

**Features**

- Ultra Low Leakage
- Low Clamping Voltage
- 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 +125°C
- Storage Temperature Range: -55°C to +150°C

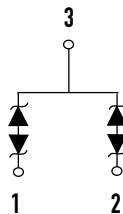


MCC Part Number	Device Marking
SM712H	H712

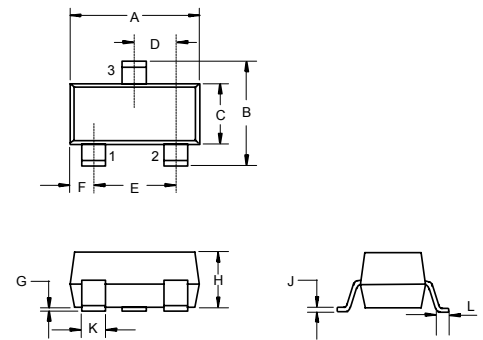
IEC61000-4-2(ESD)	Air Contact	±30KV ±30KV
IEC61000-4-4 (EFT) @5/50ns		40A
IEC61000-4-5(Lightning) <sup>Note 1</sup> Peak Pulse Current (8/20µs)	I <sub>PP</sub>	36A
Peak Pulse Power (8/20µs) Pin 1 or 2 to Pin 3	P <sub>PK</sub>	1000W
Peak Pulse Power (8/20µs) Pin 3 to Pin 1 or 2	P <sub>PK</sub>	600W

Note 1. Compatible with IEC 61000-4-5 ((Lightning): 36A, 8/20µs - Level 3(Line-Ground) & Level 2 (Line-Line).

**Internal Structure**

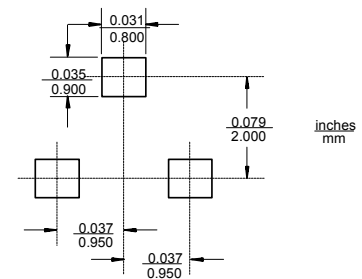


**SOT-23**



DIM	INCHES		MM		NOTE
	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	$I_R$	$V_R = V_{RWM}$			0.1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 1 or 2 to Pin 3			19	V
		$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 3 to Pin 1 or 2			10	V
		$I_{PP} = 25\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 1 or 2 to Pin 3			25	V
		$I_{PP} = 25\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 3 to Pin 1 or 2			15	V
		$I_{PP} = 36\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 1 or 2 to Pin 3			28	V
		$I_{PP} = 36\text{A}$ , $t_p = 8/20\mu\text{s}$ , Pin 3 to Pin 1 or 2			17	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$			75	pF

**Curve Characteristics**

Fig. 1 - 8 X 20µs Pulse Waveform

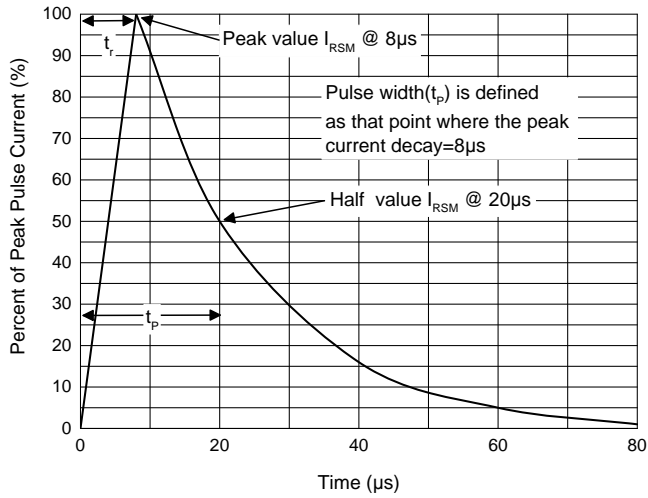


Fig. 2 - Non-Repetitive Peak Pulse Power

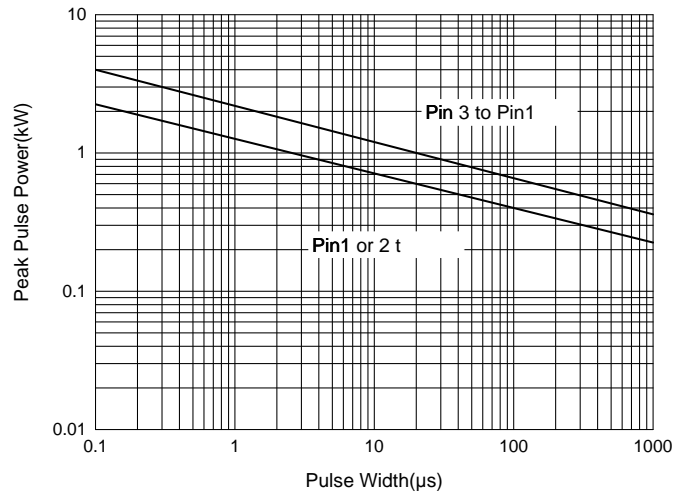


Fig. 3 - Pulse Derating Curve

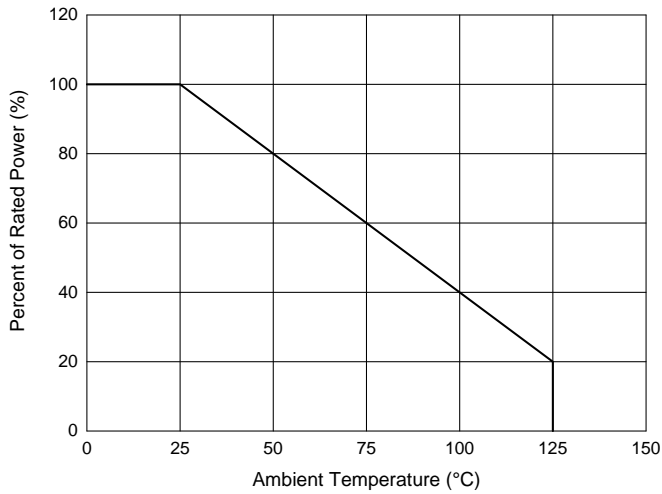


Fig. 4 - Capacitance Characteristics

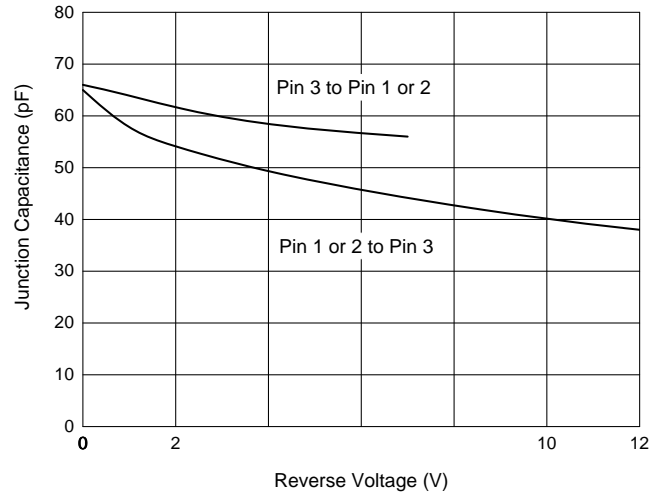
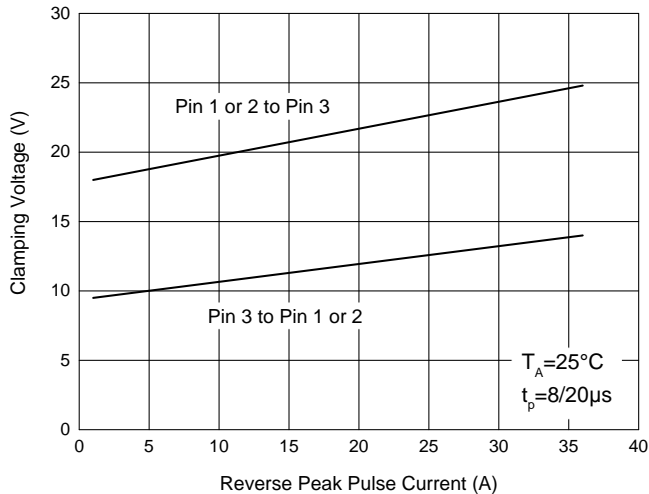


Fig. 5 - Clamping Voltage Characteristics



## 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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