

**Features**

- For Sensitive ESD Protection
- Excellent Clamping Capability
- Low Leakage
- Fast Response, Response Time Less than 1ns
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

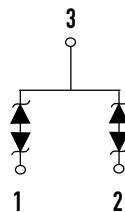
**Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C

MCC Part Number	Device Marking
SM712	B712

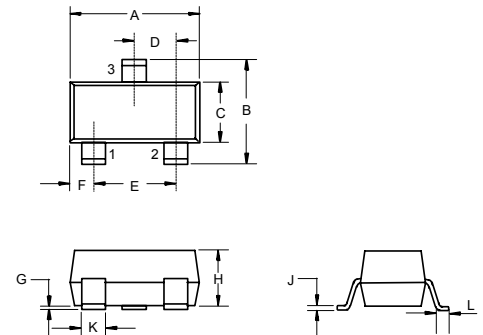
IEC61000-4-2(ESD)	Air Contact	±30KV ±30KV
JESD22-A114-B(ESD)	Human Body	±16KV
IEC61000-4-4 (EFT) @5/50ns		40A
Peak Pulse Current(8/20µs)	I <sub>PP</sub>	13A
Peak Pulse Power (8/20µs)	P <sub>PK</sub>	400W

**Internal Structure**



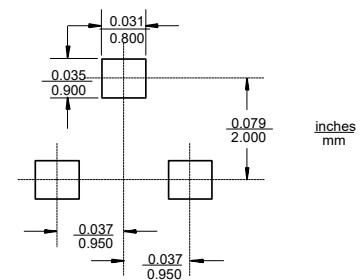
**ESD Protection Device**

**SOT-23**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

**Suggested Solder Pad Layout**



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$	Pin 1 or 2 to Pin 3			12	V
		Pin 3 to Pin 1 or 2			7	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$ , Pin 1 or 2 to Pin 3	13.3			V
		$I_T = 1\text{mA}$ , Pin 3 to Pin 1 or 2	7.5			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$ , Pin 1 or 2 to Pin 3			1	$\mu\text{A}$
		$V_{RWM} = 5\text{V}$ , Pin 3 to Pin 1 or 2			1	$\mu\text{A}$
		$V_{RWM} = 7\text{V}$ , Pin 3 to Pin 1 or 2			20	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 1 or 2 to Pin 3			21	V
		$I_{PP} = 13\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 1 or 2 to Pin 3			25	V
		$I_{PP} = 5\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 3 to Pin 1 or 2			10.5	V
		$I_{PP} = 13\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 3 to Pin 1 or 2			16	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		45		pF

## Curve Characteristics

Fig. 1 - 8 X 20µs Pulse Waveform

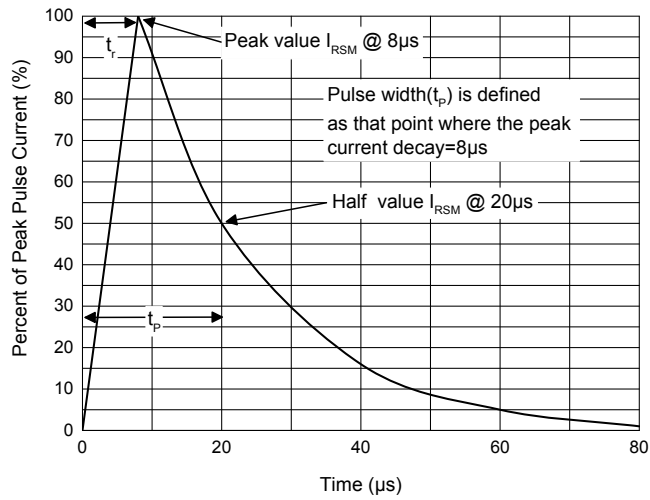


Fig. 2 - Pulse Derating Curve

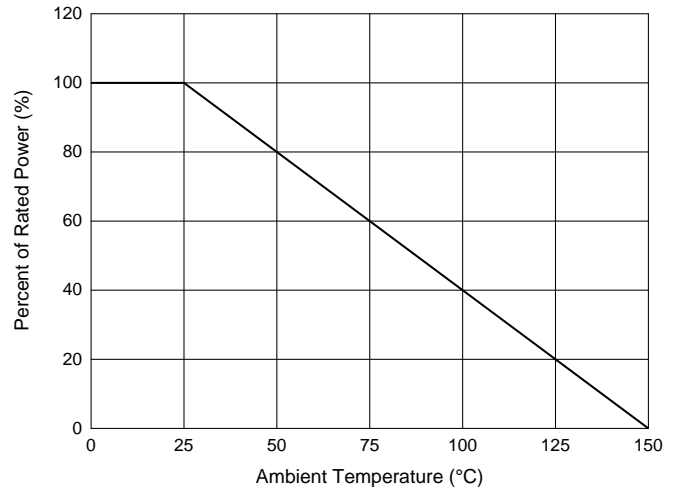
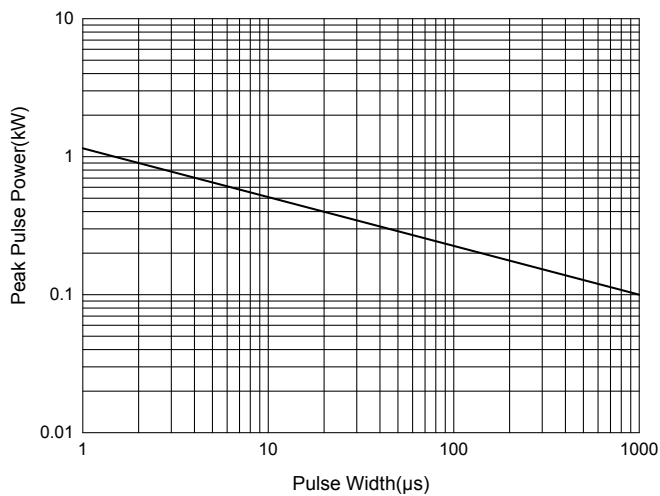


Fig. 3 - Non-Repetitive Peak Pulse Power



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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