PROSEMI
Circuit Protection

# SMA6J5.0(C)A-T to SMA6J440A-T

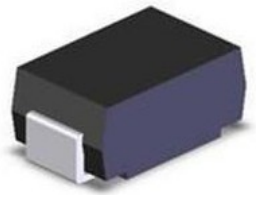
## Automotive Transient Voltage Suppressors

**600Watts**

PROSEMI offers AEC-Q101 qualified TVS diode device is specially designed to protect sensitive electronic devices from lightning and other transient voltage induced voltage transient events.

## Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 us
- waveform, repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard



**DO-214AC/SMA**

## Mechanical Characteristics

- Case: DO214AC/(SMA)Molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

## Part Numbering System

**SMA6J xxx CA - T**

- SMA6J: Series
- xxx: Reverse Breakdown Voltage
- CA: Bi -directional  A: Uni-directional
- T: for Automotive

## Absolute Maximum Rating

| Rating | Symbol | Value | Units |
|---|---|---|---|
| Peak power dissipation with a 10/1000 us waveform(1) | $P_{PPM}$ | 600 | W |
| Peak pulse current wih a 10/1000 us waveform(1) | $I_{PPM}$ | See Next Table | A |
| Power disspation on infinite heatsink at TL = 75 °C | $P_D$ | 5.0 | W |
| Peak forward surge current, 8.3 ms single half sinewave unidirectional only(2) | $I_{FSM}$ | 60 | A |
| Maximum instantaneous forward voltage at 25 A for unidirectional only(3) | $V_F$ | 3.5/6.5 | V |
| Operating junction and storage temperature range | $T_J$ , $T_{STG}$ | -55 to +150 | ℃ |

1) Non-repetitive current pulse per Fig.5 and derated above TA= 25 °C per Fig.1 ;

2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;

3) VF<3.5V for devices of VBR<200V and VF<6.5V for devices of VBR>201V。

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# Automotive Transient Voltage Suppressors

## SMA6J5.0(C)A-T to SMA6J440A-T 600Watts

## Electrical Characteristics

| Part Number | | Marking | | Reverse Stand Off Voltage | Breakdown Voltage $V_{BR}$ (V) @ $I_T$ | | Test Current | Maximum Clamping Voltage | Maximum Peak Pulse Current | Maximum Reverse Leakage |
|---|---|---|---|---|---|---|---|---|---|---|
| Uni | Bi | Uni | Bi | $V_R$ (V) | Min. | Max. | $I_T$ (mA) | $V_C$ (V) @ $I_{PP}$ | $I_{PP}$ (A) | $I_R$ (µA) @ $V_R$ |
| SMA6J5.0A-T | SMA6J5.0CA-T | KET | AET | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 65.3 | 800 |
| SMA6J6.0A-T | SMA6J6.0CA-T | KGT | AGT | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| SMA6J6.5A-T | SMA6J6.5CA-T | KKT | AKT | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| SMA6J7.0A-T | SMA6J7.0CA-T | KMT | AMT | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 50.0 | 200 |
| SMA6J7.5A-T | SMA6J7.5CA-T | KPT | APT | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.6 | 100 |
| SMA6J8.0A-T | SMA6J8.0CA-T | KRT | ART | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 44.2 | 50 |
| SMA6J8.5A-T | SMA6J8.5CA-T | KTT | ATT | 8.85 | 9.44 | 10.40 | 1 | 14.4 | 41.7 | 20 |
| SMA6J9.0A-T | SMA6J9.0CA-T | KVT | AVT | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 39.0 | 10 |
| SMA6J10A-T | SMA6J10CA-T | KXT | AXT | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 35.3 | 5 |
| SMA6J11A-T | SMA6J11CA-T | KZT | AZT | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 33.0 | 1 |
| SMA6J12A-T | SMA6J12CA-T | LET | BET | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 30.2 | 1 |
| SMA6J13A-T | SMA6J13CA-T | LGT | BGT | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 28.0 | 1 |
| SMA6J14A-T | SMA6J14CA-T | LKT | BKT | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 25.9 | 1 |
| SMA6J15A-T | SMA6J15CA-T | LMT | BMT | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 24.6 | 1 |
| SMA6J16A-T | SMA6J16CA-T | LPT | BPT | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 23.1 | 1 |
| SMA6J17A-T | SMA6J17CA-T | LRT | BRT | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 21.8 | 1 |
| SMA6J18A-T | SMA6J18CA-T | LTT | BTT | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 20.6 | 1 |
| SMA6J20A-T | SMA6J20CA-T | LVT | BVT | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 18.6 | 1 |
| SMA6J22A-T | SMA6J22CA-T | LXT | BXT | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 16.9 | 1 |
| SMA6J24A-T | SMA6J24CA-T | LZT | BZT | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 15.5 | 1 |
| SMA6J26A-T | SMA6J26CA-T | MET | CET | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 14.3 | 1 |
| SMA6J28A-T | SMA6J28CA-T | MGT | CGT | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 13.3 | 1 |
| SMA6J30A-T | SMA6J30CA-T | MKT | CKT | 30.0 | 33.50 | 36.80 | 1 | 48.4 | 12.4 | 1 |
| SMA6J33A-T | SMA6J33CA-T | MMT | CMT | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 11.3 | 1 |
| SMA6J36A-T | SMA6J36CA-T | MPT | CPT | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 10.4 | 1 |
| SMA6J40A-T | SMA6J40CA-T | MRT | CRT | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 9.3 | 1 |
| SMA6J43A-T | SMA6J43CA-T | MTT | CTT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 8.7 | 1 |
| SMA6J45A-T | SMA6J45CA-T | MVT | CVT | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 8.3 | 1 |
| SMA6J48A-T | SMA6J48CA-T | MXT | CXT | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 7.8 | 1 |
| SMA6J51A-T | SMA6J51CA-T | MZT | CZT | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 7.3 | 1 |
| SMA6J54A-T | SMA6J54CA-T | NET | DET | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 6.9 | 1 |
| SMA6J58A-T | SMA6J58CA-T | NGT | DGT | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 6.5 | 1 |
| SMA6J60A-T | SMA6J60CA-T | NKT | DKT | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 6.2 | 1 |
| SMA6J64A-T | SMA6J64CA-T | NMT | DMT | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 5.9 | 1 |
| SMA6J70A-T | SMA6J70CA-T | NPT | DPT | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 5.3 | 1 |
| SMA6J75A-T | SMA6J75CA-T | NRT | DRT | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 5.0 | 1 |
| SMA6J78A-T | SMA6J78CA-T | NTT | DTT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 4.8 | 1 |
| SMA6J85A-T | SMA6J85CA-T | NVT | DVT | 85.0 | 94.4 | 104.0 | 1 | 137.0 | 4.4 | 1 |
| SMA6J90A-T | SMA6J90CA-T | NXT | DXT | 90.0 | 100.0 | 111.0 | 1 | 146.0 | 4.1 | 1 |
| SMA6J100A-T | SMA6J100CA-T | NZT | DZT | 100.0 | 111.0 | 123.0 | 1 | 162.0 | 3.7 | 1 |
| SMA6J110A-T | SMA6J110CA-T | PET | EET | 110.0 | 122.0 | 135.0 | 1 | 177.0 | 3.4 | 1 |
| SMA6J120A-T | SMA6J120CA-T | PGT | EGT | 120.0 | 133.0 | 147.0 | 1 | 193.0 | 3.1 | 1 |
| SMA6J130A-T | SMA6J130CA-T | PKT | EKT | 130.0 | 144.0 | 159.0 | 1 | 209.0 | 2.9 | 1 |
| SMA6J150A-T | SMA6J150CA-T | PMT | EMT | 150.0 | 167.0 | 185.0 | 1 | 243.0 | 2.5 | 1 |
| SMA6J160A-T | SMA6J160CA-T | PPT | EPT | 160.0 | 178.0 | 197.0 | 1 | 259.0 | 2.3 | 1 |
| SMA6J170A-T | SMA6J170CA-T | PRT | ERT | 170.0 | 189.0 | 209.0 | 1 | 275.0 | 2.2 | 1 |
| SMA6J180A-T | SMA6J180CA-T | PTT | ETT | 180.0 | 201.0 | 222.0 | 1 | 292.0 | 2.1 | 1 |
| SMA6J190A-T | SMA6J190CA-T | PAT | ECT | 190.0 | 209.0 | 243.0 | 1 | 308.0 | 2.0 | 1 |
| SMA6J200A-T | SMA6J200CA-T | PVT | EVT | 200.0 | 224.0 | 247.0 | 1 | 324.0 | 1.9 | 1 |
| SMA6J210A-T | SMA6J210CA-T | PBT | EDT | 210.0 | 231.0 | 268.0 | 1 | 340.0 | 1.8 | 1 |
| SMA6J220A-T | SMA6J220CA-T | PXT | EXT | 220.0 | 246.0 | 272.0 | 1 | 356.0 | 1.7 | 1 |
| SMA6J250A-T | | PZT | | 250.0 | 279.0 | 309.0 | 1 | 405.0 | 1.5 | 1 |
| SMA6J300A-T | | QET | | 300.0 | 335.0 | 371.0 | 1 | 486.0 | 1.3 | 1 |
| SMA6J350A-T | | QGT | | 350.0 | 391.0 | 432.0 | 1 | 567.0 | 1.1 | 1 |
| SMA6J400A-T | | QKT | | 400.0 | 447.0 | 494.0 | 1 | 648.0 | 0.9 | 1 |
| SMA6J440A-T | | QMT | | 440.0 | 492.0 | 543.0 | 1 | 713.0 | 0.9 | 1 |

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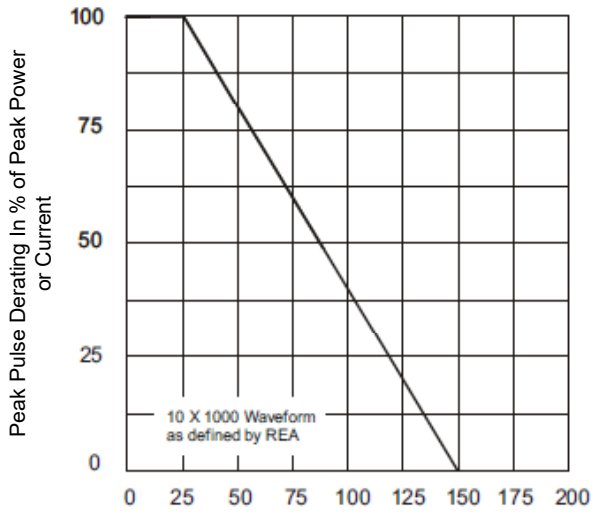
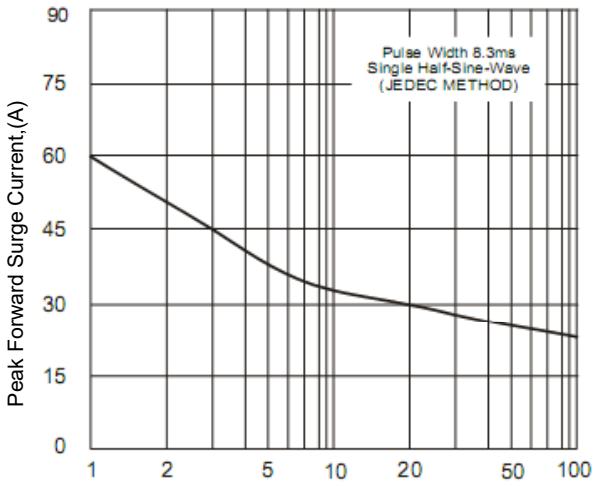
## Typical Characteristics

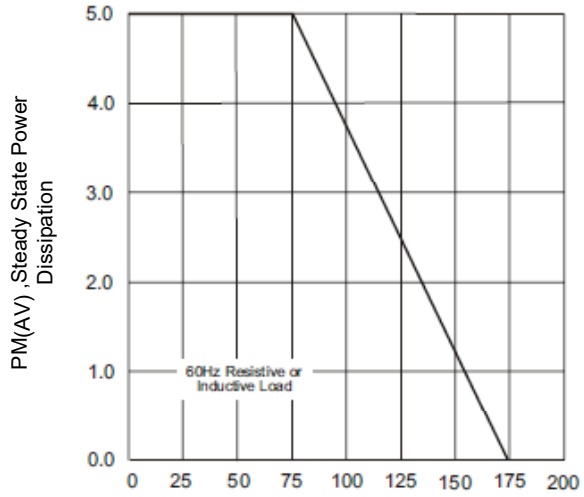
### Fig.1 - Pulse Derating Curve



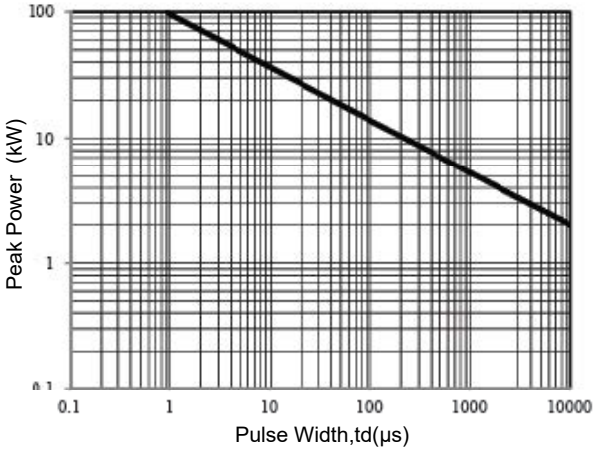

### Fig.2 - Maximum Non-Repetitive Surge Current



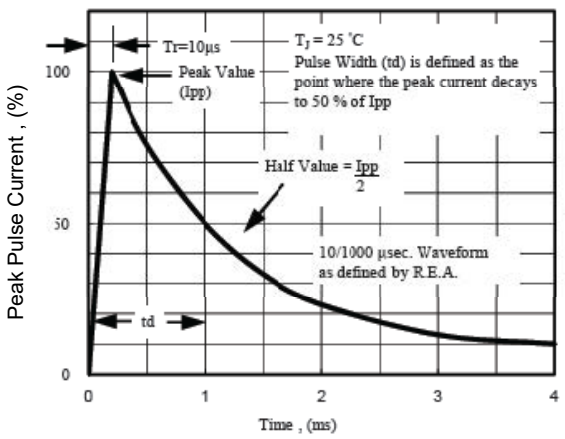

### Fig.3 - Steady State Power Derating Curve



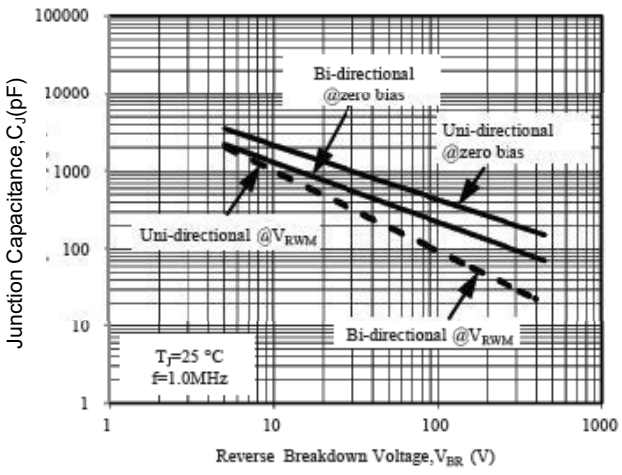

### Fig.4 - Peak Pulse Power Rating Curve




### Fig.5 - Pulse Waveform




### Fig.6 - Typical Junction Capacitance



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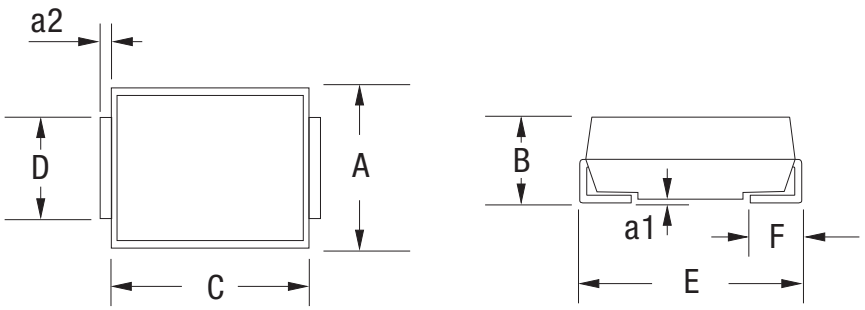
## Dimension (Unit: mm)




| A | | B | | C | | D | | E | | F | | a1 | | a2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 2.500 | 2.800 | 1.900 | 2.450 | 3.900 | 4.600 | 1.400 | 1.800 | 4.800 | 5.300 | 0.760 | 1.520 | - | 0.203 | 0.145 | 0.255 |

## Packaging

Quantity: 2,000pcs

12mm wide tape on 330mm(13 inch)

diameter reel –specification EIA

Standard 481.