

MDE Semiconductor, Inc.

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20KP SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE-20.0 TO 300 Volts 20000 Watt Peak Pulse Power

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 20000W Peak Pulse Power capability on 10/1000 μ s waveform
- Excellent clamping capability
- Repetition rate (duty cycle):0.05%
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV
- Typical Id less than 1 μ A above 10V
- High temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass passivated junction
 Terminals: Plated Axial leads, solderable per MIL-STD-750, Method 2026
 Polarity: Color band denoted positive end (cathode) except Bipolar
 Mounting Position: Any
 Weight: 0.07 ounce, 2.1 gram



Dimensions in inches (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 20KP20 thru types 20KP300
 Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| RATING | SYMBOL | VALUE | UNITS |
|---|----------|---------------|-------|
| Peak Pulse Power Dissipation on 10/1000 μ s waveform (NOTE 1) | Pppm | Minimum 20000 | Watts |
| Peak Pulse Current of on 10-1000 μ s waveform (NOTE 1) | Ippm | SEE TABLE 1 | Amps |
| Steady State Power Dissipation at Tl=75 °C Lead Lengths .375", (9.5mm)(NOTE 2) | Pm(AV) | 8.0 | Watts |
| Peak Forward Surge Current, 8.3ms Sine-Wave Superimposed on Rated Load, (JEDEC Method) (NOTE 3) | IFSM | 400.0 | Amps |
| Operating and Storage Temperature Range | Tj, Tstg | -55 to +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 0.8x0.8" (20x20mm) 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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20KP Series Rating and Characteristics



FIG. 1 PEAK PULSE POWER RATING

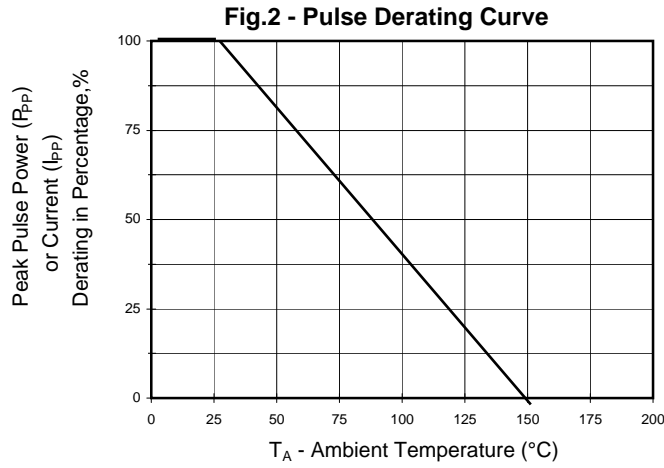
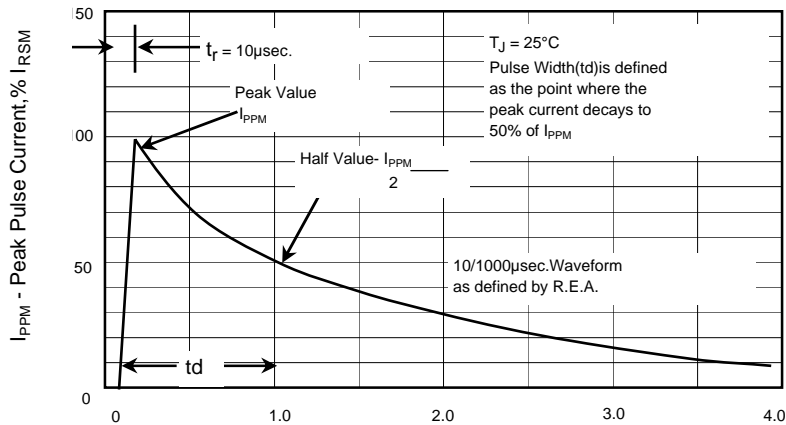


Fig.3 - Pulse Waveform



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20000 Watt TVS

| UNI-POLAR | BI-POLAR | REVERSE STANDOFF VOLTAGE V_{RWM} (V) | BREAKDOWN VOLTAGE V_{BR} (V) MIN. @ 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 (μ A) |
|-----------|-----------|---|--|---------------------------------|--|--|---|
| 20KP20A | 20KP20CA | 20.00 | 22.34 | 50 | 36.8 | 548.9 | 5000 |
| 20KP24A | 20KP24CA | 24.00 | 26.81 | 50 | 41.2 | 490.3 | 5000 |
| 20KP26A | 20KP26CA | 26.00 | 29.04 | 50 | 44.7 | 451.9 | 2000 |
| 20KP28A | 20KP28CA | 28.00 | 31.28 | 50 | 48.0 | 420.8 | 1000 |
| 20KP30A | 20KP30CA | 30.00 | 33.51 | 5 | 51.5 | 392.2 | 250 |
| 20KP32A | 20KP32CA | 32.00 | 35.74 | 5 | 54.3 | 372.0 | 150 |
| 20KP34A | 20KP34CA | 34.00 | 38.00 | 5 | 57.5 | 351.3 | 50 |
| 20KP36A | 20KP36CA | 36.00 | 40.20 | 5 | 61.5 | 328.5 | 20 |
| 20KP40A | 20KP40CA | 40.00 | 44.70 | 5 | 67.8 | 297.9 | 15 |
| 20KP44A | 20KP44CA | 44.00 | 49.10 | 5 | 72.7 | 277.9 | 10 |
| 20KP48A | 20KP48CA | 48.00 | 53.60 | 5 | 79.4 | 254.4 | 10 |
| 20KP52A | 20KP52CA | 52.00 | 58.10 | 5 | 85.8 | 235.4 | 10 |
| 20KP56A | 20KP56CA | 56.00 | 62.60 | 5 | 92.6 | 218.1 | 10 |
| 20KP60A | 20KP60CA | 60.00 | 67.00 | 5 | 97.6 | 207.0 | 10 |
| 20KP64A | 20KP64CA | 64.00 | 71.50 | 5 | 104.0 | 194.2 | 10 |
| 20KP68A | 20KP68CA | 68.00 | 76.00 | 5 | 110.0 | 183.6 | 10 |
| 20KP72A | 20KP72CA | 72.00 | 80.40 | 5 | 116.0 | 174.1 | 10 |
| 20KP80A | 20KP80CA | 80.00 | 89.40 | 5 | 130.0 | 155.4 | 10 |
| 20KP88A | 20KP88CA | 88.00 | 98.30 | 5 | 142.0 | 142.3 | 10 |
| 20KP96A | 20KP96CA | 96.00 | 107.20 | 5 | 155.0 | 130.3 | 10 |
| 20KP104A | 20KP104CA | 104.00 | 116.20 | 5 | 168.0 | 120.2 | 10 |
| 20KP112A | 20KP112CA | 112.00 | 125.10 | 5 | 182.0 | 111.0 | 10 |
| 20KP120A | 20KP120CA | 120.00 | 134.00 | 5 | 194.0 | 104.1 | 10 |
| 20KP132A | 20KP132CA | 132.00 | 147.40 | 5 | 213.0 | 94.8 | 10 |
| 20KP144A | 20KP144CA | 144.00 | 160.80 | 5 | 232.0 | 87.1 | 10 |
| 20KP160A | 20KP160CA | 160.00 | 178.70 | 5 | 258.0 | 78.3 | 10 |
| 20KP172A | 20KP172CA | 172.00 | 192.10 | 5 | 277.0 | 72.9 | 10 |
| 20KP180A | 20KP180CA | 180.00 | 201.10 | 5 | 291.0 | 69.4 | 10 |
| 20KP192A | 20KP192CA | 192.00 | 214.50 | 5 | 309.0 | 65.4 | 10 |
| 20KP204A | 20KP204CA | 204.00 | 227.90 | 5 | 329.0 | 61.4 | 10 |
| 20KP216A | 20KP216CA | 216.00 | 241.30 | 5 | 348.0 | 58.0 | 10 |
| 20KP232A | 20KP232CA | 232.00 | 259.10 | 5 | 374.0 | 54.0 | 10 |
| 20KP240A | 20KP240CA | 240.00 | 268.10 | 5 | 387.0 | 52.2 | 10 |
| 20KP256A | 20KP256CA | 256.00 | 286.00 | 5 | 412.0 | 49.0 | 10 |
| 20KP280A | 20KP280CA | 280.00 | 312.80 | 5 | 451.0 | 44.6 | 10 |
| 20KP300A | 20KP300CA | 300.00 | 335.10 | 5 | 483.0 | 41.8 | 10 |

For bidirectional type having V_{RWM} of 40 volts and less, the I_R limit is double.

For parts without A , the V_{BR} is $\pm 10\%$

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