

Features

- Uni-Directional ESD Protection of One Line
- Low Reverse Clamping Voltage
- Low Leakage Current
- Fast Response, Response Time Less than 1ns
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- 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
ESDH12VD1	E12

IEC61000-4-2(ESD) ⁽²⁾	Air Contact	±25KV ±25KV
ESD Voltage ⁽²⁾	Human Body Model Machine Model	±16KV ±0.4KV
Peak Pulse Current (8/20µs) ⁽³⁾	I _{PP}	120A
Peak Pulse Power (8/20µs) ⁽³⁾	P _{PK}	4200W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Note: 2. Device Stressed with Ten Non-Repetitive ESD Pulses.

Note: 3. Non-Repetitive Current Pulse 8/20µs Exponential Decay Waveform

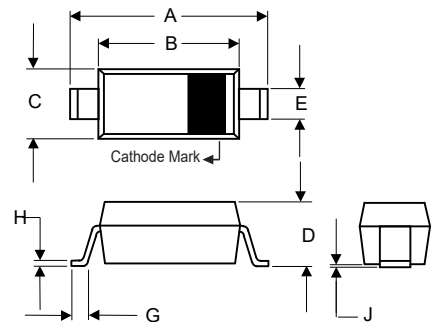
According to IEC61000-4-5.

Internal Structure



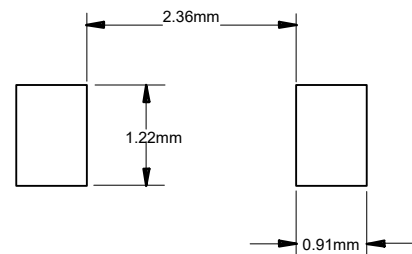
ESD Protection Device

SOD-123



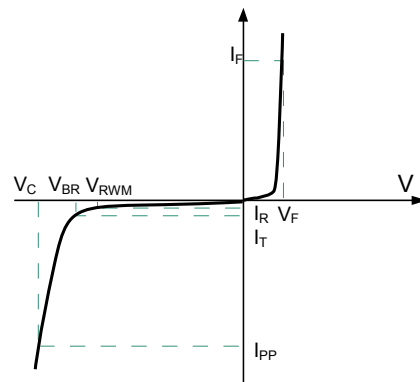
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.140	0.152	3.55	3.85	
B	0.100	0.112	2.55	2.85	
C	0.055	0.071	1.40	1.80	
D	----	0.053	----	1.35	
E	0.018	0.026	0.45	0.65	
G	0.006	----	0.15	----	
H	----	0.010	----	0.25	
J	----	0.006	----	0.15	

SUGGESTED SOLDER PAD LAYOUT



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage ⁽⁴⁾	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13		16	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			1	μA
Forward Voltage	V_F	$I_F = 10\text{mA}$			0.9	V
Clamping Voltage ⁽⁵⁾	V_C	$I_{PP} = 120\text{A}$, $t_p = 8/20\mu\text{s}$			35	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		620		pF

Note: 4. Other Voltages Available Upon Request.

Note: 5. Non-Repetitive Current Pulse 8/20 μs Exponential Decay Waveform According to IEC61000-4-5.

Curve Characteristics

Fig. 1 - 8 X 20 μ s Pulse Waveform

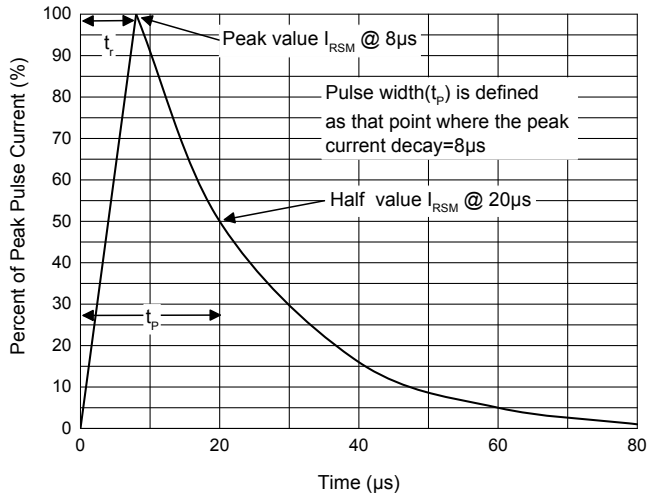


Fig. 2 - Pulse Derating Curve

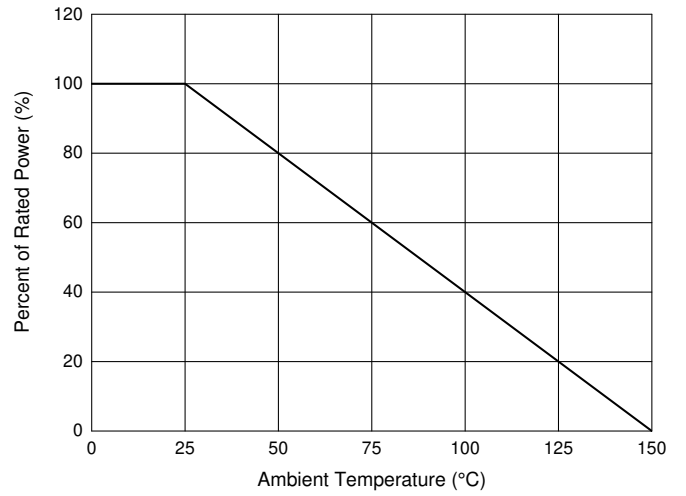


Fig. 3 - Capacitance Characteristics

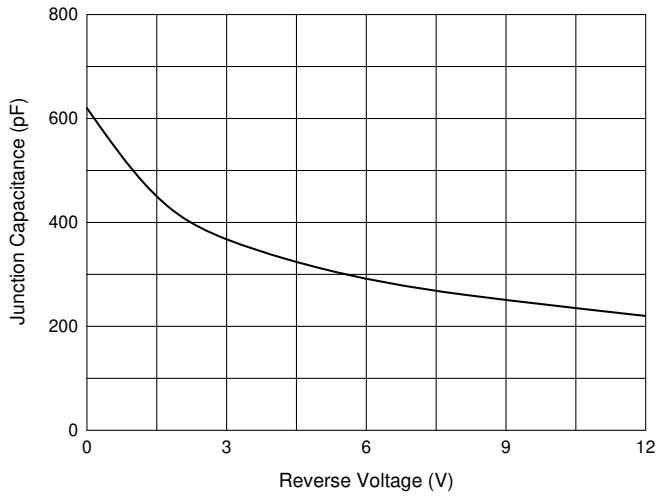
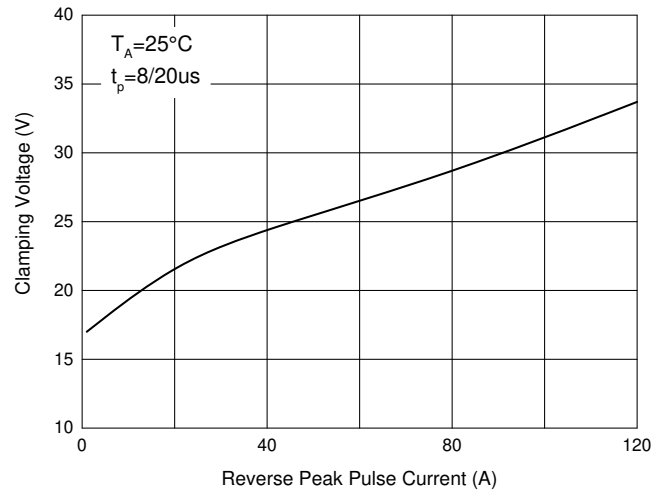


Fig. 4 - Clamping Voltage Characteristics



Ordering Information

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

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