | 1 | 1 | 31.9 | 19 | P6KE22 | P6KE22C |
| P6KE22A | P6KE22CA | 18.8 | 20.9 | 23.1 | 1 | 1 | 1 | 30.6 | 20 | P6KE22A | P6KE22CA |
| P6KE24 | P6KE24C | 19.4 | 21.6 | 26.4 | 1 | 1 | 1 | 34.7 | 17 | P6KE24 | P6KE24C |
| P6KE24A | P6KE24CA | 20.5 | 22.8 | 25.2 | 1 | 1 | 1 | 33.2 | 18 | P6KE24A | P6KE24CA |
| P6KE27 | P6KE27C | 21.8 | 24.3 | 29.7 | 1 | 1 | 1 | 39.1 | 15 | P6KE27 | P6KE27C |
| P6KE27A | P6KE27CA | 23.1 | 25.7 | 28.4 | 1 | 1 | 1 | 37.5 | 16 | P6KE27A | P6KE27CA |
| P6KE30 | P6KE30C | 24.3 | 27 | 33 | 1 | 1 | 1 | 43.5 | 14 | P6KE30 | P6KE30C |
| P6KE30A | P6KE30CA | 25.6 | 28.5 | 31.5 | 1 | 1 | 1 | 41.4 | 14.4 | P6KE30A | P6KE30CA |
| P6KE33 | P6KE33C | 26.8 | 29.7 | 36.3 | 1 | 1 | 1 | 47.7 | 12.6 | P6KE33 | P6KE33C |
| P6KE33A | P6KE33CA | 28.2 | 31.4 | 34.7 | 1 | 1 | 1 | 45.7 | 13.2 | P6KE33A | P6KE33CA |
| P6KE36 | P6KE36C | 29.1 | 32.4 | 39.6 | 1 | 1 | 1 | 52 | 11.6 | P6KE36 | P6KE36C |
| P6KE36A | P6KE36CA | 30.8 | 34.2 | 37.8 | 1 | 1 | 1 | 49.9 | 12 | P6KE36A | P6KE36CA |
| P6KE39 | P6KE39C | 31.6 | 35.1 | 42.9 | 1 | 1 | 1 | 56.4 | 10.6 | P6KE39 | P6KE39C |
| P6KE39A | P6KE39CA | 33.3 | 37.1 | 41 | 1 | 1 | 1 | 53.9 | 11.2 | P6KE39A | P6KE39CA |
| P6KE43 | P6KE43C | 34.8 | 38.7 | 47.3 | 1 | 1 | 1 | 61.9 | 9.6 | P6KE43 | P6KE43C |
| P6KE43A | P6KE43CA | 36.8 | 40.9 | 45.2 | 1 | 1 | 1 | 59.3 | 10.1 | P6KE43A | P6KE43CA |
| P6KE47 | P6KE47C | 38.1 | 42.3 | 51.7 | 1 | 1 | 1 | 67.8 | 8.9 | P6KE47 | P6KE47C |
| P6KE47A | P6KE47CA | 40.2 | 44.7 | 49.4 | 1 | 1 | 1 | 64.8 | 9.3 | P6KE47A | P6KE47CA |



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| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000 μ s | Peak Pulse Current 10/1000 μ s | Marking Code | |
|-----------------------------------|-----------|---------------------------|-------------------|------|--------------|-----------------|---------|---------------------------------------|---------------------------------------|--------------|-----------|
| | | | $V_{BR} @ I_T$ | | | $I_R @ V_{RWM}$ | | | | | |
| UNI | BI | V | Min. | Max. | I_T | UNI | BI | $V_C @ I_{PP}$ | A | UNI | BI |
| | | | V | V | | μ A | μ A | | | | |
| 600W Transient Voltage Suppressor | | | | | | | | | | | |
| P6KE51 | P6KE51C | 41.3 | 45.9 | 56.1 | 1 | 1 | 1 | 73.5 | 8.2 | P6KE51 | P6KE51C |
| P6KE51A | P6KE51CA | 43.6 | 48.5 | 53.6 | 1 | 1 | 1 | 70.1 | 8.6 | P6KE51A | P6KE51CA |
| P6KE56 | P6KE56C | 45.6 | 50.4 | 61.6 | 1 | 1 | 1 | 80.5 | 7.4 | P6KE56 | P6KE56C |
| P6KE56A | P6KE56CA | 47.8 | 53.2 | 58.8 | 1 | 1 | 1 | 77 | 7.8 | P6KE56A | P6KE56CA |
| P6KE62 | P6KE62C | 50.2 | 55.8 | 68.2 | 1 | 1 | 1 | 89 | 6.8 | P6KE62 | P6KE62C |
| P6KE62A | P6KE62CA | 53 | 58.9 | 65.1 | 1 | 1 | 1 | 85 | 7.1 | P6KE62A | P6KE62CA |
| P6KE68 | P6KE68C | 55.1 | 61.2 | 74.8 | 1 | 1 | 1 | 98 | 6.1 | P6KE68 | P6KE68C |
| P6KE68A | P6KE68CA | 58.1 | 64.6 | 71.4 | 1 | 1 | 1 | 92 | 6.5 | P6KE68A | P6KE68CA |
| P6KE75 | P6KE75C | 60.7 | 67.5 | 82.5 | 1 | 1 | 1 | 108 | 5.5 | P6KE75 | P6KE75C |
| P6KE75A | P6KE75CA | 64.1 | 71.3 | 78.8 | 1 | 1 | 1 | 103 | 5.8 | P6KE75A | P6KE75CA |
| P6KE82 | P6KE82C | 66.4 | 73.8 | 90.2 | 1 | 1 | 1 | 118 | 5.1 | P6KE82 | P6KE82C |
| P6KE82A | P6KE82CA | 70.1 | 77.9 | 86.1 | 1 | 1 | 1 | 113 | 5.3 | P6KE82A | P6KE82CA |
| P6KE91 | P6KE91C | 73.7 | 81.9 | 100 | 1 | 1 | 1 | 131 | 4.5 | P6KE91 | P6KE91C |
| P6KE91A | P6KE91CA | 77.8 | 86.5 | 95.5 | 1 | 1 | 1 | 125 | 4.8 | P6KE91A | P6KE91CA |
| P6KE100 | P6KE100C | 81 | 90 | 110 | 1 | 1 | 1 | 144 | 4.2 | P6KE100 | P6KE100C |
| P6KE100A | P6KE100CA | 85.5 | 95 | 105 | 1 | 1 | 1 | 137 | 4.4 | P6KE100A | P6KE100CA |
| P6KE110 | P6KE110C | 89.2 | 99 | 121 | 1 | 1 | 1 | 158 | 3.8 | P6KE110 | P6KE110C |
| P6KE110A | P6KE110CA | 94 | 105 | 116 | 1 | 1 | 1 | 152 | 4 | P6KE110A | P6KE110CA |
| P6KE120 | P6KE120C | 97.2 | 108 | 132 | 1 | 1 | 1 | 173 | 3.5 | P6KE120 | P6KE120C |
| P6KE120A | P6KE120CA | 102 | 114 | 126 | 1 | 1 | 1 | 165 | 3.6 | P6KE120A | P6KE120CA |
| P6KE130 | P6KE130C | 105 | 117 | 143 | 1 | 1 | 1 | 187 | 3.2 | P6KE130 | P6KE130C |
| P6KE130A | P6KE130CA | 111 | 124 | 137 | 1 | 1 | 1 | 179 | 3.3 | P6KE130A | P6KE130CA |
| P6KE150 | P6KE150C | 121 | 135 | 165 | 1 | 1 | 1 | 215 | 2.8 | P6KE150 | P6KE150C |
| P6KE150A | P6KE150CA | 128 | 143 | 158 | 1 | 1 | 1 | 207 | 2.9 | P6KE150A | P6KE150CA |
| P6KE160 | P6KE160C | 130 | 144 | 176 | 1 | 1 | 1 | 230 | 2.6 | P6KE160 | P6KE160C |
| P6KE160A | P6KE160CA | 136 | 152 | 168 | 1 | 1 | 1 | 219 | 2.7 | P6KE160A | P6KE160CA |
| P6KE170 | P6KE170C | 138 | 153 | 187 | 1 | 1 | 1 | 244 | 2.5 | P6KE170 | P6KE170C |
| P6KE170A | P6KE170CA | 145 | 162 | 179 | 1 | 1 | 1 | 234 | 2.6 | P6KE170A | P6KE170CA |
| P6KE180 | P6KE180C | 146 | 162 | 198 | 1 | 1 | 1 | 258 | 2.3 | P6KE180 | P6KE180C |
| P6KE180A | P6KE180CA | 154 | 171 | 189 | 1 | 1 | 1 | 246 | 2.4 | P6KE180A | P6KE180CA |
| P6KE200 | P6KE200C | 162 | 180 | 220 | 1 | 1 | 1 | 287 | 2.1 | P6KE200 | P6KE200C |
| P6KE200A | P6KE200CA | 171 | 190 | 210 | 1 | 1 | 1 | 274 | 2.2 | P6KE200A | P6KE200CA |
| P6KE220 | P6KE220C | 175 | 198 | 242 | 1 | 1 | 1 | 344 | 1.8 | P6KE220 | P6KE220C |
| P6KE220A | P6KE220CA | 185 | 209 | 231 | 1 | 1 | 1 | 328 | 1.9 | P6KE220A | P6KE220CA |
| P6KE250 | P6KE250C | 202 | 225 | 275 | 1 | 1 | 1 | 360 | 1.7 | P6KE250 | P6KE250C |
| P6KE250A | P6KE250CA | 214 | 237 | 263 | 1 | 1 | 1 | 344 | 1.8 | P6KE250A | P6KE250CA |
| P6KE300 | P6KE300C | 243 | 270 | 330 | 1 | 1 | 1 | 430 | 1.4 | P6KE300 | P6KE300C |
| P6KE300A | P6KE300CA | 256 | 285 | 315 | 1 | 1 | 1 | 414 | 1.5 | P6KE300A | P6KE300CA |
| P6KE350 | P6KE350C | 284 | 315 | 385 | 1 | 1 | 1 | 504 | 1.2 | P6KE350 | P6KE350C |
| P6KE350A | P6KE350CA | 300 | 332 | 368 | 1 | 1 | 1 | 482 | 1.3 | P6KE350A | P6KE350CA |
| P6KE400 | P6KE400C | 324 | 360 | 440 | 1 | 1 | 1 | 574 | 1.05 | P6KE400 | P6KE400C |
| P6KE400A | P6KE400CA | 342 | 380 | 420 | 1 | 1 | 1 | 548 | 1.1 | P6KE400A | P6KE400CA |
| P6KE440 | P6KE440C | 356 | 396 | 484 | 1 | 1 | 1 | 631 | 0.99 | P6KE440 | P6KE440C |
| P6KE440A | P6KE440CA | 376 | 418 | 462 | 1 | 1 | 1 | 600 | 1.04 | P6KE440A | P6KE440CA |



P6KE SERIES

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000 μ s | Peak Pulse Current 10/1000 μ s | Marking Code | |
|--|-----------|---------------------------|-------------------|-------|--------------|-----------------|---------|---------------------------------------|---------------------------------------|--------------|-----------|
| | | | $V_{BR} @ I_T$ | | | $I_R @ V_{RWM}$ | | | | | |
| UNI | BI | V | Min. | Max. | mA | μ A | μ A | V | A | UNI | BI |
| | | | V | V | | μ A | μ A | | | | |
| 600W Transient Voltage Suppressor | | | | | | | | | | | |
| P6KE480 | P6KE480C | 389 | 432 | 528 | 1 | 1 | 1 | 691 | 0.87 | P6KE480 | P6KE480C |
| P6KE480A | P6KE480CA | 408 | 456 | 504 | 1 | 1 | 1 | 658 | 0.91 | P6KE480A | P6KE480CA |
| P6KE550 | P6KE550C | 445.5 | 495 | 605 | 1 | 1 | 1 | 792 | 0.76 | P6KE550 | P6KE550C |
| P6KE550A | P6KE550CA | 467.5 | 522.5 | 577.5 | 1 | 1 | 1 | 753.5 | 0.8 | P6KE550A | P6KE550CA |

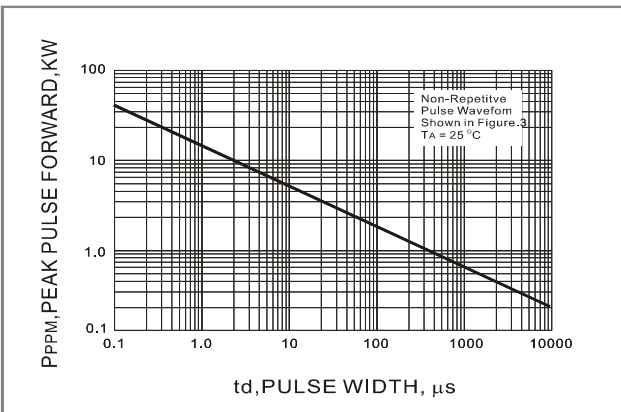


Fig.1 PEAK PULSE POWER RATING PULSE TIME CURVE

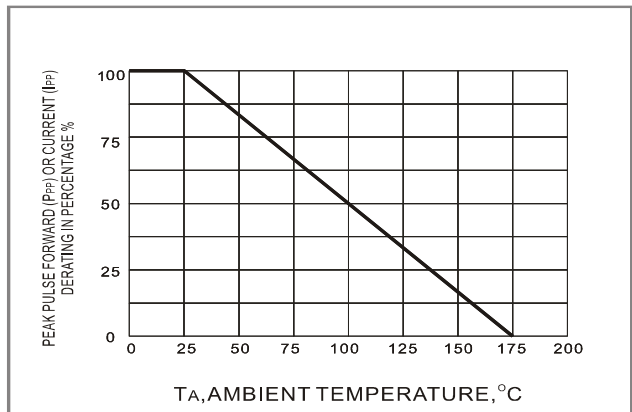


Fig.2 PULSE DERATING CURVE

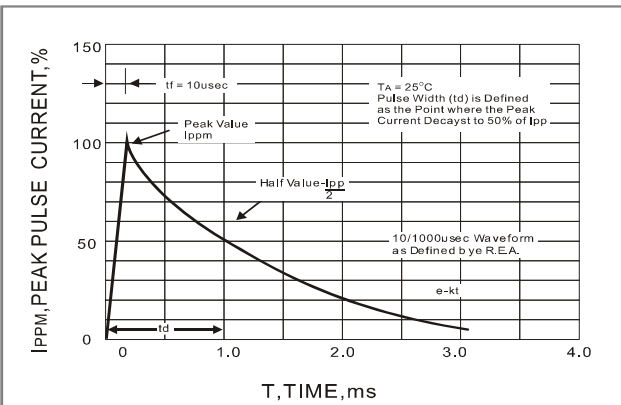


Fig.3 PULSE WAVEFORM

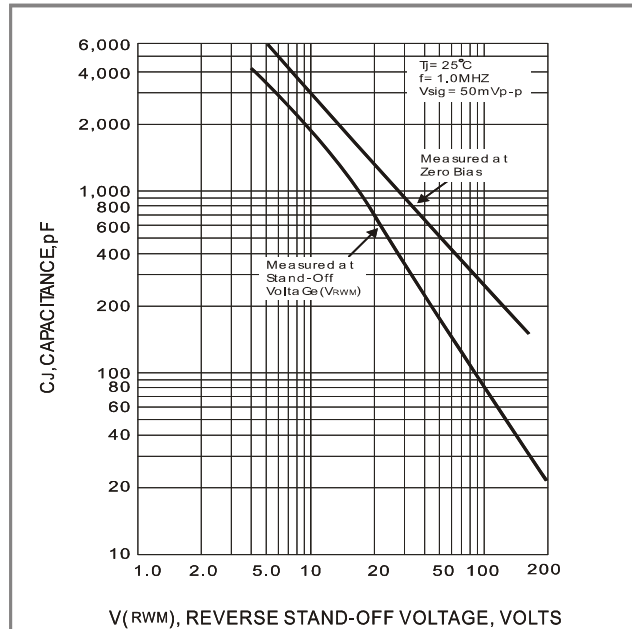


Fig.4 TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

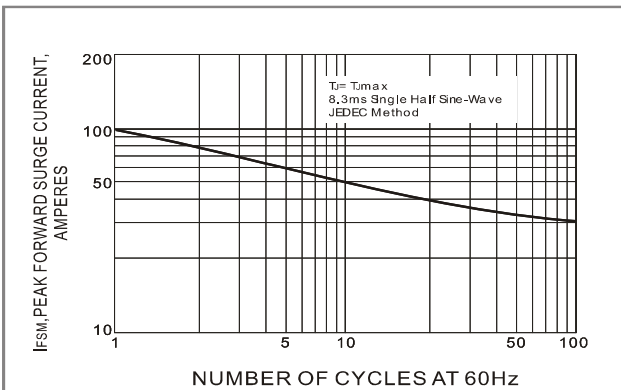


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



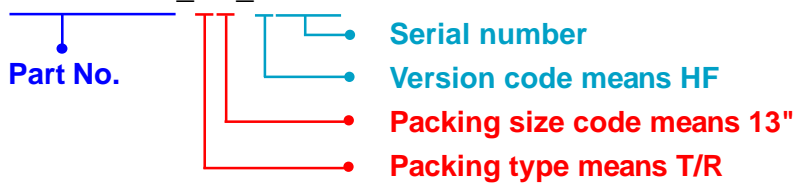
P6KE SERIES

Part No_packing code_Version

P6KE6.8_AY_00001
 P6KE6.8_AY_10001
 P6KE6.8_B0_00001
 P6KE6.8_B0_10001
 P6KE6.8_R2_00001
 P6KE6.8_R2_10001

For example :

RB500V-40_R2_00001



| 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 | | | |



P6KE SERIES

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