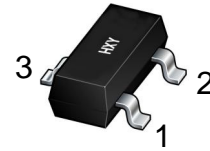




### Discription

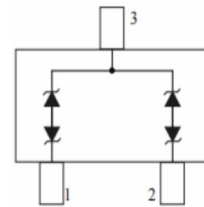
The SM712 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.



SOT-23-3

### Features

- ★ Low capacitance.
- ★ Low clamping voltage.
- ★ ESD protection
- ★ Complies with IEC 61000-4-2 standards: Air discharge: ± 30kV  
Contact discharge: ± 30kV
- ★ 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-23-3	3000

### Absolute Ratings (T<sub>amb</sub>=25°C )

Symbol	Parameter	Value	Units	
P <sub>pp</sub>	Peak Pulse Power (t <sub>p</sub> = 8/20μs)	200	W	
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C	
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C	
T <sub>op</sub>	Operating Temperature Range	-55 to +125	°C	
T <sub>j</sub>	Maximum junction temperature	150	°C	
	IEC61000-4-2 (ESD)	air discharge contact discharge	± 30 ± 30	KV
	IEC61000-4-4 (EFT)	15	A	



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

Characteristic	Symbol	MIN	MIN	MAX	Unit
Reverse stand-off voltage (Pin 1、 2 to Pin 3) (Pin 3 to Pin 1、 2)	VRWM	-	-	12 7	V
Reverse breakdown voltage (IT = 1 mA,Pin 1、 2 to Pin 3) (IT = 1 mA,Pin 3 to Pin 1、 2)	VBR	13.3 7.5	- -	- -	V
Reverse leakage current (VR = VRWM,Pin 1、 2 to Pin 3) (VR = VRWM,Pin 3 to Pin 1、 2)	IR	- -	- -	100 200	nA
Clamping Voltage (IPP = 10A (8 x 20μs pulse),Pin 1、 2 to Pin 3) (IPP = 10A (8 x 20μs pulse),Pin 3 to Pin 1、 2)	VC	- -	- -	12 20	V
Junction Capacitance (VR = 0V, f = 1MHz,Pin 1、 2 to Pin 3) (VR = 0V, f = 1MHz,Pin 3 to Pin 1、 2)	CJ	- -	- -	15 15	pF

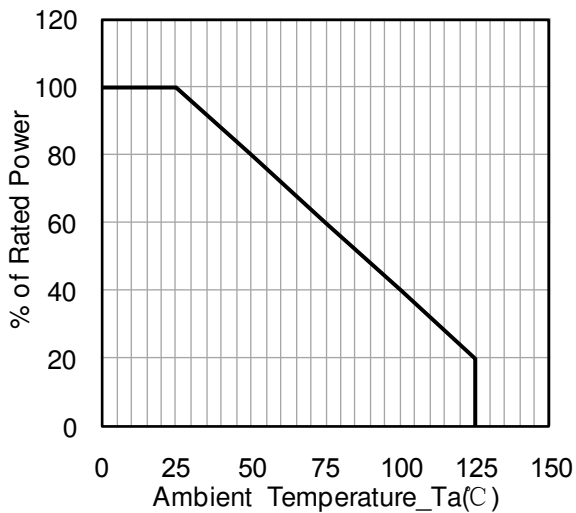


Figure 1. Power Derating Curve

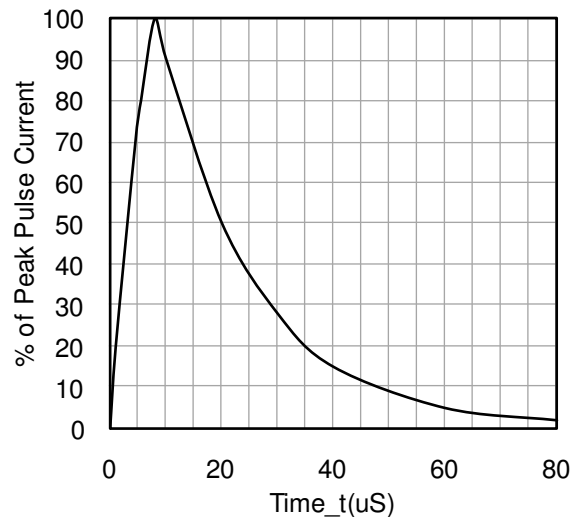


Figure 2. 8 X 20uS Pulse Waveform

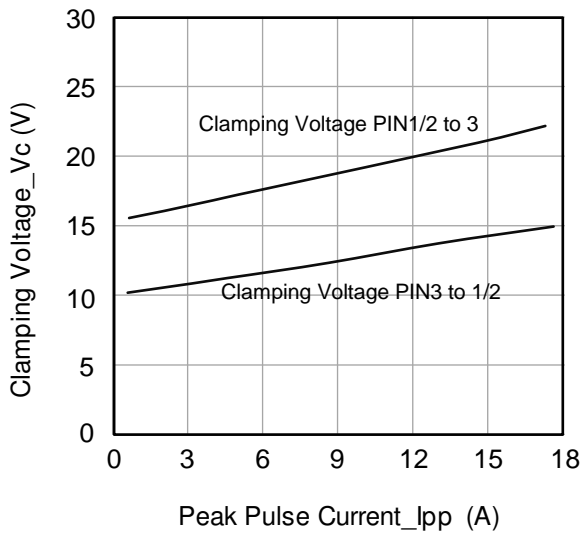


Figure 3. Clamping Voltage vs. Peak Pulse Current

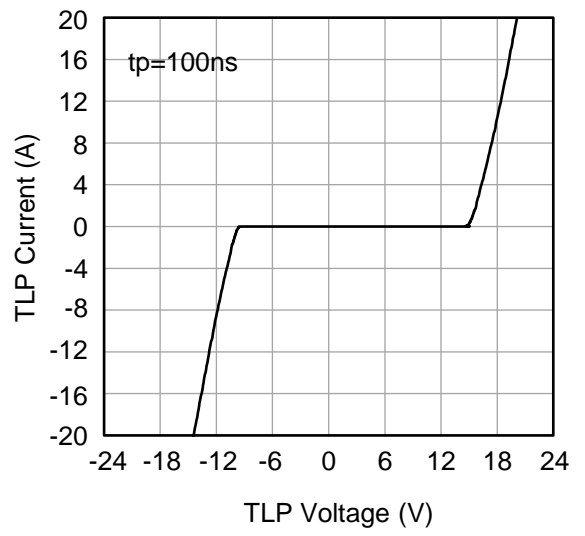
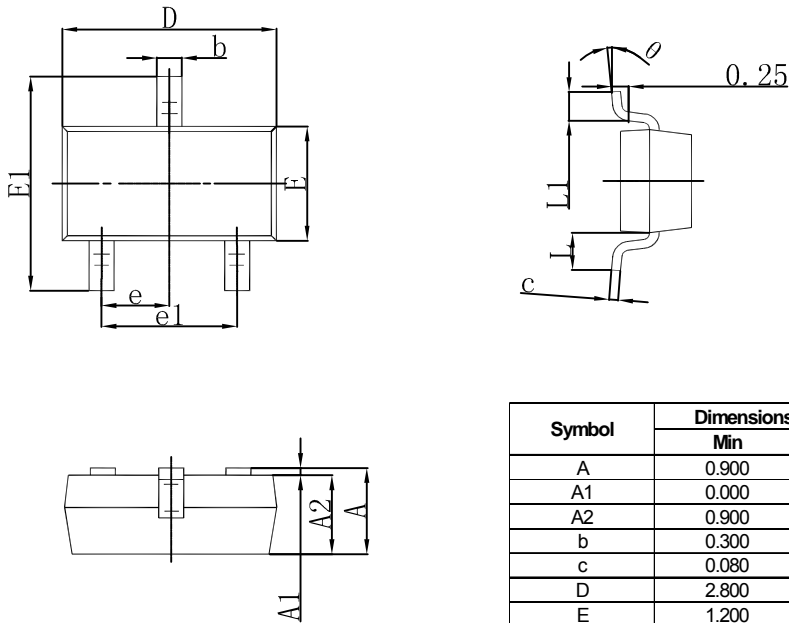


Figure 4. TLP Measurement

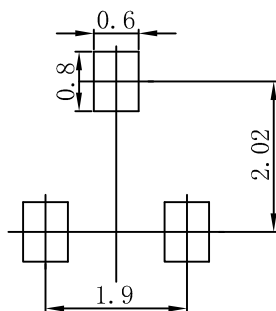


### SOT-23-3 Package Outline Dimensions



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-23-3 Suggested Pad Layout



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



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