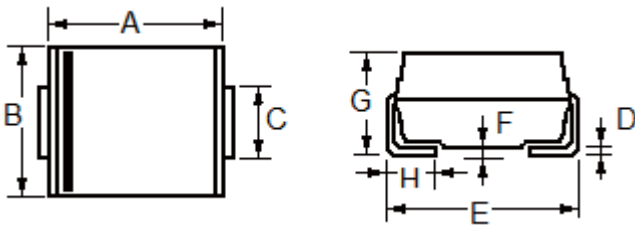


Surface Mount TVS Diode

SMAJ5.0--SMAJ440CA

- * 400 Watt Peak Power
- * SMA Package

SMA (DO-214AC)



| Dim | Millimeters | | Inches | |
|-----|-------------|-------|--------|-------|
| | Min | Max | Min | Max |
| A | 3.99 | 4.50 | 0.157 | 0.177 |
| B | 2.54 | 2.79 | 0.100 | 0.110 |
| C | 1.25 | 1.65 | 0.049 | 0.065 |
| D | 0.152 | 0.305 | 0.006 | 0.012 |
| E | 4.93 | 5.28 | 0.194 | 0.208 |
| F | ---- | 0.203 | ---- | 0.008 |
| G | 1.98 | 2.29 | 0.078 | 0.090 |
| H | 0.76 | 1.52 | 0.030 | 0.060 |

Maximum Ratings And Thermal Characteristics

Rating at 25°C ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Units |
|--|-----------------|------------|--------------------|
| Peak Power Dissipation (Note 1.) @ $T_L = 25^\circ\text{C}$, Pulse Width = 1 ms | P_{PK} | 400 | W |
| Forward Surge Current (Note 2.) @ $T_A = 25^\circ\text{C}$ | I_{FSM} | 100 | A |
| Power Dissipation On Infinite Heatsink, @ $T_A = 50^\circ\text{C}$ | $P_{M(AV)}$ | 5.0 | W |
| Thermal Resistance Junction To Ambient Air (Note 3.) | $R_{\theta JA}$ | 100 | $^\circ\text{C/W}$ |
| Thermal Resistance Junction To Leads | $R_{\theta JL}$ | 20 | $^\circ\text{C/W}$ |
| Operating & Storage Temperature Range | T_{STG} | -55 to 150 | $^\circ\text{C}$ |
| Operating Junction Temperature Range | T_J | -55 to 150 | $^\circ\text{C}$ |

- 1) 10 X 1000 us, non-repetitive
- 2) 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- 3) Mounted on minimum recommended pad layout

Surface Mount TVS Diode

SMAJ5.0--SMAJ440CA

| UNI | BI | UNI | BI | off Voltage VR (Volts) | MIN | MAX | IT (mA) | Voltage VC @ IPP (Volts) | Pulse Current IPP (A) | Leakage IR @ VR (μ A) |
|----------|-----------|-----|----|---------------------------------|-------|-------|---------|--------------------------------|-----------------------------|----------------------------------|
| SMAJ5.0A | SMAJ5.0CA | HE | TE | 5.00 | 6.40 | 7.00 | 10 | 9.2 | 43.5 | 3 σ |
| SMAJ6.0A | SMAJ6.0CA | HG | TG | 6.00 | 6.67 | 7.37 | 10 | 10.3 | 38.8 | 3 σ |
| SMAJ6.5A | SMAJ6.5CA | HK | TK | 6.50 | 7.22 | 7.98 | 10 | 11.2 | 35.7 | 3 σ |
| SMAJ7.0A | SMAJ7.0CA | HM | TM | 7.00 | 7.78 | 8.60 | 10 | 12.0 | 33.3 | 3 σ |
| SMAJ7.5A | SMAJ7.5CA | HP | TP | 7.50 | 8.33 | 9.21 | 1 | 12.9 | 31.0 | 3 σ |
| SMAJ8.0A | SMAJ8.0CA | HR | TR | 8.00 | 8.89 | 9.83 | 1 | 13.6 | 29.4 | 3 σ |
| SMAJ8.5A | SMAJ8.5CA | HT | TT | 8.50 | 9.44 | 10.40 | 1 | 14.4 | 27.8 | 3 σ |
| SMAJ9.0A | SMAJ9.0CA | HV | TV | 9.00 | 10.00 | 11.10 | 1 | 15.4 | 26.0 | 3 σ |
| SMAJ10A | SMAJ10CA | HX | TX | 10.50 | 11.10 | 12.30 | 1 | 17.0 | 23.5 | 1 |
| SMAJ11A | SMAJ11CA | HZ | TZ | 11.55 | 12.20 | 13.50 | 1 | 18.2 | 22.0 | 1 |
| SMAJ12A | SMAJ12CA | IE | UE | 12.60 | 13.30 | 14.70 | 1 | 19.9 | 20.1 | 1 |
| SMAJ13A | SMAJ13CA | IG | UG | 13.65 | 14.40 | 15.90 | 1 | 21.5 | 18.6 | 1 |
| SMAJ14A | SMAJ14CA | IK | UK | 14.70 | 15.60 | 17.20 | 1 | 23.2 | 17.2 | 1 |
| SMAJ15A | SMAJ15CA | IM | UM | 15.75 | 16.70 | 18.50 | 1 | 24.4 | 16.4 | 1 |
| SMAJ16A | SMAJ16CA | IP | UP | 16.80 | 17.80 | 19.70 | 1 | 26.0 | 15.4 | 1 |
| SMAJ17A | SMAJ17CA | IR | UR | 17.85 | 18.90 | 20.90 | 1 | 27.6 | 14.5 | 1 |
| SMAJ18A | SMAJ18CA | IT | UT | 18.90 | 20.00 | 22.10 | 1 | 29.2 | 13.7 | 1 |
| SMAJ20A | SMAJ20CA | IV | UV | 21.00 | 22.20 | 24.50 | 1 | 32.4 | 12.3 | 1 |
| SMAJ22A | SMAJ22CA | IX | UX | 23.10 | 24.40 | 26.90 | 1 | 35.5 | 11.3 | 1 |
| SMAJ24A | SMAJ24CA | IZ | UZ | 25.20 | 26.70 | 29.50 | 1 | 38.9 | 10.3 | 1 |
| SMAJ26A | SMAJ26CA | JE | VE | 27.30 | 28.90 | 31.90 | 1 | 42.1 | 9.5 | 1 |
| SMAJ28A | SMAJ28CA | JG | VG | 29.40 | 31.10 | 34.40 | 1 | 45.4 | 8.8 | 1 |
| SMAJ30A | SMAJ30CA | JK | VK | 31.50 | 33.30 | 36.80 | 1 | 48.4 | 8.3 | 1 |
| SMAJ33A | SMAJ33CA | JM | VM | 34.65 | 36.70 | 40.60 | 1 | 53.3 | 7. | 1 |
| SMAJ36A | SMAJ36CA | JP | VP | 37.80 | 40.00 | 44.20 | 1 | 58.1 | 6.9 | 1 |
| SMAJ40A | SMAJ40CA | JR | VR | 42.00 | 44.40 | 49.10 | 1 | 64.5 | 6.2 | 1 |
| SMAJ43A | SMAJ43CA | JT | VT | 45.15 | 47.80 | 52.80 | 1 | 69.4 | 5.8 | 1 |
| SMAJ45A | SMAJ45CA | JV | VV | 47.25 | 50.00 | 55.30 | 1 | 72.7 | 5.5 | 1 |
| SMAJ48A | SMAJ48CA | JX | VX | 50.40 | 53.30 | 58.90 | 1 | 77.4 | 5.2 | 1 |



Surface Mount TVS Diode SMAJ5.0--SMAJ440CA

| UNI | BI | UNI | BI | off Voltage VR (Volts) | MIN | MAX | IT (mA) | Voltage VC @ IPP (Volts) | Pulse Current IPP (A) | Leakage IR @ VR (μ A) |
|----------|-----------|-----|----|---------------------------------|--------|--------|---------|--------------------------------|-----------------------------|----------------------------------|
| SMAJ51A | SMAJ51CA | JZ | VZ | 53.55 | 56.70 | 62.70 | 1 | 82.4 | 4.9 | 1 |
| SMAJ54A | SMAJ54CA | RE | WE | 56.70 | 60.00 | 66.30 | 1 | 87.1 | 4.6 | 1 |
| SMAJ58A | SMAJ58CA | RG | WG | 60.90 | 64.40 | 71.20 | 1 | 93.6 | 4.3 | 1 |
| SMAJ60A | SMAJ60CA | RK | WK | 63.00 | 66.70 | 73.70 | 1 | 96.8 | 4.1 | 1 |
| SMAJ64A | SMAJ64CA | RM | WM | 67.20 | 71.10 | 78.60 | 1 | 103.0 | 3.9 | 1 |
| SMAJ70A | SMAJ70CA | RP | WP | 73.50 | 77.80 | 86.00 | 1 | 113.0 | 3.5 | 1 |
| SMAJ75A | SMAJ75CA | RR | WR | 78.75 | 83.30 | 92.10 | 1 | 121.0 | 3.3 | 1 |
| SMAJ78A | SMAJ78CA | RT | WT | 81.90 | 86.70 | 95.80 | 1 | 126.0 | 3.2 | 1 |
| SMAJ85A | SMAJ85CA | RV | WV | 89.25 | 94.40 | 104.00 | 1 | 137.0 | 2.9 | 1 |
| SMAJ90A | SMAJ90CA | RX | WX | 94.50 | 100.00 | 111.00 | 1 | 146.0 | 2.7 | 1 |
| SMAJ100A | SMAJ100CA | RZ | WZ | 105.00 | 111.00 | 123.00 | 1 | 162.0 | 2.5 | 1 |
| SMAJ110A | SMAJ110CA | SE | XE | 115.50 | 122.00 | 135.00 | 1 | 177.0 | 2.3 | 1 |
| SMAJ120A | SMAJ120CA | SG | XG | 126.00 | 133.00 | 147.00 | 1 | 193.0 | 2.1 | 1 |
| SMAJ130A | SMAJ130CA | SK | XK | 136.50 | 144.00 | 159.00 | 1 | 209.0 | 1.9 | 1 |
| SMAJ150A | SMAJ150CA | SM | XM | 157.50 | 167.00 | 185.00 | 1 | 243.0 | 1.6 | 1 |
| SMAJ160A | SMAJ160CA | SP | XP | 168.00 | 178.00 | 197.00 | 1 | 259.0 | 1.5 | 1 |
| SMAJ170A | SMAJ170CA | SR | XR | 178.50 | 189.00 | 209.00 | 1 | 275.0 | 1.5 | 1 |
| SMAJ180A | SMAJ180CA | ST | XT | 189.00 | 201.00 | 222.00 | 1 | 292.0 | 1.4 | 1 |
| SMAJ190A | SMAJ190CA | SV | XV | 199.50 | 211.00 | 233.00 | 1 | 306.0 | 1.3 | 1 |
| SMAJ200A | SMAJ200CA | SX | XX | 210.00 | 224.00 | 247.00 | 1 | 324.0 | 1.2 | 1 |
| SMAJ210A | SMAJ210CA | SZ | XZ | 220.50 | 233.00 | 258.00 | 1 | 324.0 | 1.1 | 1 |
| SMAJ220A | SMAJ220CA | ZE | YE | 231.00 | 246.00 | 272.00 | 1 | 356.0 | 1.1 | 1 |
| SMAJ250A | SMAJ250CA | ZG | YG | 262.50 | 279.00 | 309.00 | 1 | 405.0 | 1.0 | 1 |
| SMAJ300A | SMAJ300CA | ZK | YK | 315.00 | 335.00 | 371.00 | 1 | 486.0 | 0.8 | 1 |
| SMAJ350A | SMAJ350CA | ZM | YM | 367.50 | 391.00 | 432.00 | 1 | 567.0 | 0.7 | 1 |
| SMAJ400A | SMAJ400CA | ZP | YP | 420.00 | 447.00 | 494.00 | 1 | 648.0 | 0.6 | 1 |
| SMAJ440A | SMAJ440CA | ZR | YR | 462.00 | 492.00 | 543.00 | 1 | 713.0 | 0.6 | 1 |

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

1. A transient suppressor is normally selected according to the working peak reverse voltage (VRWM), which should be equal to or greater than the DC or continuous peak operating voltage level.
2. VBR measured at pulse test current IT at an ambient temperature of 25°C.
3. Surge current waveform per Figure 1 and derate per Figure

Surface Mount TVS Diode SMAJ5.0--SMAJ440CA

Typical Characteristics

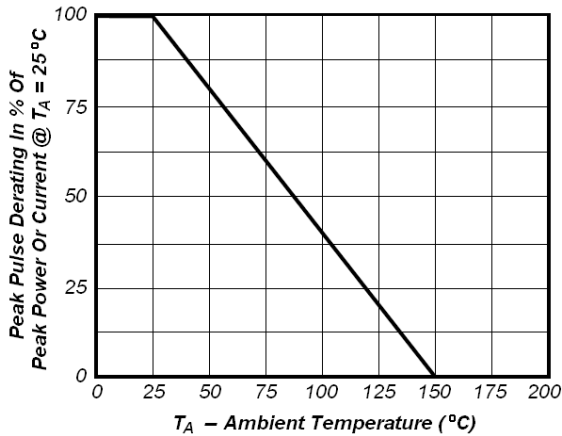


Fig1. Pulse Dearing Curve

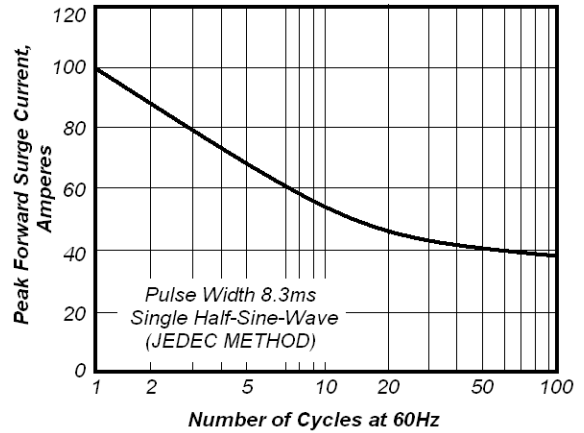


Fig2. Maximum Non-Repetitive Peak Forward Surge Current

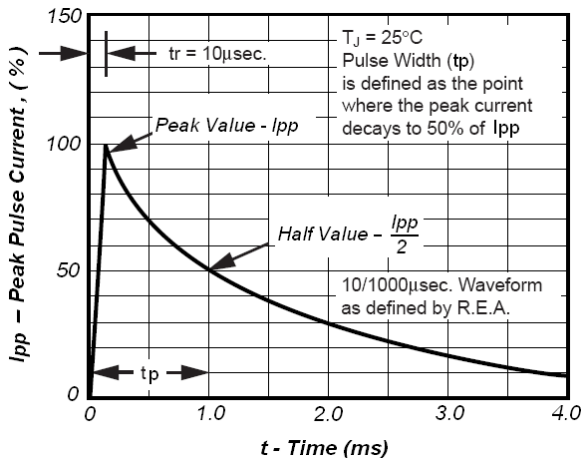


Fig3. Pulse Waveform

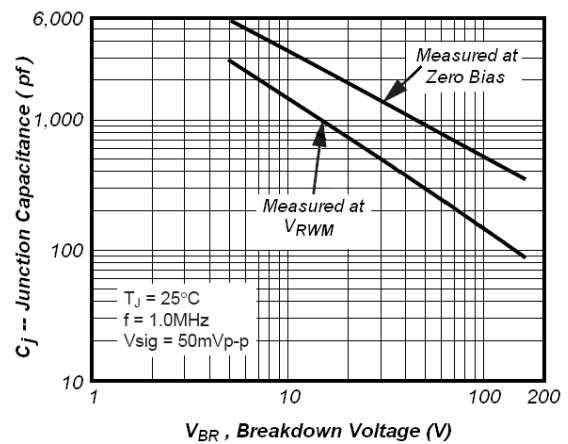


Fig4. Typical Junction Capacitance

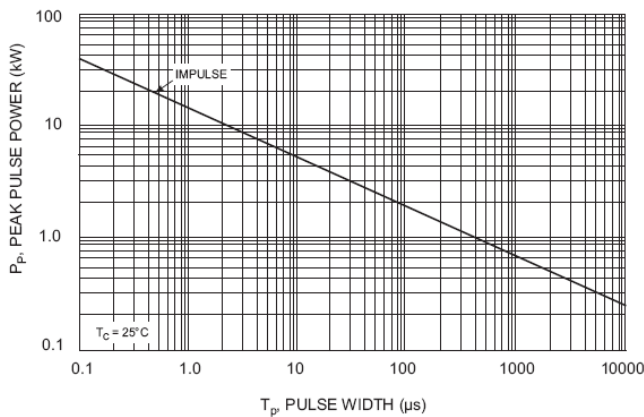


Fig5. Peak Pulse Power Rating curve

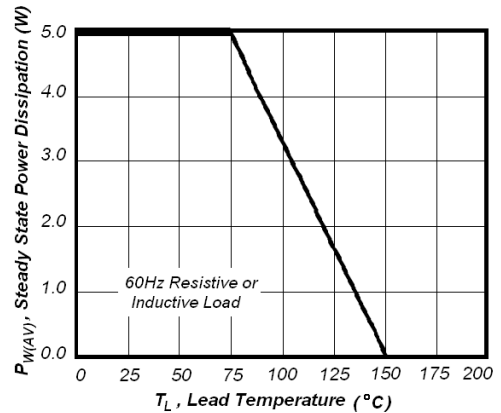


Fig6. Steady State Power Derating Curv