Elektronische Bauelemente

# SMA6J Series CR-C

**Voltage 5V~58V**

**600W Peak Power Surface Mount TVS**

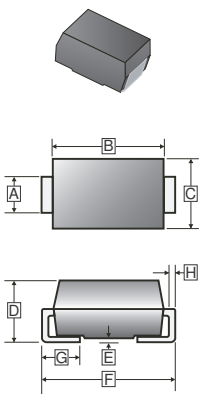
RoHS Compliant Product

A suffix of "-C" specifies halogen-free and lead-free

## FEATURES

- Glass passivated chip
- 600W peak pulse power capability with a 10/1000 μs waveform
- Low leakage
- Uni and Bi-directional unit
- Excellent clamping capability
- Very fast response time
- Qualified to AEC-Q101 standards for high reliability

**SMA**




| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 1.23 | 1.65 | E | - | 0.3 |
| B | 3.99 | 4.75 | F | 4.70 | 5.28 |
| C | 2.30 | 2.90 | G | 0.75 | 1.52 |
| D | 1.90 | 2.62 | H | 0.15 | 0.31 |

## MECHANICAL DATA

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

## PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---|---|---|
| SMA | 5K | 13 inch |

## ORDER INFORMATION

| Part Number | Type |
|---|---|
| SMA6J Series CR-C | Lead (Pb)-free and Halogen-free |

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

(Rating 25°C ambient temperature unless otherwise specified. Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.)

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Peak Power Dissipation [1] @10/1000μs waveform | | $P_{PP}$ | 600 | W |
| Peak Pulse Current [1] @10/1000μs waveform | | $I_{PP}$ | (See next table.) | A |
| Power Dissipation @on a infinite heat sink | $T_L$=75°C | $P_D$ | 3 | W |
| Peak Forward Surge Current [2] @8.3ms single Half Sine-Wave, for unidirectional only | | $I_{FSM}$ | 60 | A |
| Maximum Instantaneous Forward Voltage @25A for unidirectional only | | $V_F$ | 3.5 | V |
| Operating Junction and Storage Temperature Range | | $T_J$, $T_{STG}$ | -55~150 | °C |

Notes:

1. Non-repetitive current pulse is on Fig. 5 and it derated above $T_A$=25°C on Fig. 1.
2. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

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**Voltage 5V~58V**

**600W Peak Power Surface Mount TVS**

## ELECTRICAL CHARACTERISTICS (Rating $T_A$=25°C unless otherwise specified)

| Part Number | | Marking Code | | Breakdown Voltage $V_{BR}$ @$I_T$ | | | Maximum Reverse Leakage $I_R$ @$V_{RWM}$ | Working Peak Reverse Voltage | Maximum Reverse Surge Current | Maximum Clamping Voltage $V_C$ @$I_{PP}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Directional | | Directional | | Min. | Max. | $I_T$ | $I_R$ | $V_{RWM}$ | $I_{PP}$ | $V_C$ |
| Uni | Bi | Uni | Bi | V | | mA | μA | V | A | V |
| SMA6J5.0ACR-C | SMA6J5.0CACR-C | A6J5.0A | A6J5.0CA | 6.4 | 7 | 10 | 800 | 5 | 65.22 | 9.2 |
| SMA6J6.0ACR-C | SMA6J6.0CACR-C | A6J6.0A | A6J6.0CA | 6.67 | 7.37 | 10 | 800 | 6 | 58.25 | 10.3 |
| SMA6J6.5ACR-C | SMA6J6.5CACR-C | A6J6.5A | A6J6.5CA | 7.22 | 7.98 | 10 | 500 | 6.5 | 53.57 | 11.2 |
| SMA6J7.0ACR-C | SMA6J7.0CACR-C | A6J7.0A | A6J7.0CA | 7.78 | 8.6 | 10 | 200 | 7 | 50 | 12 |
| SMA6J7.5ACR-C | SMA6J7.5CACR-C | A6J7.5A | A6J7.5CA | 8.33 | 9.21 | 1 | 100 | 7.5 | 46.51 | 12.9 |
| SMA6J8.0ACR-C | SMA6J8.0CACR-C | A6J8.0A | A6J8.0CA | 8.89 | 9.83 | 1 | 50 | 8 | 44.12 | 13.6 |
| SMA6J8.5ACR-C | SMA6J8.5CACR-C | A6J8.5A | A6J8.5CA | 9.44 | 10.4 | 1 | 10 | 8.5 | 41.67 | 14.4 |
| SMA6J9.0ACR-C | SMA6J9.0CACR-C | A6J9.0A | A6J9.0CA | 10 | 11.1 | 1 | 5 | 9 | 38.96 | 15.4 |
| SMA6J10ACR-C | SMA6J10CACR-C | A6J10A | A6J10CA | 11.1 | 12.3 | 1 | 1 | 10 | 35.29 | 17 |
| SMA6J11ACR-C | SMA6J11CACR-C | A6J11A | A6J11CA | 12.2 | 13.5 | 1 | 1 | 11 | 32.97 | 18.2 |
| SMA6J12ACR-C | SMA6J12CACR-C | A6J12A | A6J12CA | 13.3 | 14.7 | 1 | 1 | 12 | 30.15 | 19.9 |
| SMA6J13ACR-C | SMA6J13CACR-C | A6J13A | A6J13CA | 14.4 | 15.9 | 1 | 1 | 13 | 27.91 | 21.5 |
| SMA6J14ACR-C | SMA6J14CACR-C | A6J14A | A6J14CA | 15.6 | 17.2 | 1 | 1 | 14 | 25.86 | 23.2 |
| SMA6J15ACR-C | SMA6J15CACR-C | A6J15A | A6J15CA | 16.7 | 18.5 | 1 | 1 | 15 | 24.59 | 24.4 |
| SMA6J16ACR-C | SMA6J16CACR-C | A6J16A | A6J16CA | 17.8 | 19.7 | 1 | 1 | 16 | 23.08 | 26 |
| SMA6J17ACR-C | SMA6J17CACR-C | A6J17A | A6J17CA | 18.9 | 20.9 | 1 | 1 | 17 | 21.74 | 27.6 |
| SMA6J18ACR-C | SMA6J18CACR-C | A6J18A | A6J18CA | 20 | 22.1 | 1 | 1 | 18 | 20.55 | 29.2 |
| SMA6J19ACR-C | SMA6J19CACR-C | A6J19A | A6J19CA | 21.1 | 23.3 | 1 | 1 | 19 | 19.49 | 30.8 |
| SMA6J20ACR-C | SMA6J20CACR-C | A6J20A | A6J20CA | 22.2 | 24.5 | 1 | 1 | 20 | 18.52 | 32.4 |
| SMA6J22ACR-C | SMA6J22CACR-C | A6J22A | A6J22CA | 24.4 | 26.9 | 1 | 1 | 22 | 16.90 | 35.5 |
| SMA6J24ACR-C | SMA6J24CACR-C | A6J24A | A6J24CA | 26.7 | 29.5 | 1 | 1 | 24 | 15.42 | 38.9 |
| SMA6J26ACR-C | SMA6J26CACR-C | A6J26A | A6J26CA | 28.9 | 31.9 | 1 | 1 | 26 | 14.25 | 42.1 |
| SMA6J28ACR-C | SMA6J28CACR-C | A6J28A | A6J28CA | 31.1 | 34.4 | 1 | 1 | 28 | 13.22 | 45.4 |
| SMA6J30ACR-C | SMA6J30CACR-C | A6J30A | A6J30CA | 33.3 | 36.8 | 1 | 1 | 30 | 12.4 | 48.4 |
| SMA6J33ACR-C | SMA6J33CACR-C | A6J33A | A6J33CA | 36.7 | 40.6 | 1 | 1 | 33 | 11.26 | 53.3 |
| SMA6J36ACR-C | SMA6J36CACR-C | A6J36A | A6J36CA | 40 | 44.2 | 1 | 1 | 36 | 10.33 | 58.1 |
| SMA6J40ACR-C | SMA6J40CACR-C | A6J40A | A6J40CA | 44.4 | 49.1 | 1 | 1 | 40 | 9.3 | 64.5 |
| SMA6J43ACR-C | SMA6J43CACR-C | A6J43A | A6J43CA | 47.8 | 52.8 | 1 | 1 | 43 | 8.65 | 69.4 |
| SMA6J45ACR-C | SMA6J45CACR-C | A6J45A | A6J45CA | 50 | 55.3 | 1 | 1 | 45 | 8.25 | 72.7 |
| SMA6J48ACR-C | SMA6J48CACR-C | A6J48A | A6J48CA | 53.3 | 58.9 | 1 | 1 | 48 | 7.75 | 77.4 |
| SMA6J51ACR-C | SMA6J51CACR-C | A6J51A | A6J51CA | 56.7 | 62.7 | 1 | 1 | 51 | 7.28 | 82.4 |
| SMA6J54ACR-C | SMA6J54CACR-C | A6J54A | A6J54CA | 60 | 66.3 | 1 | 1 | 54 | 6.89 | 87.1 |
| SMA6J58ACR-C | SMA6J58CACR-C | A6J58A | A6J58CA | 64.4 | 71.2 | 1 | 1 | 58 | 6.41 | 93.6 |

Notes:

1. Suffix 'A' denotes 5% tolerance device.
2. For Bidirectional devices, CA suffix is added.
3. For Bidirectional devices having 10 volts and under $V_R$, the $I_R$ limit is double.

## CHARACTERISTICS CURVE

Fig. 1 - Pulse Derating Curve

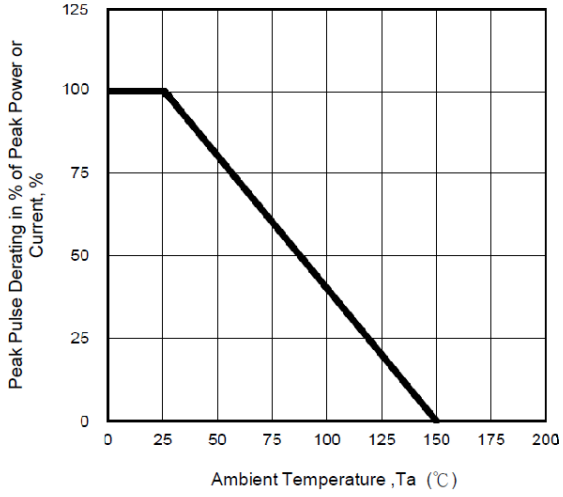


Fig. 2 - Maximum Non-Repetitive Surge Current

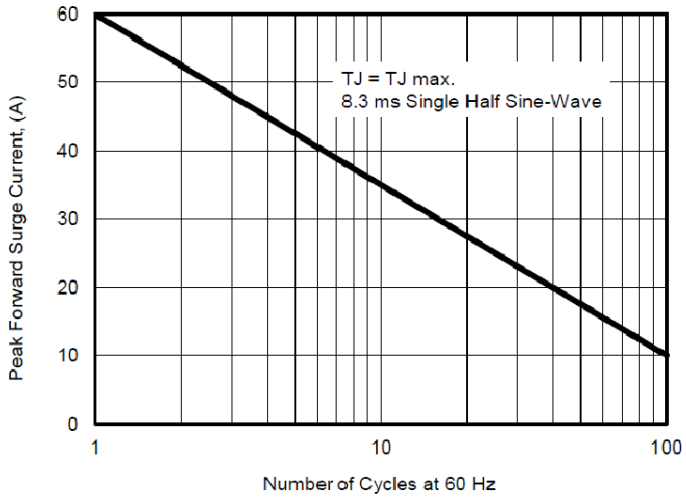


Fig. 3 - Steady State Power Derating Curve

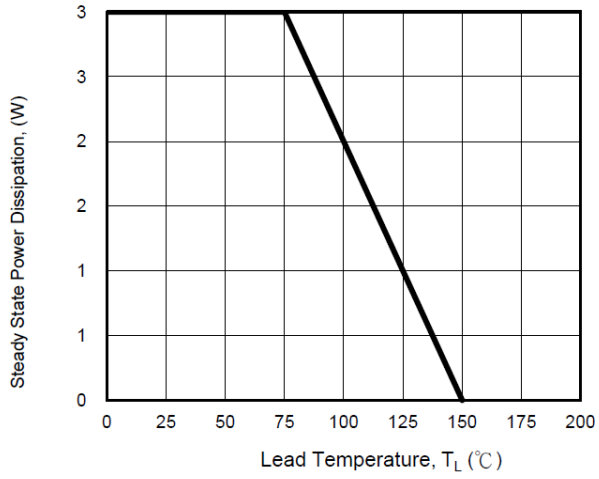


Fig. 4 - Peak Pulse Power Rating Curve

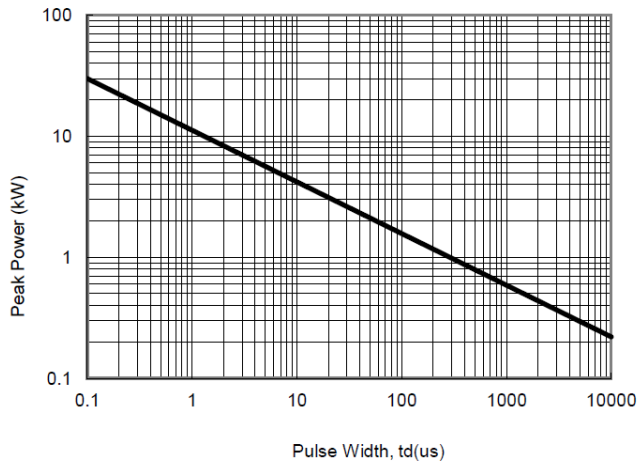


Fig. 5 - Pulse Waveform

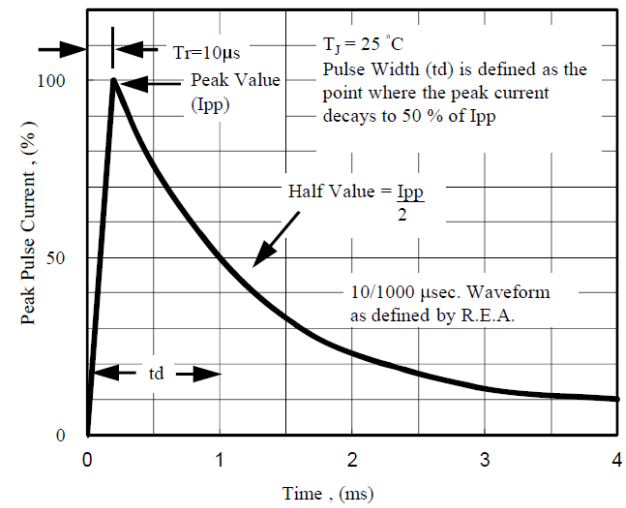


Fig. 6 - Typical Junction Capacitance