## Discription

The SM712 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events.

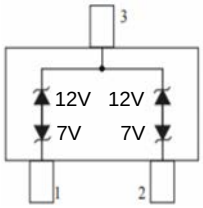
Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.


SOT-23-3L

## Features

★ Low capacitance.
★ Low clamping voltage.
★ ESD protection
★ Complies with IEC 61000-4-2 standards:Air discharge:±30 kV
Contact discharge:±30k V
★ We declare that the material of product compliance with RoHS requirements and Halogen Free.




Circuit Diagram

## Ordering Information

| Product ID | Pack | Qty(PCS) |
|---|---|---|
| SM712 | SOT-23-3L | 3000 |

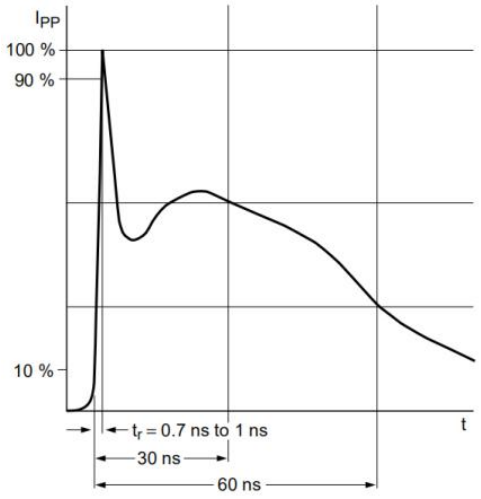
## Absolute Ratings ($T_{amb}$=25°C)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PP}$ | Peak Pulse Power ($t_p$ = 8/20μs) | 300 | W |
| $T_L$ | Maximum lead temperature for soldering during 10s | 260 | °C |
| $T_{stg}$ | Storage Temperature Range | -55 to +150 | °C |
| $T_{op}$ | Operating Temperature Range | -55 to +125 | °C |
| $T_j$ | Maximum junction temperature | 150 | °C |
| | IEC61000-4-2 (ESD) air discharge<br>contact discharge | ±30<br>±30 | KV |
| | IEC61000-4-4 (EFT) | 15 | A |

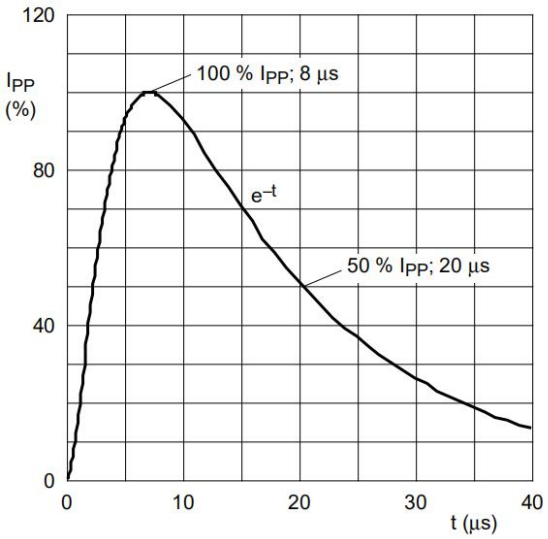
## Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | -- | -- | 7.0 | V | Pin3 to Pin1 or 2 |
| | | -- | -- | 12.0 | | Pin1 or 2 to Pin3 |
| Breakdown Voltage | $V_{BR}$ | 7.5 | -- | 9.5 | V | $I_T$=1mA,Pin3 to Pin1 or 2 |
| | | 13.5 | -- | 16.0 | | $I_T$=1mA,Pin1 or 2 to Pin3 |
| Leakage Current ILeak | $I_R$ | -- | -- | 0.1 | μA | $V_{RWM}$=7V,Pin3 to Pin1 or 2 |
| | | -- | -- | 0.1 | | $V_{RWM}$=12V,Pin1 or 2 to Pin3 |
| Clamping Voltage | $V_C$ | -- | 12.5 | 14.0 | V | $I_{PP}$=18A,Tp=8/20μs,Pin3 to Pin1 or 2 |
| | | -- | 18.5 | 20.0 | | $I_{PP}$=15A,Tp=8/20μs,Pin1 or 2 to Pin3 |
| Junction Capacitance | $C_J$ | -- | 27.0 | 35.0 | pF | $V_R$=0V, f=1MHz,Pin1 or 2 to Pin3 |

## Typical Characteristics

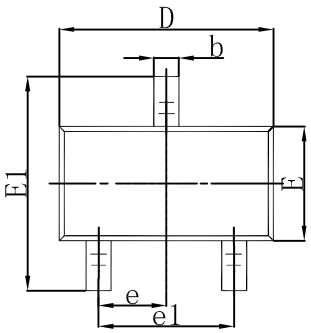


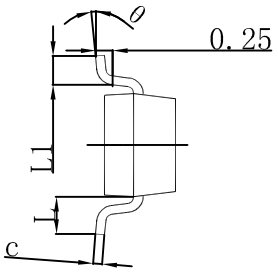

**IEC61000−4−2 Waveform**

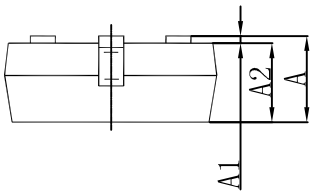



**IEC 61000-4-5 Waveform( 8/20μs pulse)**

## SOT-23-3L Package Outline Dimensions

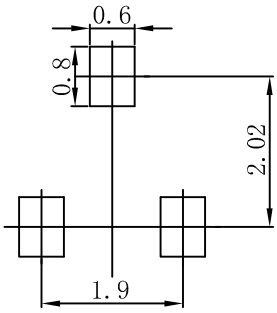



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

## SOT-23-3L Suggested Pad Layout




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

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