

**Features**

- For Sensitive ESD Protection
- Excellent Clamping Capability
- Low Leakage
- For Space Saving Application
- 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
- Thermal Resistance: 625°C/W Junction to Ambient

MCC Part Number	Device Marking
ESD5V0D3	ZA
ESD12VD3	ZC

IEC61000-4-2(ESD)	Air Contact	±15KV ±8KV
ESD Voltage	Human Body Model	30KV
Peak Pulse Power (8/20us)	P <sub>PK</sub>	350W
Power Dissipation	P <sub>D</sub>	200mW

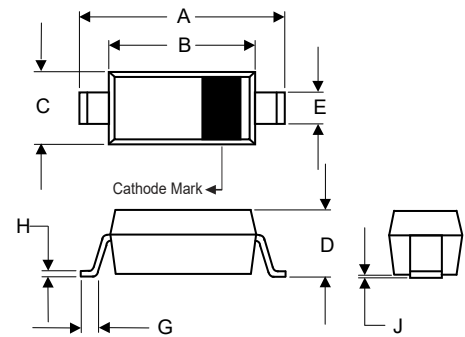
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Internal Structure**



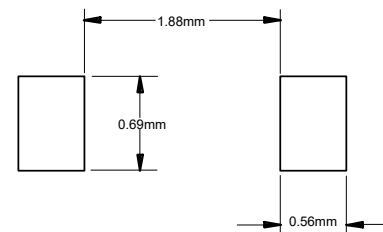
**ESD Protection Device**

**SOD-323**



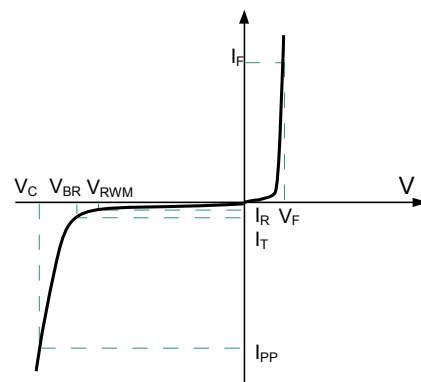
DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.090	0.107	2.30	2.70	
B	0.063	0.071	1.60	1.80	
C	0.045	0.053	1.15	1.35	
D	0.031	0.045	0.80	1.15	
E	0.010	0.016	0.25	0.40	
G	0.004	0.018	0.10	0.45	
H	0.004	0.010	0.10	0.25	
J	-----	0.006	-----	0.15	

**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)**

**ESD5V0D3**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6.2		7.3	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$			1	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F = 10\text{mA}$			0.9	V
Peak Pulse Current	$I_{PP}$	$t_p = 8/20\mu\text{s}$			15	A
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$			9.8	V
Clamping Voltage	$V_C$	$I_{PP} = 15\text{A}, t_p = 8/20\mu\text{s}$			15.5	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		350		pF

**ESD12VD3**

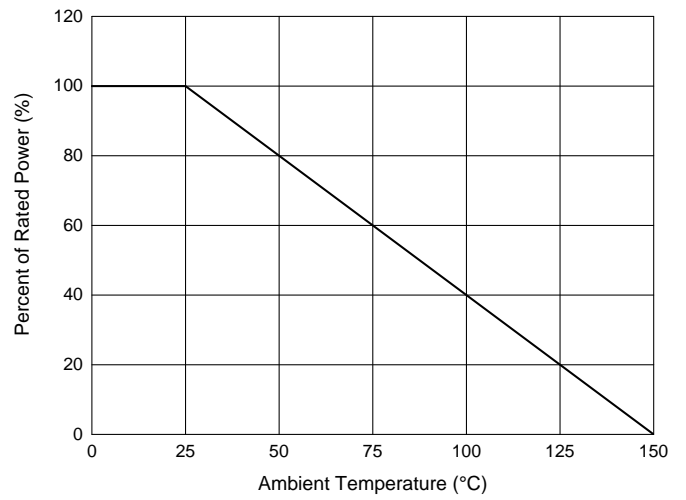
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				12	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	13.3		15.75	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$			1	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F = 10\text{mA}$			0.9	V
Peak Pulse Current	$I_{PP}$	$t_p = 8/20\mu\text{s}$			12	A
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$			22	V
Clamping Voltage	$V_C$	$I_{PP} = 12\text{A}, t_p = 8/20\mu\text{s}$			33	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		150		pF

## Curve Characteristics

Fig. 1 - 8 X 20µs Pulse Waveform



Fig. 2 - Pulse Derating Curve



## Ordering Information

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

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