

MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414

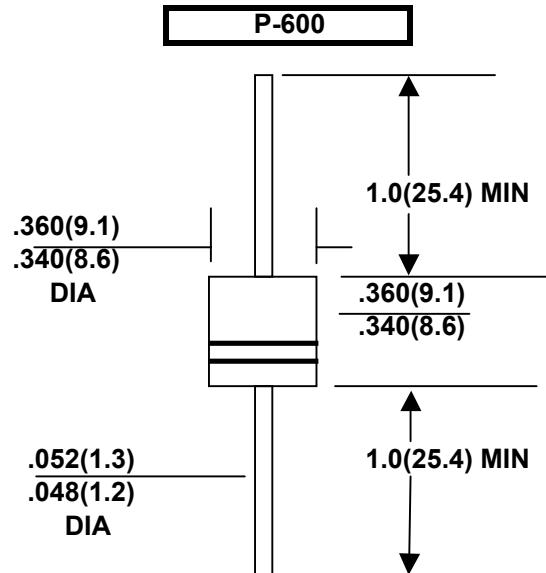
20KW SERIES

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 I_d less than 1 μ A above 10V
- High temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension



Dimensions in inches (millimeters)

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

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 20KW30 thru types 20KW288
 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 $T_I=75^\circ\text{C}$ 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 |
| Operatings and Storage Temperature Range | Tj, Tstg | -55 to +175 | °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 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.

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RATING AND CHARACTERISTICS CURVES 15KW, 20KW, 30KW SERIES

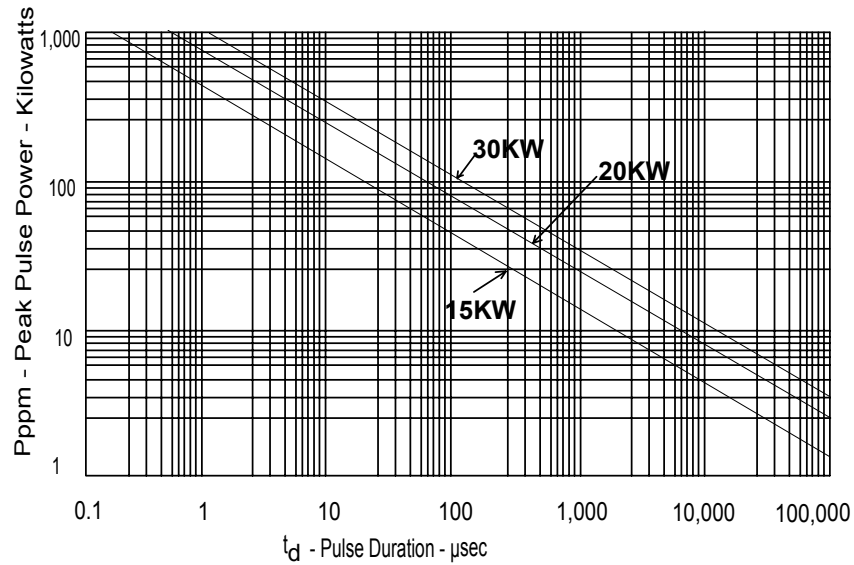


FIG. 1 PEAK PULSE POWER RATING CURVE

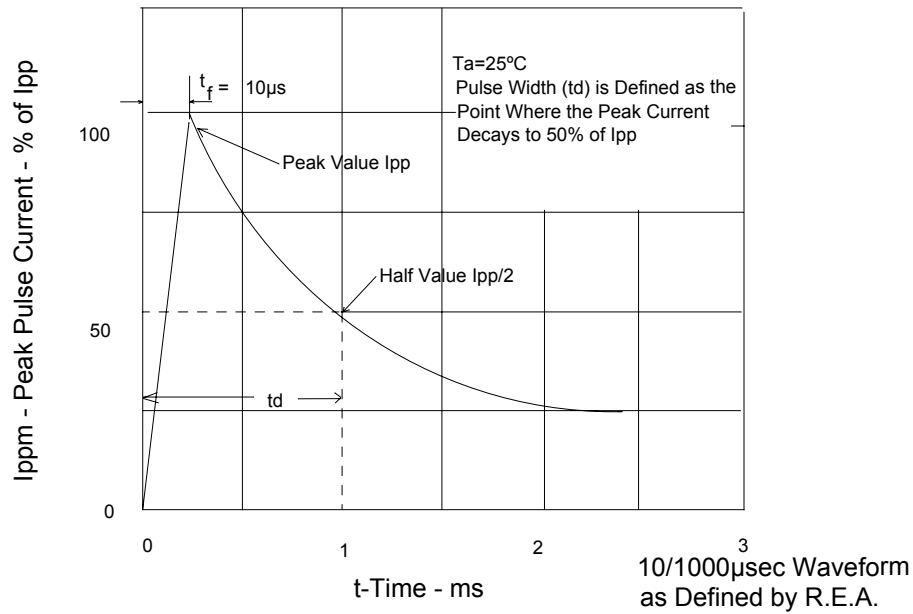


FIG. 2 PULSE WAVE FORM

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20000 Watt TVS

| UNI-DIRECTIONAL PART NUMBER | REVERSE STANDOFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @ IT | BREAKDOWN VOLTAGE VBR (V) MAX. @ IT | TEST CURRENT (It) mA | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR (µA) |
|-----------------------------|-----------------------------------|-------------------------------------|-------------------------------------|----------------------|--------------------------------------|----------------------------|--------------------------------|
| 20KW20 | 20.00 | 25.60 | 29.20 | 50 | 38.4 | 521.0 | 5000 |
| 20KW20A | 20.00 | 25.60 | 28.00 | 50 | 36.8 | 543.0 | 5000 |
| 20KW24 | 24.00 | 26.68 | 32.60 | 50 | 45.6 | 439.0 | 5000 |
| 20KW24A | 24.00 | 26.68 | 29.48 | 50 | 41.2 | 485.0 | 5000 |
| 20KW26 | 26.00 | 28.88 | 35.28 | 50 | 49.2 | 407.0 | 2000 |
| 20KW26A | 26.00 | 28.88 | 31.92 | 50 | 44.8 | 446.0 | 2000 |
| 20KW28 | 28.00 | 31.12 | 38.40 | 50 | 53.2 | 376.0 | 1000 |
| 20KW28A | 28.00 | 31.12 | 34.40 | 50 | 48.0 | 417.0 | 1000 |
| 20KW30 | 30.00 | 33.32 | 40.80 | 5 | 57.2 | 350.0 | 250 |
| 20KW30A | 30.00 | 33.32 | 36.84 | 5 | 51.6 | 388.0 | 250 |
| 20KW32 | 32.00 | 35.56 | 43.60 | 5 | 60.0 | 333.0 | 150 |
| 20KW32A | 32.00 | 35.56 | 39.32 | 5 | 54.4 | 368.0 | 150 |
| 20KW34 | 34.00 | 37.76 | 46.00 | 5 | 63.6 | 314.0 | 50 |
| 20KW34A | 34.00 | 37.76 | 41.60 | 5 | 57.6 | 347.0 | 50 |
| 20KW36 | 36.00 | 40.00 | 48.80 | 5 | 67.6 | 296.0 | 20 |
| 20KW36A | 36.00 | 40.00 | 44.40 | 5 | 61.6 | 325.0 | 20 |
| 20KW40 | 40.00 | 44.40 | 54.40 | 5 | 75.2 | 266.0 | 15 |
| 20KW40A | 40.00 | 44.40 | 49.20 | 5 | 68.0 | 294.0 | 15 |
| 20KW44 | 44.00 | 48.80 | 59.60 | 5 | 80.4 | 249.0 | 10 |
| 20KW44A | 44.00 | 48.80 | 54.00 | 5 | 72.8 | 275.0 | 10 |
| 20KW48 | 48.00 | 53.20 | 65.20 | 5 | 88.0 | 227.0 | 10 |
| 20KW48A | 48.00 | 53.20 | 58.80 | 5 | 79.6 | 251.0 | 10 |
| 20KW52 | 52.00 | 57.60 | 70.40 | 5 | 95.2 | 210.0 | 10 |
| 20KW52A | 52.00 | 57.60 | 63.60 | 5 | 86.0 | 233.0 | 10 |
| 20KW56 | 56.00 | 62.40 | 76.40 | 5 | 103.2 | 194.0 | 10 |
| 20KW56A | 56.00 | 62.40 | 68.80 | 5 | 92.8 | 216.0 | 10 |
| 20KW60 | 60.00 | 66.80 | 81.60 | 5 | 107.6 | 186.0 | 10 |
| 20KW60A | 60.00 | 66.80 | 74.00 | 5 | 97.6 | 205.0 | 10 |
| 20KW64 | 64.00 | 71.20 | 87.20 | 5 | 115.2 | 174.0 | 10 |
| 20KW64A | 64.00 | 71.20 | 78.80 | 5 | 104.0 | 192.0 | 10 |
| 20KW68 | 68.00 | 75.60 | 92.40 | 5 | 122.0 | 164.0 | 10 |
| 20KW68A | 68.00 | 75.60 | 83.60 | 5 | 110.4 | 181.0 | 10 |
| 20KW72 | 72.00 | 80.00 | 97.60 | 5 | 128.8 | 155.0 | 10 |
| 20KW72A | 72.00 | 80.00 | 88.40 | 5 | 116.8 | 171.0 | 10 |
| 20KW80 | 80.00 | 88.80 | 108.40 | 5 | 143.2 | 140.0 | 10 |
| 20KW80A | 80.00 | 88.80 | 98.00 | 5 | 129.6 | 154.0 | 10 |
| 20KW88 | 88.00 | 97.60 | 119.20 | 5 | 157.6 | 127.0 | 10 |
| 20KW88A | 88.00 | 97.60 | 107.60 | 5 | 142.0 | 141.0 | 10 |
| 20KW96 | 96.00 | 106.80 | 130.40 | 5 | 172.0 | 116.0 | 10 |
| 20KW96A | 96.00 | 106.80 | 118.00 | 5 | 155.6 | 129.0 | 10 |
| 20KW104 | 104.00 | 115.60 | 141.20 | 5 | 186.4 | 107.0 | 10 |
| 20KW104A | 104.00 | 115.60 | 127.60 | 5 | 168.4 | 119.0 | 10 |
| 20KW112 | 112.00 | 124.40 | 152.00 | 5 | 200.4 | 100.0 | 10 |
| 20KW112A | 112.00 | 124.40 | 137.60 | 5 | 181.6 | 110.0 | 10 |
| 20KW120 | 120.00 | 133.20 | 162.80 | 5 | 214.0 | 93.5 | 10 |
| 20KW120A | 120.00 | 133.20 | 147.20 | 5 | 193.6 | 103.0 | 10 |
| 20KW132 | 132.00 | 146.80 | 179.60 | 5 | 236.0 | 84.7 | 10 |
| 20KW132A | 132.00 | 146.80 | 162.40 | 5 | 213.2 | 93.8 | 10 |

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|-----------------------------|-----------------------------------|-------------------------------------|-------------------------------------|----------------------|--------------------------------------|----------------------------|--------------------------------|
| 20KW144 | 144.00 | 160.00 | 195.60 | 5 | 257.2 | 77.8 | 10 |
| 20KW144A | 144.00 | 160.00 | 176.80 | 5 | 232.4 | 86.1 | 10 |
| 20KW160 | 160.00 | 177.60 | 217.20 | 5 | 285.6 | 70.0 | 10 |
| 20KW160A | 160.00 | 177.60 | 196.40 | 5 | 258.0 | 77.5 | 10 |
| 20KW172 | 172.00 | 191.20 | 233.60 | 5 | 306.8 | 65.2 | 10 |
| 20KW172A | 172.00 | 191.20 | 211.20 | 5 | 277.6 | 72.0 | 10 |
| 20KW180 | 180.00 | 200.00 | 244.40 | 5 | 321.2 | 62.3 | 10 |
| 20KW180A | 180.00 | 200.00 | 221.20 | 5 | 290.8 | 68.8 | 10 |
| 20KW192 | 192.00 | 213.20 | 260.80 | 5 | 342.0 | 58.5 | 10 |
| 20KW192A | 192.00 | 213.20 | 235.60 | 5 | 309.6 | 64.6 | 10 |
| 20KW204 | 204.00 | 226.80 | 277.20 | 5 | 364.4 | 54.9 | 10 |
| 20KW204A | 204.00 | 226.80 | 250.80 | 5 | 329.6 | 60.7 | 10 |
| 20KW216 | 216.00 | 240.00 | 293.20 | 5 | 385.2 | 51.9 | 10 |
| 20KW216A | 216.00 | 240.00 | 265.20 | 5 | 348.4 | 57.4 | 10 |
| 20KW232 | 232.00 | 257.60 | 314.80 | 5 | 412.0 | 48.4 | 10 |
| 20KW232A | 232.00 | 257.60 | 284.80 | 5 | 374.4 | 53.4 | 10 |
| 20KW240 | 240.00 | 266.80 | 326.00 | 5 | 428.0 | 46.7 | 10 |
| 20KW240A | 240.00 | 266.80 | 294.80 | 5 | 387.2 | 51.7 | 10 |
| 20KW256 | 256.00 | 284.40 | 347.60 | 5 | 456.0 | 43.9 | 10 |
| 20KW256A | 256.00 | 284.40 | 314.40 | 5 | 412.0 | 48.5 | 10 |
| 20KW280 | 280.00 | 311.20 | 380.40 | 5 | 500.0 | 40.0 | 10 |
| 20KW280A | 280.00 | 311.20 | 344.00 | 5 | 452.0 | 44.2 | 10 |
| 20KW300 | 300.00 | 333.20 | 408.00 | 5 | 536.0 | 37.3 | 10 |
| 20KW300 | 300.00 | 333.20 | 368.40 | 5 | 484.0 | 41.3 | 10 |

For Bidirectional type having Vrwm of 10volts and less, the IR limit is double.