

20KW Transient Voltage Suppressor

Features

- Glass passivated junction
- 20KW peak pulse power capability at 10/1000µs waveform repetition rate (duty cycles): 0.01%
- Fast response time: typically less than 1.0ps from 0v to VBR min.
- Excellent clamping capability
- Low incremental surge resistance
- High temperature soldering guaranteed:
260°C/40 seconds, 0.375" (9.5mm) lead length at 5lbs. (2.3kg) tension
- RoHS Compliant



T6L



Mechanical Data

| | |
|---------------------------|---|
| Case: | T6L molded plastic body over passivated junction |
| Epoxy: | Plastic package has UL flammability classification 94V-0 |
| Lead: | Plated axial leads, solderable per MIL-STD-750, Method 2026 |
| Polarity: | Color band denotes the cathode except Bi-directional |
| Mounting position: | Any |
| Weight: | 0.07 ounce, 2.5 grams |

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

| Symbol | Description | Value | Unit | Conditions |
|---------------------------------------|--|-------------|-------|---|
| V_{WM} | Maximum Recurrent Peak Reverse Voltage | 20 to 300 | V | |
| P_{PPM} | Peak Pulse Power Dissipation on 10/1000µs Waveform | 20 | KW | Note 1 |
| P_D | Steady State Power Dissipation on infinite heat sink at TL=75° C | 8.0 | W | |
| I_{FSM} | Peak Forward Surge Current, Uni-directional only | 400 | A | 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum |
| R_{thJA} | Typical Thermal Resistance to Ambient | 40 | ° C/W | |
| R_{thJL} | Typical Thermal Resistance to Lead | 8.0 | ° C/W | |
| T_J, T_{STG} | Operating Junction and Storage Temperature Range | -55 to +175 | ° C | |

20KW Transient Voltage Suppressor

20KPA20A - 20KPA300CA

Notes: (1) Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig. 2

Electrical Characteristics ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

| P/N (note3) | | Stand-Off Voltage | Breakdown Voltage @ Test Current (note1) | | Max. Reverse Leakage Current @ VWM | Max. Clamping Voltage @ IPPM | Max. Peak Pulse Current |
|-------------|------------|-------------------|--|---------|------------------------------------|------------------------------|-------------------------|
| | | | VBR | IT (mA) | | | |
| Uni-Polar | Bi-Polar | VWM (V) | Min. | | ID (μA) (note2) | Vc (V) | IPPM (A) (note1) |
| 20KPA20A | 20KPA20CA | 20 | 22.34 | 50 | 5000 | 36.8 | 548.9 |
| 20KPA24A | 20KPA24CA | 24 | 26.81 | 50 | 5000 | 41.2 | 490.3 |
| 20KPA26A | 20KPA26CA | 26 | 29.04 | 50 | 2000 | 44.7 | 451.9 |
| 20KPA28A | 20KPA28CA | 28 | 31.28 | 50 | 1000 | 48.0 | 420.8 |
| 20KPA30A | 20KPA30CA | 30 | 33.51 | 5 | 250 | 51.5 | 392.2 |
| 20KPA32A | 20KPA32CA | 32 | 35.74 | 5 | 150 | 54.3 | 372.0 |
| 20KPA34A | 20KPA34CA | 34 | 38.00 | 5 | 50 | 57.5 | 351.3 |
| 20KPA36A | 20KPA36CA | 36 | 40.20 | 5 | 20 | 61.5 | 328.5 |
| 20KPA40A | 20KPA40CA | 40 | 44.70 | 5 | 15 | 67.8 | 297.9 |
| 20KPA44A | 20KPA44CA | 44 | 49.10 | 5 | 2 | 72.7 | 277.9 |
| 20KPA48A | 20KPA48CA | 48 | 53.60 | 5 | 2 | 79.4 | 254.4 |
| 20KPA52A | 20KPA52CA | 52 | 58.10 | 5 | 2 | 85.8 | 235.4 |
| 20KPA56A | 20KPA56CA | 56 | 62.60 | 5 | 2 | 92.6 | 218.1 |
| 20KPA60A | 20KPA60CA | 60 | 67.00 | 5 | 2 | 97.6 | 207.0 |
| 20KPA64A | 20KPA64CA | 64 | 71.50 | 5 | 2 | 104.0 | 194.2 |
| 20KPA68A | 20KPA68CA | 68 | 76.00 | 5 | 2 | 110.0 | 183.6 |
| 20KPA72A | 20KPA72CA | 72 | 80.40 | 5 | 2 | 116.0 | 174.1 |
| 20KPA80A | 20KPA80CA | 80 | 89.40 | 5 | 2 | 130.0 | 155.4 |
| 20KPA88A | 20KPA88CA | 88 | 98.30 | 5 | 2 | 142.0 | 142.3 |
| 20KPA96A | 20KPA96CA | 96 | 107.20 | 5 | 2 | 155.0 | 130.3 |
| 20KPA104A | 20KPA104CA | 104 | 116.20 | 5 | 2 | 168.0 | 120.2 |
| 20KPA112A | 20KPA112CA | 112 | 125.10 | 5 | 2 | 182.0 | 111.0 |
| 20KPA120A | 20KPA120CA | 120 | 134.00 | 5 | 2 | 194.0 | 104.1 |
| 20KPA132A | 20KPA132CA | 132 | 147.40 | 5 | 2 | 213.0 | 94.8 |

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20KPA20A - 20KPA300CA

| P/N (note3) | | Stand-Off Voltage | Breakdown Voltage @ Test Current (note1) | | Max. Reverse Leakage Current @ V _{WM} | Max. Clamping Voltage @ I _{PPM} | Max. Peak Pulse Current |
|-------------|------------|---------------------|--|---------------------|--|--|------------------------------|
| | | | V _{BR} | I _T (mA) | | | |
| Uni-Polar | Bi-Polar | V _{WM} (V) | Min. | | I _D (μA) (note2) | V _C (V) | I _{PPM} (A) (note1) |
| 20KPA144A | 20KPA144CA | 144 | 160.80 | 5 | 2 | 232.0 | 87.1 |
| 20KPA160A | 20KPA160CA | 160 | 178.70 | 5 | 2 | 258.0 | 78.3 |
| 20KPA172A | 20KPA172CA | 172 | 192.10 | 5 | 2 | 277.0 | 72.9 |
| 20KPA180A | 20KPA180CA | 180 | 201.10 | 5 | 2 | 291.0 | 69.4 |
| 20KPA192A | 20KPA192CA | 192 | 214.50 | 5 | 2 | 309.0 | 65.4 |
| 20KPA204A | 20KPA204CA | 204 | 227.90 | 5 | 2 | 329.0 | 61.4 |
| 20KPA216A | 20KPA216CA | 216 | 241.30 | 5 | 2 | 348.0 | 58.0 |
| 20KPA232A | 20KPA232CA | 232 | 259.10 | 5 | 2 | 374.0 | 54.0 |
| 20KPA240A | 20KPA240CA | 240 | 268.10 | 5 | 2 | 387.0 | 52.2 |
| 20KPA256A | 20KPA256CA | 256 | 286.00 | 5 | 2 | 412.0 | 49.0 |
| 20KPA280A | 20KPA280CA | 280 | 312.80 | 5 | 2 | 451.0 | 44.8 |
| 20KPA300A | 20KPA300CA | 300 | 335.10 | 5 | 2 | 483.0 | 41.8 |

- Note:**
1. Surge current waveform per Fig. 3 and derate per Fig. 2.
 2. For Bi-directional types with V_{WM} of 10 volts and less, the I_D limit is doubled.
 3. C suffix for Bidirectional use, A suffix for 5% tolerance.

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20KPA20A - 20KPA300CA

Typical Characteristics Curves

Fig.1- Peak Pulse Power Rating Curve

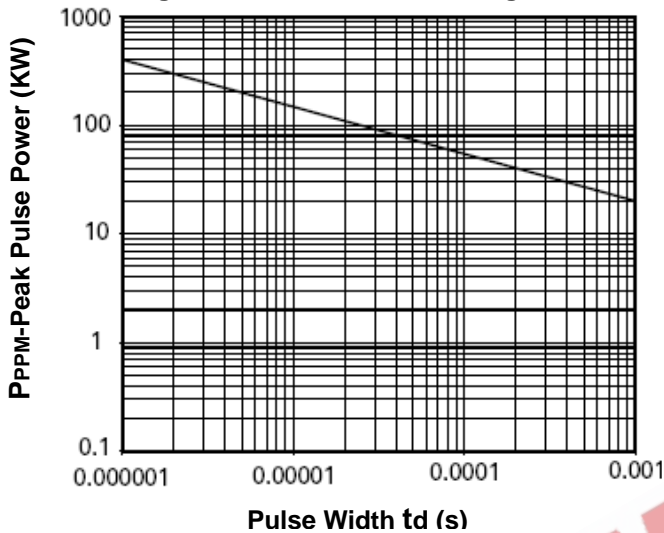


Fig.2- Pulse Derating Curve

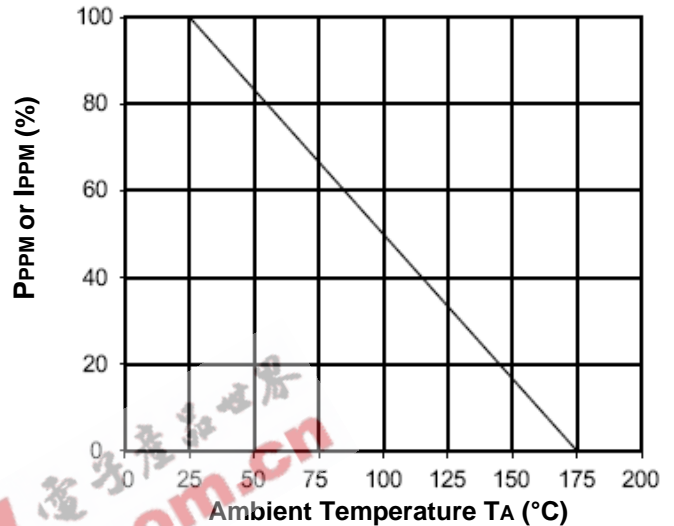


Fig.3- Pulse Waveform

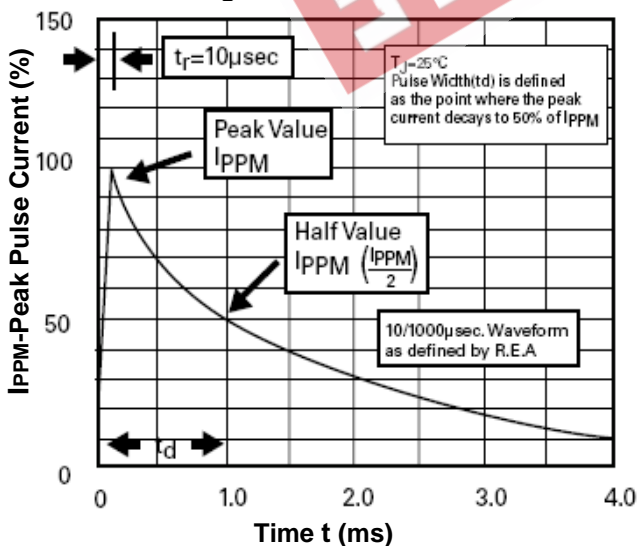
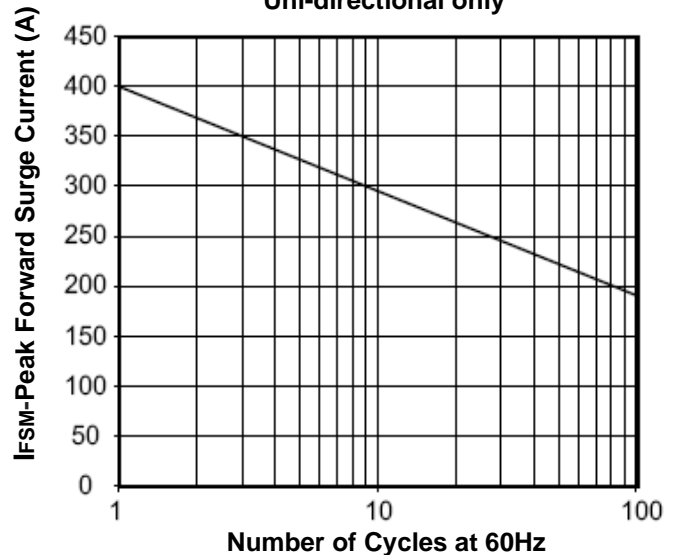


Fig.4- Max. Non-Repetitive Forward Surge Current Uni-directional only



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Fig.5- Steady State Power Derating Curve

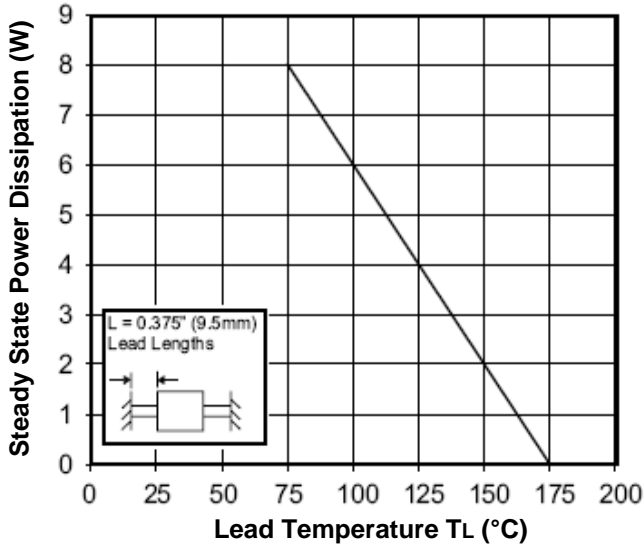
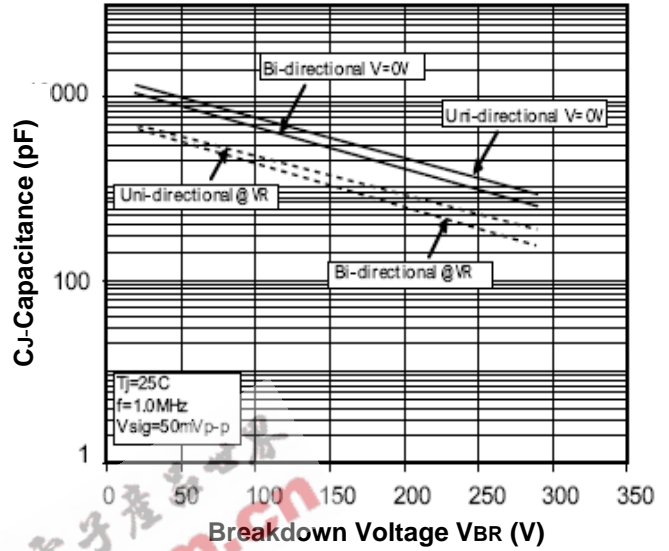
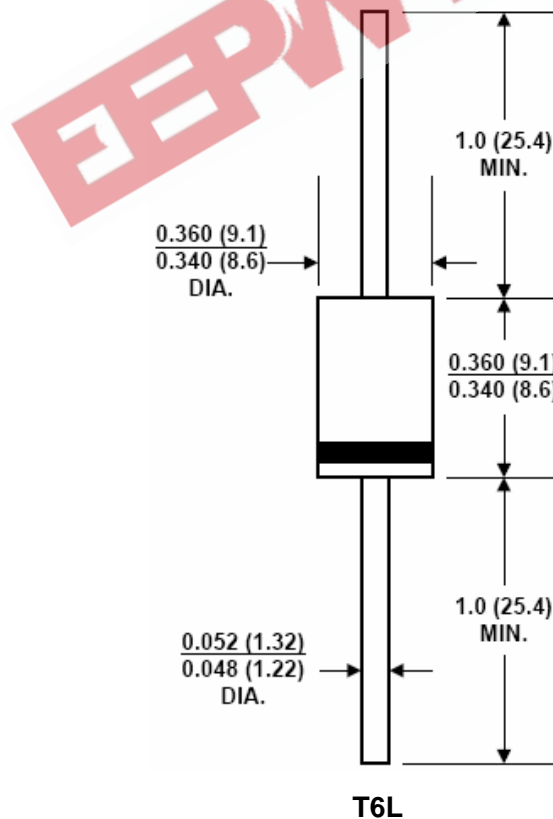


Fig.6- Typical Junction Capacitance



Dimensions in inch (mm)



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20KPA20A - 20KPA300CA

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