

MDE Semiconductor, Inc.

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P4KE SERIES

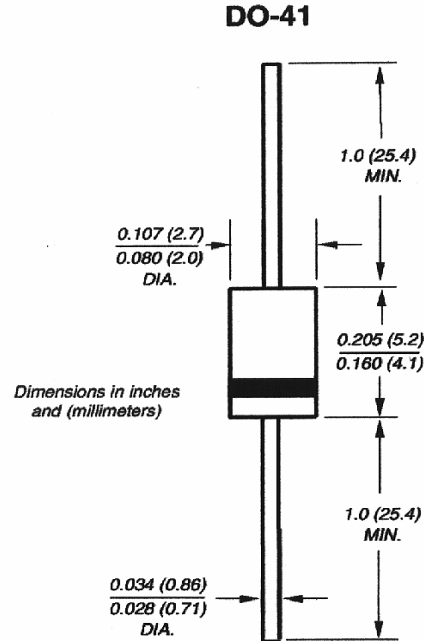
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE - 6.8 TO 550 Volts 400 Watt Peak Pulse Power

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Glass passivated chip junction in DO-41 package
- 400W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Low incremental surge resistance
- Excellent clamping capability
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1µA above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/ .375", (9.5mm) lead length, 5lbs., (2.3kg) tensior

MECHANICAL DATA

Case: JEDEC DO-41 Molded plastic
Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
Polarity: Color band denoted positive end (cathode) except Bipolar
Mounting Position: Any
Weight: 0.012 ounces, 0.3 grams



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4KE6.80 thru types P4KE550 (e.g. P4KE6.8C, P4KE550CA)
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For Capacitive load, derate current by 20%

| RATING | SYMBOL | VALUE | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak Pulse Power Dissipation at TA = 25 °C, TP = 1ms (NOTE 1) | P _{PPM} | Minimum 400 | Watts |
| Peak Pulse Current of on 10/1000 µs waveform (Note 1) | I _{PPM} | SEE TABLE 1 | Amps |
| Steady State Power Dissipation at TL = 75°C Lead lengths .375", 9.5mm (Note 2) | P _{M(AV)} | 1.0 | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note 3) | I _{FSM} | 40 | Amps |
| Operatings and Storage Temperature Range | T _J , T _{STG} | -55 +175 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25 °C per Fig.2.
2. Mounted on Copper Pad area of 1.6x1.6" (40x40mm) per Fig.5.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

Certified RoHS Compliant

UL File # E223026

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RATING AND CHARACTERISTIC CURVES P4KE SERIES

Fig. 1 - Peak Pulse Power Rating

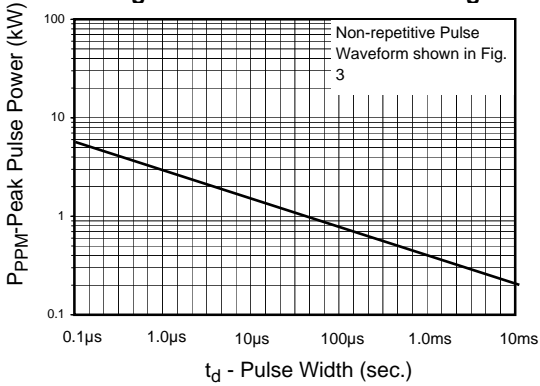


Fig. 2 - Pulse Derating Curve

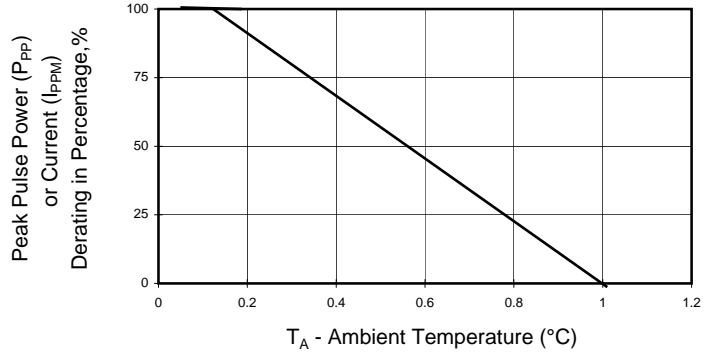


Fig. 3 - Pulse Waveform

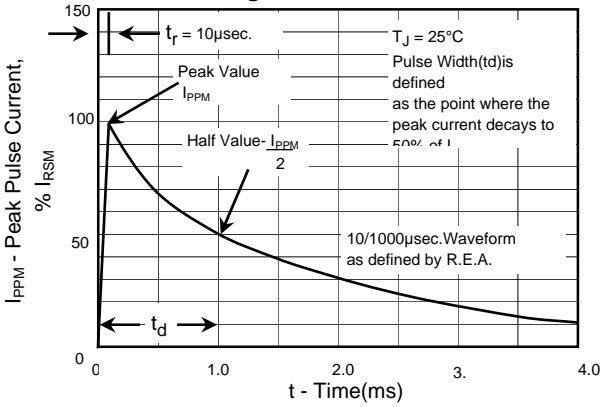


Fig. 4 - Typ. Junction Capacitance Uni-Directional

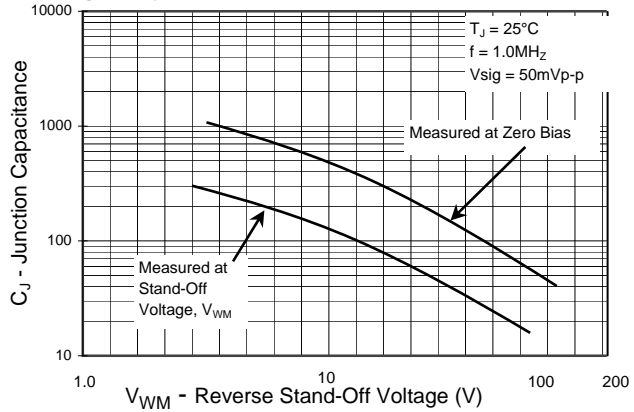


Fig. 5 - Steady State Power Derating Curve

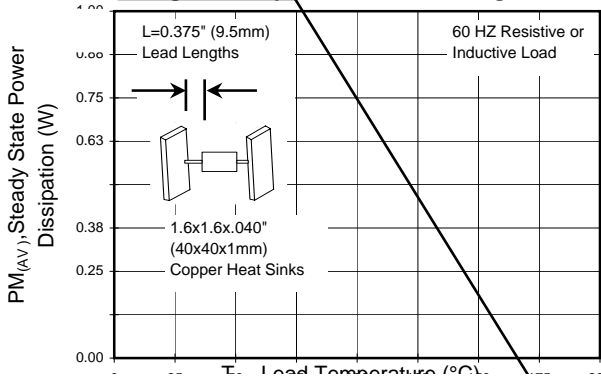


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

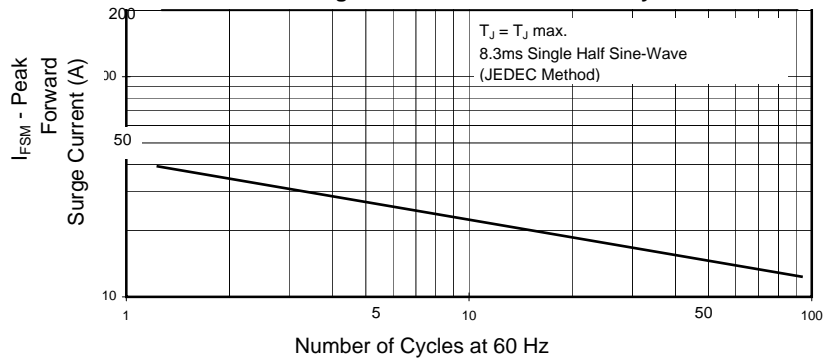


Fig. 7 - Typical Reverse Leakage Characteristics

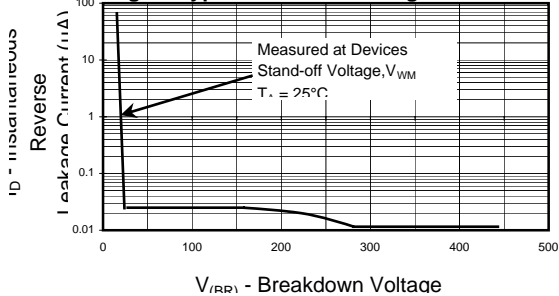
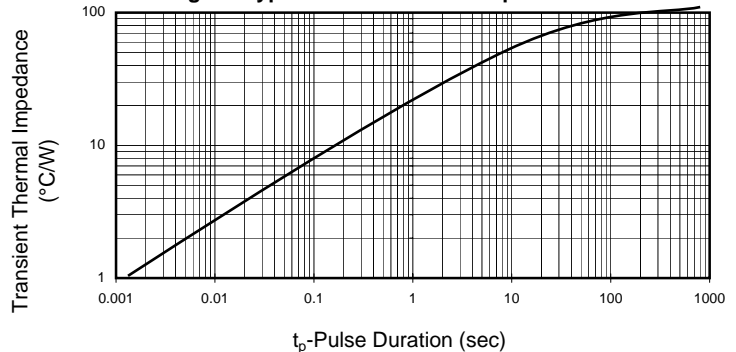


Fig. 8 - Typ. Transient Thermal Impedance



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400 Watt TVS

| UNI-POLAR | BI-POLAR | REVERSE STANDOFF VOLTAGE V _{RWM} (V) | BREAKDOWN VOLTAGE V _{BR} (V) MIN. @ I _T | BREAKDOWN VOLTAGE V _{BR} (V) MAX. @ I _T | TEST CURRENT (I _T) mA | MAXIMUM CLAMPING VOLTAGE @I _{PP} V _C (V) | PEAK PULSE CURRENT I _{PP} (A) | REVERSE LEAKAGE @ V _{RWM} I _R (μA) |
|-----------|-----------|--|--|--|--|---|---|---|
| P4KE6.8A | P4KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 39.0 | 1000 |
| P4KE7.5A | P4KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 36.3 | 500 |
| P4KE8.2A | P4KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 33.9 | 200 |
| P4KE9.1A | P4KE9.1CA | 7.78 | 8.65 | 9.55 | 10 | 13.4 | 30.6 | 50 |
| P4KE10A | P4KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 28.3 | 10 |
| P4KE11A | P4KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 26.3 | 5 |
| P4KE12A | P4KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 24.6 | 5 |
| P4KE13A | P4KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 22.5 | 5 |
| P4KE15A | P4KE15CA | 10.00 | 14.30 | 15.80 | 1 | 21.2 | 19.3 | 5 |
| P4KE16A | P4KE16CA | 12.90 | 15.20 | 16.80 | 1 | 22.5 | 18.2 | 5 |
| P4KE18A | P4KE18CA | 14.50 | 17.10 | 18.90 | 1 | 25.2 | 16.1 | 5 |
| P4KE20A | P4KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 14.8 | 5 |
| P4KE22A | P4KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 13.4 | 5 |
| P4KE24A | P4KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 12.3 | 5 |
| P4KE27A | P4KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 10.9 | 5 |
| P4KE30A | P4KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 9.9 | 5 |
| P4KE33A | P4KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 9.0 | 5 |
| P4KE36A | P4KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 8.2 | 5 |
| P4KE39A | P4KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 7.6 | 5 |
| P4KE43A | P4KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 6.9 | 5 |
| P4KE47A | P4KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 6.3 | 5 |
| P4KE51A | P4KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 5.8 | 5 |
| P4KE56A | P4KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 5.3 | 5 |
| P4KE62A | P4KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 4.8 | 5 |
| P4KE68A | P4KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 4.5 | 5 |
| P4KE75A | P4KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 4.0 | 5 |
| P4KE82A | P4KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 3.6 | 5 |
| P4KE91A | P4KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 3.3 | 5 |
| P4KE100A | P4KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 3.0 | 5 |
| P4KE110A | P4KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 2.7 | 5 |
| P4KE120A | P4KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 2.5 | 5 |
| P4KE130A | P4KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 2.3 | 5 |
| P4KE150A | P4KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.0 | 5 |
| P4KE160A | P4KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 1.9 | 5 |
| P4KE170A | P4KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 1.8 | 5 |
| P4KE180A | P4KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 1.7 | 5 |
| P4KE200A | P4KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 1.5 | 5 |
| P4KE220A | P4KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.3 | 5 |
| P4KE250A | P4KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.2 | 5 |
| P4KE300A | P4KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.0 | 5 |
| P4KE350A | P4KE350CA | 300.00 | 333.00 | 368.00 | 1 | 482.0 | 0.85 | 5 |
| P4KE400A | P4KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 0.75 | 5 |
| P4KE440A | P4KE440CA | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 0.68 | 5 |
| P4KE480A | P4KE480CA | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.61 | 5 |
| P4KE510A | P4KE510CA | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.57 | 5 |
| P4KE530A | P4KE530CA | 450.00 | 503.50 | 556.50 | 1 | 725.0 | 0.55 | 5 |
| P4KE540A | P4KE540CA | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.54 | 5 |
| P4KE550A | P4KE550CA | 467.00 | 522.50 | 577.50 | 1 | 760.0 | 0.52 | 5 |

For bidirectional type having V_{rwm} of 10 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is ± 10%

Certified RoHS Compliant

UL File # E223026