

## Features

- ◆ 150W peak pulse power(8/20 $\mu$ s)
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 7V or 12V
- ◆ Low clamping voltage
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 30$ kV  
Contact discharge:  $\pm 30$ kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 7A (8/20 $\mu$ s)
- ◆ RoHS Compliant

## Mechanical Characteristics

- ◆ Package: SOT-23
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below

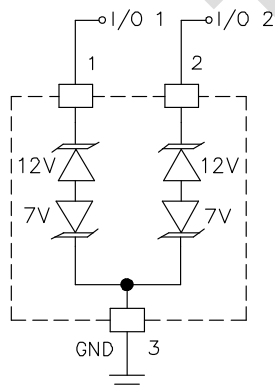
## Applications

- ◆ Wireless System
- ◆ Networks
- ◆ Portable Instrumentation
- ◆ RS485 Ports

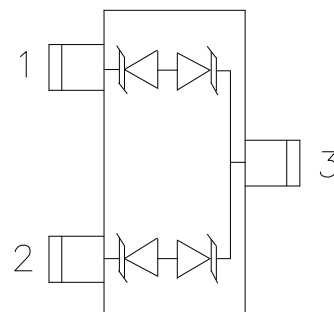
## Ordering Information

Part Number	Qty per Reel	Reel Size
SM712	3000	7"

## Circuit Diagram



## Pin Configuration



**Absolute Maximum Ratings** (Tamb=25°C unless otherwise specified)

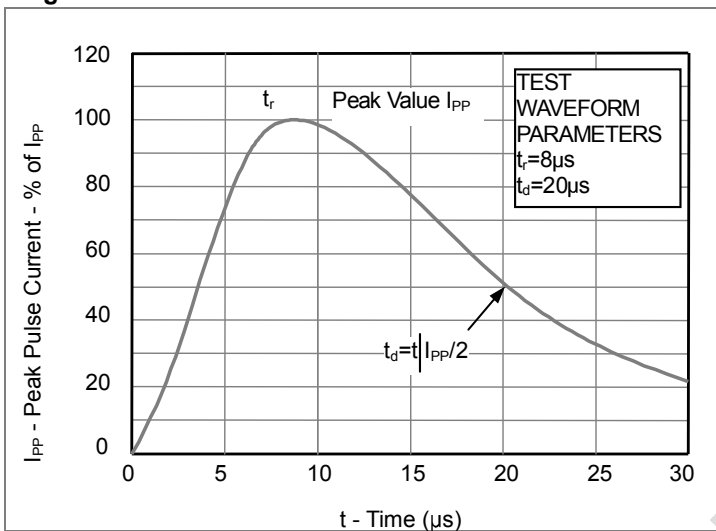
Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	150	W
Peak Pulse Current(8/20μs)	IPP	7	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

**Electrical Characteristics** (TA=25°C unless otherwise specified)

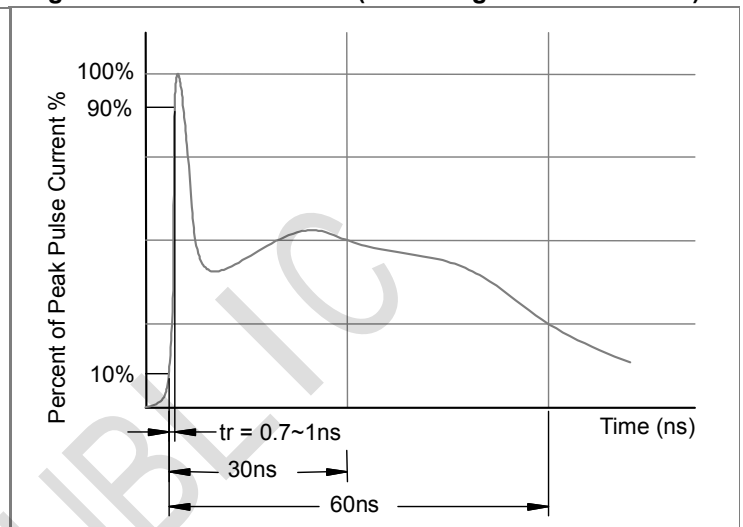
Parameter	Symbol	Pin 1 to 3 and 2 to 3(12V TVS)			Pin 3to 1 and 3 to 2(7V TVS)			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
Reverse Working Voltage	VRWM			12			7	V	
Breakdown Voltage	VBR	13.3			7.5			V	IT = 1mA
Reverse Leakage Current	IR		0.01	0.5		0.01	0.5	μA	VR = VRWM
Clamping Voltage	VC			19			11	V	IPP = 1A (8 x 20μs pulse)
Clamping Voltage	VC			25			15	V	IPP = 7A (8 x 20μs pulse)
Junction Capacitance	CJ			75			75	pF	VR=0, f=1MHz
Junction Capacitance	CJ		45			45		pF	VR=VRWM, f=1MHz

**PROTECTION PRODUCTS**  
Typical characteristics

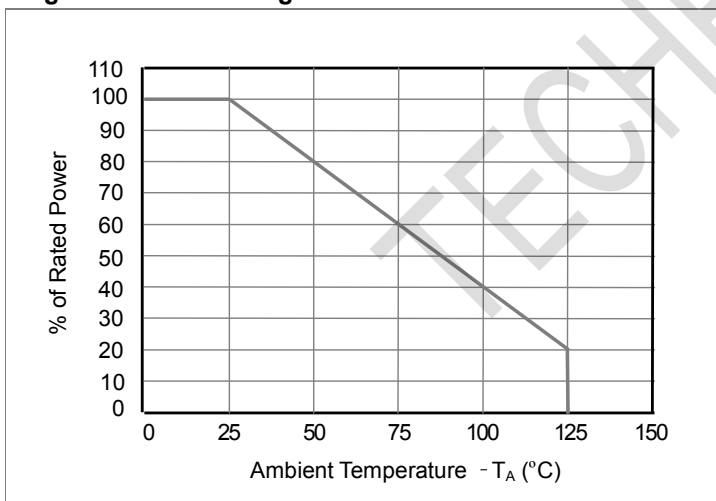
**Fig1. 8/20 $\mu$ s Pulse Waveform**



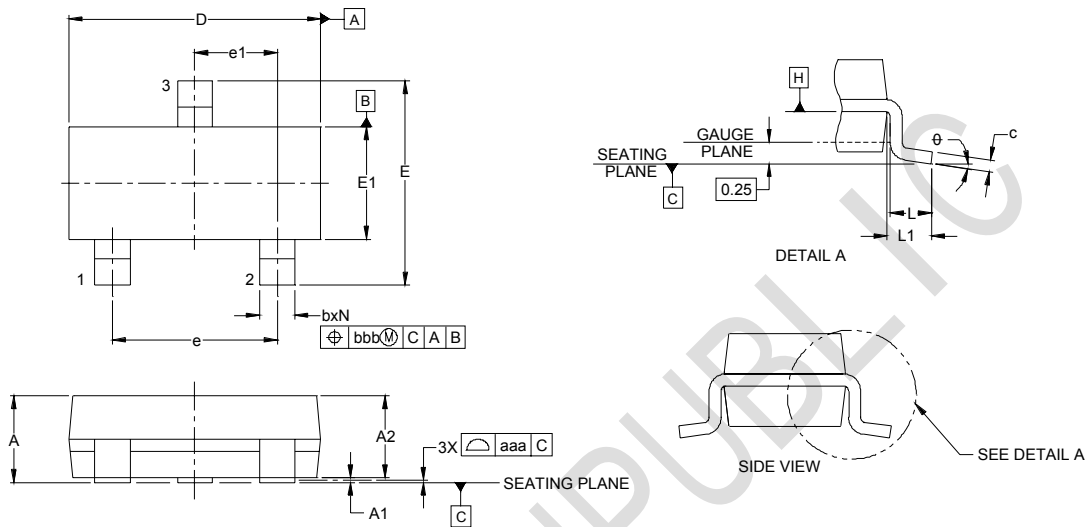
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**

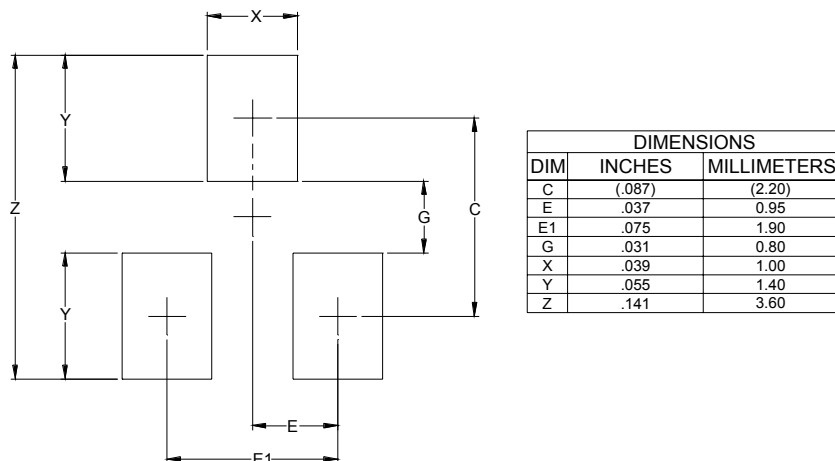


## Outline Drawing - SOT23



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.89	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.88	0.95	1.02
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.90 BSC		
e1	.037			0.95 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	.022			(0.55)		
N	3			3		
$\theta$	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		

## Land Pattern - SOT23



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60