

## 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

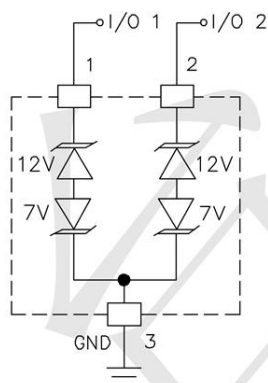
## Applications

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

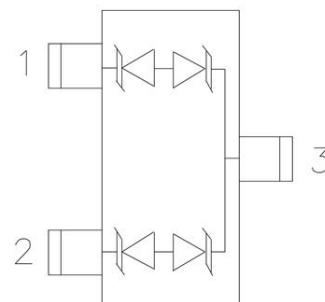
## Ordering Information

Part Number	Qty per Reel	Reel Size
SM712	3000	7"

## Circuit Diagram



## Pin Configuration



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

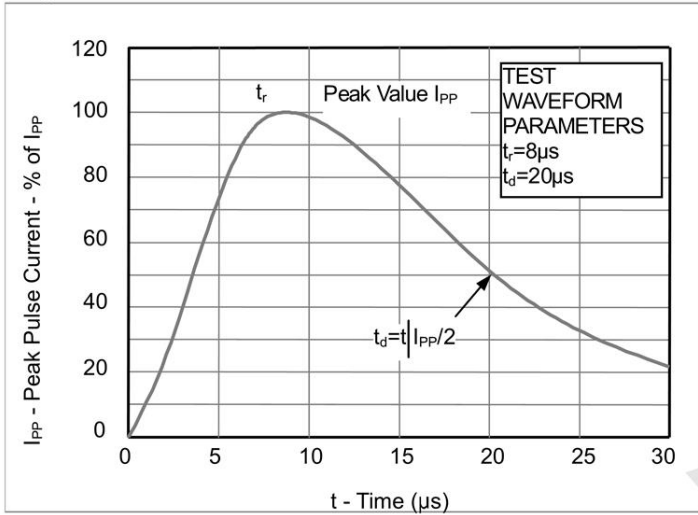
Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	150	W
Peak Pulse Current(8/20μs)	I <sub>PP</sub>	7	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±30 ±30	kV
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

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

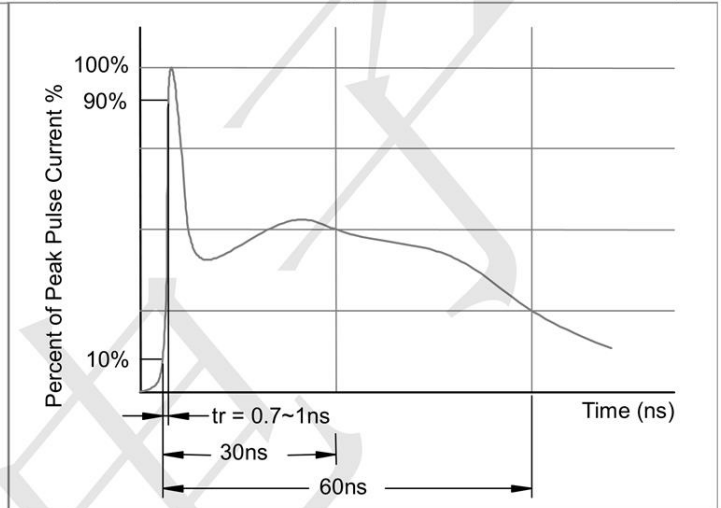
Parameter	Symbol	Pin 1 to 3 and 2 to 3(12V TVS)			Pin 3to 1 and 3 to 2(7V TVS)			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
Reverse Working Voltage	V <sub>RWM</sub>			12			7	V	
Breakdown Voltage	V <sub>BR</sub>	13.3			7.5			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>		0.01	0.5		0.01	0.5	μA	V <sub>R</sub> = V <sub>RWM</sub>
Clamping Voltage	V <sub>C</sub>			19			11	V	I <sub>PP</sub> = 1A (8 x 20μs pulse)
Clamping Voltage	V <sub>C</sub>			25			15	V	I <sub>PP</sub> = 7A (8 x 20μs pulse)
Junction Capacitance	C <sub>J</sub>			75			75	pF	V <sub>R</sub> =0, f=1MHz
Junction Capacitance	C <sub>J</sub>		45			45		pF	V <sub>R</sub> =V <sub>RWM</sub> , f=1MHz

**PROTECTION PRODUCTS**  
Typical characteristics

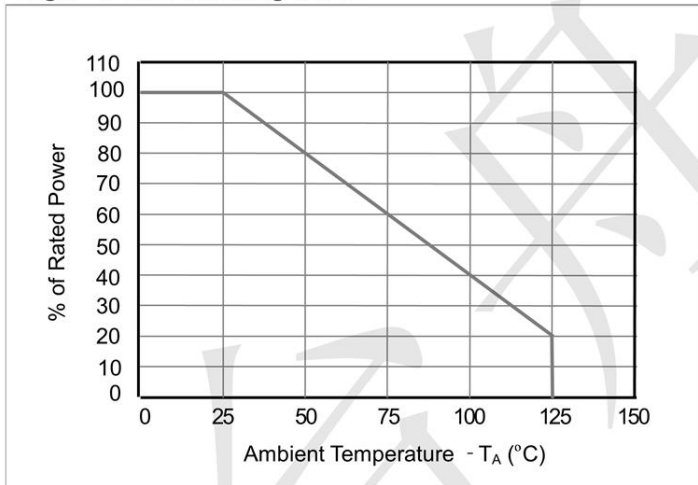
**Fig1. 8/20 $\mu$ s Pulse Waveform**



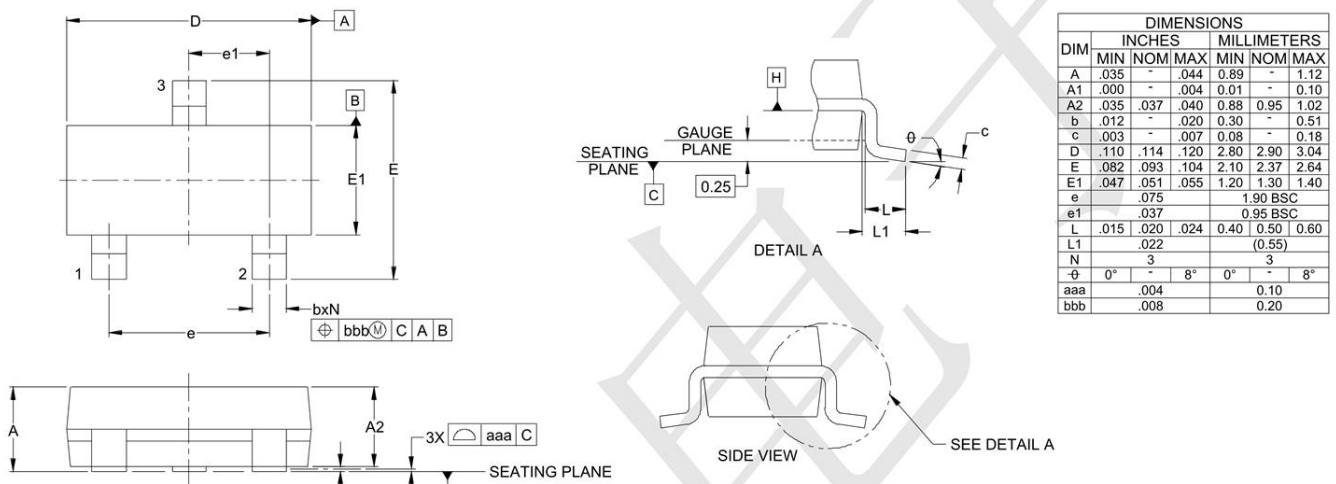
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**



## Outline Drawing - SOT23



## Land Pattern - SOT23

