

MDE Semiconductor, Inc.

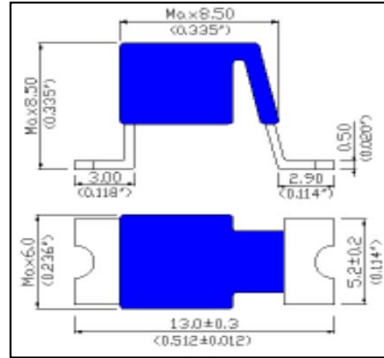
78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel: 760-564-8656 • Fax: 760-564-2414
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

SMD15KPA SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR
VOLTAGE-17.0 TO 280 Volts
15000 Watt Peak Pulse Power

FEATURES

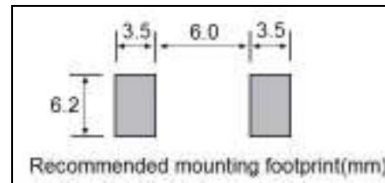
- RoHS Compliant E4
- Typical maximum temperature coefficient
 $\Delta VBR=0.1\% \times VBR @ 25^{\circ}C \times \Delta T$
- 15000W Peak Pulse Power capability on 10/1000 μs waveform
- Excellent clamping capability
- Repetition rate (duty cycle):0.05%
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV
Bidirectional less than 10 ns
- Silver plated lead



Dimensions in millimeters (inches)

MECHANICAL DATA

Case: Epoxy powder over glass passivated junction
Terminals: Solderable per MIL-STD-750, Method 2026
Polarity: Color band denoted positive end (cathode)
except Bipolar
Mounting Position: Any
Weight: 0.033 ounce, 1.2 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types SMD15KPA17A thru types SMD15KPA280A (e.g. SMD15KPA17CA, SMD15KPA130CA)
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 μs | P_{PPM} | Minimum 15000 | Watts |
| Peak Pulse Current of on 10/1000 μs waveform | I_{PPM} | SEE TABLE 1 | Amps |
| Peak Forward Surge Current, 1/20 second / 25°C (JEDEC Method) | I_{FSM} | 400.0 | Amps |
| Operatings and Storage Temperature Range | T_J, T_{STG} | -55 to + 150 | °C |

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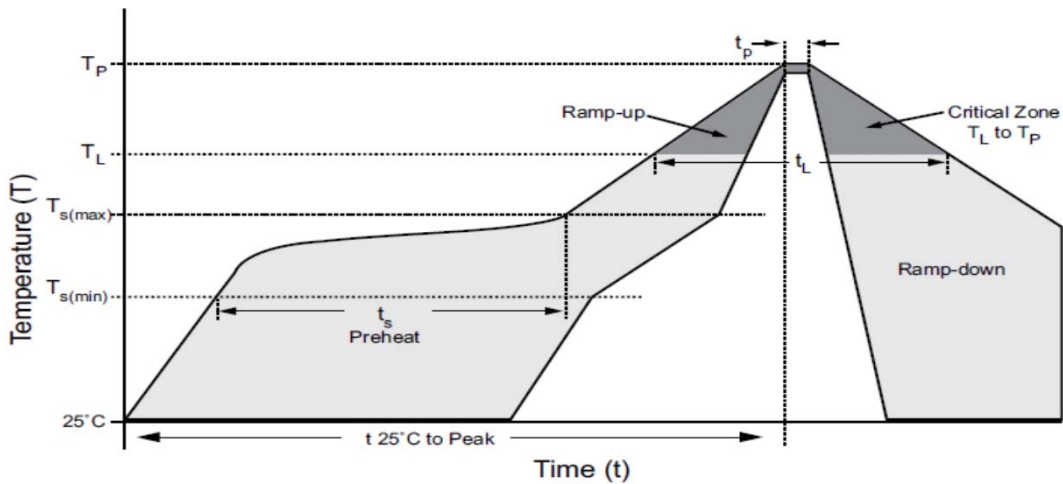
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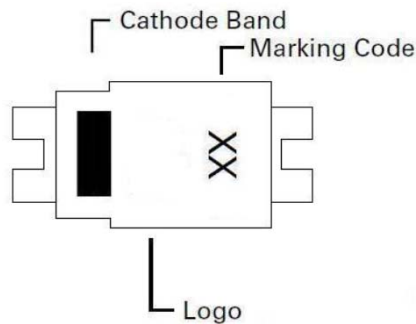
Soldering Parameters

| | | |
|--|-----------------------------------|-------------------------|
| Reflow Condition | | Lead-free assembly |
| Pre Heat | -Temperature Min ($T_{s(min)}$) | 150°C |
| | -Temperature Min ($T_{s(max)}$) | 200°C |
| | -Time (Min to max) (T_s) | 60 - 180 secs |
| Average ramp up rate(Liquidus Temp(T_L) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/second max |
| Reflow | -Temperature Min ($T_{s(min)}$) | 217°C |
| | -Temperature Min ($T_{s(max)}$) | 60 - 150 seconds |
| Peak temperature(T_P) | | 260 ^{+0/-5} °C |
| Time within 5°C of actual peak Temperature(t_p) | | 20 - 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 5°C to peak Temperature(T_p) | | 8 minutes Max. |
| Do not exceed | | 280°C |

Soldering Profile



Part Marking System



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15000 Watt TVS

| UNI-POLAR | BI-POLAR | Marking Code | | REVERSE | BREAKDOWN | TEST | MAXIMUM | PEAK | REVERSE |
|--------------|---------------|--------------|----|----------------------|--|-------------------------|-------------------------|--------------------------------|---|
| | | | | STANDOFF | VOLTAGE | | | | |
| | | | | V _{RWM} (V) | V _{BR} (V) MIN. @ I _T | (I _T) mA | @I _{PP} Vc (V) | CURRENT I _{PP} (A) | @ V _{RWM} I _R (µA) |
| SMD15KPA17A | SMD15KPA17CA | UA | BA | 17.00 | 18.99 | 50 | 29.3 | 515.4 | 5000 |
| SMD15KPA18A | SMD15KPA18CA | UB | BB | 18.00 | 20.11 | 50 | 30.9 | 488.7 | 5000 |
| SMD15KPA20A | SMD15KPA20CA | UC | BC | 20.00 | 22.34 | 20 | 34.3 | 440.2 | 1500 |
| SMD15KPA22A | SMD15KPA22CA | UD | BD | 22.00 | 24.57 | 10 | 37.1 | 407.0 | 500 |
| SMD15KPA24A | SMD15KPA24CA | UE | BE | 24.00 | 26.81 | 5 | 40.7 | 371.0 | 150 |
| SMD15KPA26A | SMD15KPA26CA | UF | BF | 26.00 | 29.04 | 5 | 44.0 | 343.2 | 50 |
| SMD15KPA28A | SMD15KPA28CA | UG | BG | 28.00 | 31.28 | 5 | 47.5 | 317.9 | 25 |
| SMD15KPA30A | SMD15KPA30CA | UH | BH | 30.00 | 33.51 | 5 | 50.7 | 297.8 | 15 |
| SMD15KPA33A | SMD15KPA33CA | UJ | BJ | 33.00 | 36.90 | 5 | 54.7 | 276.1 | 10 |
| SMD15KPA36A | SMD15KPA36CA | UK | BK | 36.00 | 40.20 | 5 | 59.8 | 252.5 | 10 |
| SMD15KPA40A | SMD15KPA40CA | UL | BL | 40.00 | 44.70 | 5 | 65.8 | 229.5 | 10 |
| SMD15KPA43A | SMD15KPA43CA | UM | BM | 43.00 | 48.00 | 5 | 69.8 | 216.3 | 10 |
| SMD15KPA45A | SMD15KPA45CA | UN | BN | 45.00 | 50.30 | 5 | 73.2 | 206.3 | 10 |
| SMD15KPA48A | SMD15KPA48CA | UP | BP | 48.00 | 53.60 | 5 | 77.7 | 194.3 | 10 |
| SMD15KPA51A | SMD15KPA51CA | UQ | BQ | 51.00 | 57.00 | 5 | 82.9 | 182.1 | 10 |
| SMD15KPA54A | SMD15KPA54CA | UR | BR | 54.00 | 60.30 | 5 | 87.7 | 172.2 | 10 |
| SMD15KPA58A | SMD15KPA58CA | US | BS | 58.00 | 64.80 | 5 | 93.8 | 161.0 | 10 |
| SMD15KPA60A | SMD15KPA60CA | UT | BT | 60.00 | 67.00 | 5 | 97.4 | 155.0 | 10 |
| SMD15KPA64A | SMD15KPA64CA | UU | BU | 64.00 | 71.50 | 5 | 104.2 | 144.9 | 10 |
| SMD15KPA70A | SMD15KPA70CA | UV | BV | 70.00 | 78.20 | 5 | 113.6 | 132.9 | 10 |
| SMD15KPA75A | SMD15KPA75CA | UW | BW | 75.00 | 83.80 | 5 | 122.0 | 123.8 | 10 |
| SMD15KPA78A | SMD15KPA78CA | UX | BX | 78.00 | 87.10 | 5 | 126.1 | 119.7 | 10 |
| SMD15KPA85A | SMD15KPA85CA | UY | BY | 85.00 | 93.90 | 5 | 137.6 | 109.7 | 10 |
| SMD15KPA90A | SMD15KPA90CA | UZ | BZ | 90.00 | 100.50 | 5 | 145.6 | 103.7 | 10 |
| SMD15KPA100A | SMD15KPA100CA | DA | CA | 100.00 | 111.70 | 5 | 161.3 | 93.6 | 10 |
| SMD15KPA110A | SMD15KPA110CA | DB | CB | 110.00 | 122.90 | 5 | 178.6 | 84.5 | 10 |
| SMD15KPA120A | SMD15KPA120CA | DC | CC | 120.00 | 134.00 | 5 | 192.3 | 78.5 | 10 |
| SMD15KPA130A | SMD15KPA130CA | DD | CD | 130.00 | 145.20 | 5 | 208.3 | 72.5 | 10 |
| SMD15KPA150A | | DE | | 150.00 | 167.60 | 5 | 241.9 | 62.4 | 10 |
| SMD15KPA160A | | DF | | 160.00 | 178.70 | 5 | 258.6 | 58.4 | 10 |
| SMD15KPA170A | | DG | | 170.00 | 189.90 | 5 | 272.7 | 55.4 | 10 |
| SMD15KPA180A | | DH | | 180.00 | 201.10 | 5 | 288.5 | 52.3 | 10 |
| SMD15KPA200A | | DJ | | 200.00 | 223.40 | 5 | 319.1 | 47.3 | 10 |
| SMD15KPA220A | | DK | | 220.00 | 245.70 | 5 | 356.0 | 42.4 | 10 |
| SMD15KPA240A | | DL | | 240.00 | 268.10 | 5 | 384.6 | 39.3 | 10 |
| SMD15KPA260A | | DM | | 260.00 | 290.40 | 5 | 416.7 | 36.2 | 10 |
| SMD15KPA280A | | DN | | 280.00 | 312.80 | 5 | 454.6 | 33.20 | 10 |

For bidirectional type having V_{rwm} of 30 volts and less, the I_R limit is double.