

SMAG Plastic-Encapsulate Diodes

CJSMAJ SERIES Transient Voltage Suppressor Diodes

Features

- P_{PP} 400W
- V_{RWM} 10V- 100V
- Glass passivated chip

Applications

- Clamping Voltage



Limiting Values (Absolute Maximum Rating)

| Item | Symbol | Unit | Conditions | Max |
|--|----------------|------------------|--|----------------|
| Peak pulse power dissipation | P_{PPM} | W | with a 10/1000us waveform | 400 |
| Peak pulse current(note 1) | I_{PPM} | A | with a 10/1000us waveform | See Next Table |
| Power dissipation | P_D | W | On infinite heat sink at $T_L=50^\circ\text{C}$ | 3.3 |
| Peak forward surge current | I_{FSM} | A | 8.3 ms single half sine-wave uni-directional only $\left[\frac{1}{\sqrt{2}} \right]$ | 60 |
| Operating junction and storage temperature range | T_J, T_{STG} | $^\circ\text{C}$ | | -55 to +150 |

Electrical Characteristics ($T_a=25^\circ\text{C}$ Unless otherwise specified)

| Item | Symbol | Unit | Conditions | Max |
|---------------------------------------|-----------------|--------------------|--|-----|
| Maximum instantaneous forward Voltage | V_F | V | at 25A for uni-directional only | 3.5 |
| Thermal resistance | $R_{\theta JL}$ | $^\circ\text{C/W}$ | junction to lead $T_L=50^\circ\text{C}$ | 30 |
| | $R_{\theta JA}$ | $^\circ\text{C/W}$ | junction to ambient $T_A=25^\circ\text{C}$ | 120 |

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig.2
- (2) 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum

Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part Number | | Device Marking Code | | Breakdown Voltage VBR@IT | | Test Current | Max Reverse Leakage @VRWM IR(μA) | | Reverse Standoff Voltage | Max Peak Pulse Current ⁽¹⁾ | Max Clamping Voltage @Ipp |
|-------------|-------------|---------------------------|--------------|--------------------------|---------|--------------|----------------------------------|----|--------------------------|---------------------------------------|---------------------------|
| UNI | BI | UNI | BI | Min.(V) | Max.(V) | IT(mA) | UNI | BI | V _{RWM} (V) | IPP(A) | Vc(V) |
| CJSMAJ10A | CJSMAJ10CA | A10A XX ⁽²⁾ | A10CA XX | 11.14 | 12.29 | 1 | 5 | 5 | 10 | 23.5 | 16.8 |
| CJSMAJ11A | CJSMAJ11CA | A11A XX | A11CA XX | 12.25 | 13.49 | 1 | 5 | 5 | 11 | 22 | 18 |
| CJSMAJ12A | CJSMAJ12CA | A12A XX | A12CA XX | 13.35 | 14.69 | 1 | 5 | 5 | 12 | 20.1 | 19.7 |
| CJSMAJ13A | CJSMAJ13CA | A13A XX | A13CA XX | 14.46 | 15.89 | 1 | 5 | 5 | 13 | 18.6 | 21.3 |
| CJSMAJ14A | CJSMAJ14CA | A14A XX | A14CA XX | 15.66 | 17.19 | 1 | 5 | 5 | 14 | 17.2 | 23 |
| CJSMAJ15A | CJSMAJ15CA | A15A XX | A15CA XX | 16.77 | 18.49 | 1 | 5 | 5 | 15 | 16.4 | 24.2 |
| CJSMAJ16A | CJSMAJ16CA | A16A XX | A16CA XX | 17.87 | 19.69 | 1 | 5 | 5 | 16 | 15.4 | 25.7 |
| CJSMAJ17A | CJSMAJ17CA | A17A XX | A17CA XX | 18.98 | 20.89 | 1 | 5 | 5 | 17 | 14.5 | 27.3 |
| CJSMAJ18A | CJSMAJ18CA | A18A XX | A18CA XX | 20.08 | 22.08 | 1 | 5 | 5 | 18 | 13.7 | 28.9 |
| CJSMAJ20A | CJSMAJ20CA | A20A XX | A20CA XX | 22.29 | 24.48 | 1 | 5 | 5 | 20 | 12.3 | 32.1 |
| CJSMAJ22A | CJSMAJ22CA | A22A XX | A22CA XX | 24.5 | 26.88 | 1 | 5 | 5 | 22 | 11.3 | 35.1 |
| CJSMAJ24A | CJSMAJ24CA | A24A XX | A24CA XX | 26.81 | 29.48 | 1 | 5 | 5 | 24 | 10.3 | 38.5 |
| CJSMAJ26A | CJSMAJ26CA | A26A XX | A26CA XX | 29.02 | 31.88 | 1 | 5 | 5 | 26 | 9.5 | 41.7 |
| CJSMAJ28A | CJSMAJ28CA | A28A XX | A28CA XX | 31.22 | 34.38 | 1 | 5 | 5 | 28 | 8.8 | 44.9 |
| CJSMAJ30A | CJSMAJ30CA | A30A XX | A30CA XX | 33.43 | 36.77 | 1 | 5 | 5 | 30 | 8.3 | 47.9 |
| CJSMAJ33A | CJSMAJ33CA | A33A XX | A33CA XX | 36.85 | 40.57 | 1 | 5 | 5 | 33 | 7.5 | 52.8 |
| CJSMAJ36A | CJSMAJ36CA | A36A XX | A36CA XX | 40.16 | 44.17 | 1 | 5 | 5 | 36 | 6.9 | 57.5 |
| CJSMAJ40A | CJSMAJ40CA | A40A XX | A40CA XX | 44.58 | 49.07 | 1 | 5 | 5 | 40 | 6.2 | 63.9 |
| CJSMAJ43A | CJSMAJ43CA | A43A XX | A43CA XX | 47.99 | 52.76 | 1 | 5 | 5 | 43 | 5.8 | 68.7 |
| CJSMAJ45A | CJSMAJ45CA | A45A XX | A45CA XX | 50.2 | 55.26 | 1 | 5 | 5 | 45 | 5.5 | 72 |
| CJSMAJ48A | CJSMAJ48CA | A48A XX | A48CA XX | 53.51 | 58.86 | 1 | 5 | 5 | 48 | 5.2 | 76.6 |
| CJSMAJ51A | CJSMAJ51CA | A51A XX | A51CA XX | 56.93 | 62.66 | 1 | 5 | 5 | 51 | 4.9 | 81.6 |
| CJSMAJ54A | CJSMAJ54CA | A54A XX | A54CA XX | 60.24 | 66.25 | 1 | 5 | 5 | 54 | 4.6 | 86.2 |
| CJSMAJ58A | CJSMAJ58CA | A58A XX | A58CA XX | 64.66 | 71.15 | 1 | 5 | 5 | 58 | 4.3 | 92.7 |
| CJSMAJ60A | CJSMAJ60CA | A60A XX | A60CA XX | 66.97 | 73.65 | 1 | 5 | 5 | 60 | 4.1 | 95.8 |
| CJSMAJ64A | CJSMAJ64CA | A64A XX | A64CA XX | 71.39 | 78.54 | 1 | 5 | 5 | 64 | 3.9 | 102 |
| CJSMAJ70A | CJSMAJ70CA | A70A XX | A70CA XX | 78.11 | 85.94 | 1 | 5 | 5 | 70 | 3.5 | 111.9 |
| CJSMAJ75A | CJSMAJ75CA | A75A XX | A75CA XX | 83.63 | 92.04 | 1 | 5 | 5 | 75 | 3.3 | 119.8 |
| CJSMAJ78A | CJSMAJ78CA | A78A XX | A78CA XX | 87.05 | 95.73 | 1 | 5 | 5 | 78 | 3.2 | 124.7 |
| CJSMAJ85A | CJSMAJ85CA | A85A XX | A85CA XX | 94.78 | 103.93 | 1 | 5 | 5 | 85 | 2.9 | 135.6 |
| CJSMAJ90A | CJSMAJ90CA | A90A XX | A90CA XX | 100.4 | 110.92 | 1 | 5 | 5 | 90 | 2.7 | 144.5 |
| CJSMAJ100A | CJSMAJ100CA | A100A XX | A100CA XX | 111.45 | 122.91 | 1 | 5 | 5 | 100 | 2.5 | 160.4 |

Notes:

- (1) Waveform of CJSMAJ10A -CJSMAJ100CA are defined as per fig.3
- (2) XX=Code

Figure 1. Peak Pulse Power Rating Curve

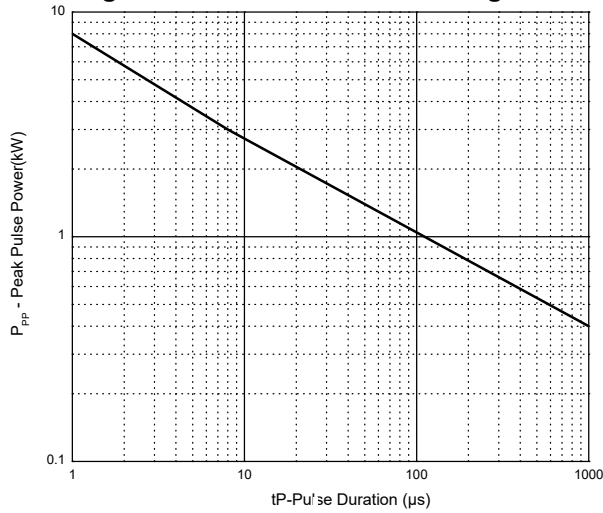


Figure 2. Pulse Derating Curve

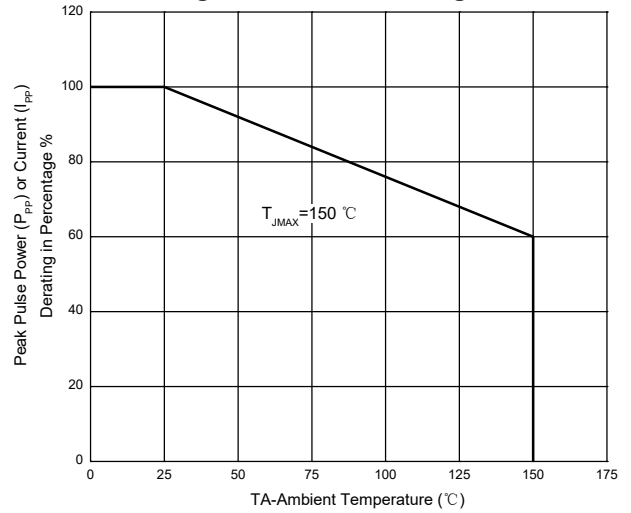


Figure 3. Pulse Waveform



Figure 4. Typical Junction Capacitance



Figure 5. Steady State Power Dissipation Derating Curve

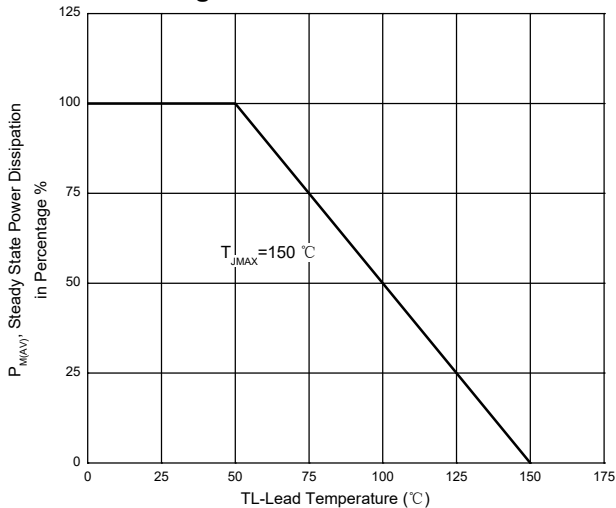
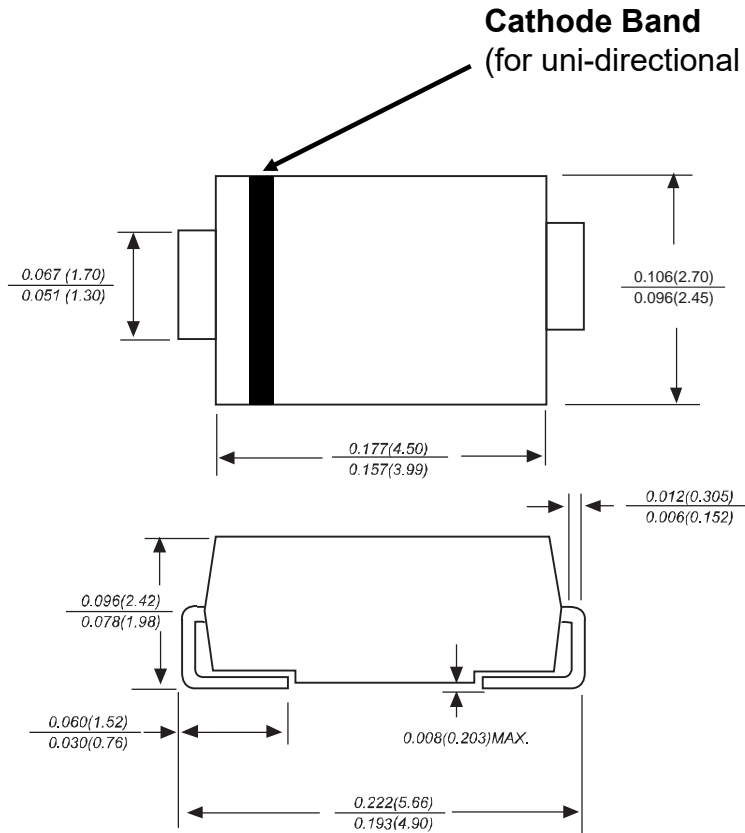


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

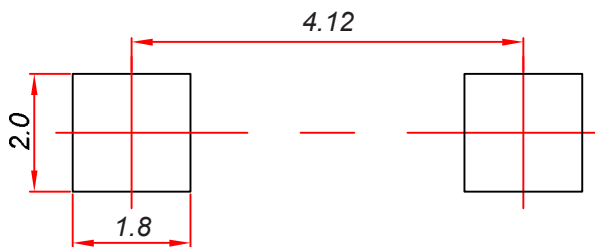


SMAG Package Outline Dimensions



Dimensions in inches and (millimeters)

SMAG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

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Reel Taping Specifications For Surface Mount Devices- SMAG

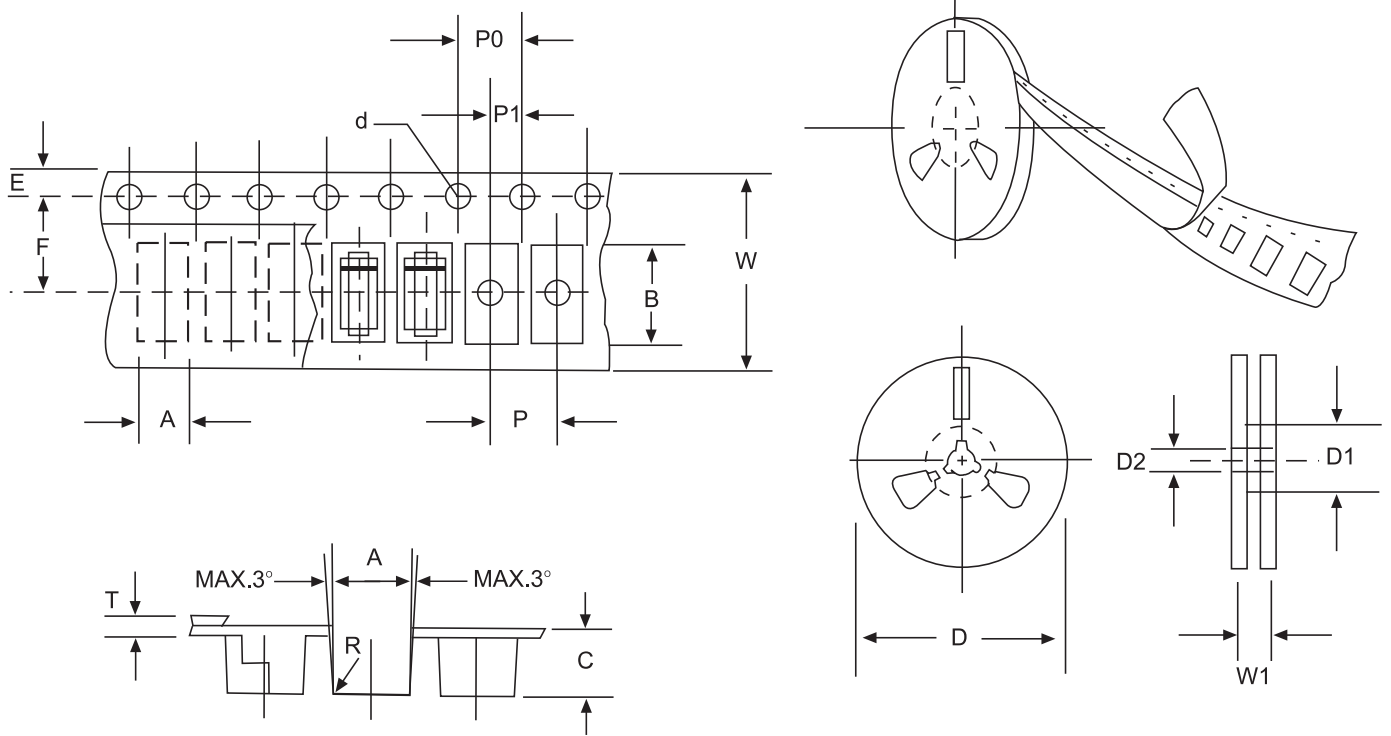


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

| ITEM | SYMBOL | SMAG mm(inch) |
|------------------------|--------|--------------------------|
| Carrier width | A | 2.79±0.1(0.110±0.004) |
| Carrier length | B | 5.33±0.1(0.210±0.004) |
| Carrier depth | C | 2.36±0.1(0.093±0.004) |
| Sprocket hole | d | 1.55±0.05(0.061±0.002) |
| Reel outside diameter | D | 279±2.0 (11± 0.079) |
| Reel inner diameter | D1 | 75 ±1.0 (2.95 ±0.039) |
| Feed hole diameter | D2 | 13±0.5(0.512±0.020) |
| Sprocket hole position | E | 1.75±0.1(0.069±0.004) |
| Punch hole position | F | 5.5±0.05(0.217±0.002) |
| Punch hole pitch | P | 4.0±0.1(0.157±0.004) |
| Sprocket hole pitch | P0 | 4.0±0.1(0.157±0.004) |
| Embossment center | P1 | 2.0±0.1(0.079±0.004) |
| Totall tape thickness | T | 0.28±0.02(0.011 ±0.0008) |
| Tape width | W | 12.0±0.2(0.472±0.008) |
| Reel width | W1 | 16.8±2.0(0.661±0.079) |

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.

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