



Micro Commercial Components



Micro Commercial Components  
 20736 Marilla Street Chatsworth  
 Chatsworth, CA 91311  
 Phone: (818) 701-4933  
 Fax: (818) 701-4939

# ESD3V3D9

## ESD Protection Device

### Features

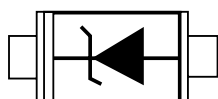
- Halogen free available upon request by adding suffix "-HF"
- For sensitive ESD protection
- Excellent clamping capability
- Low leakage
- ESD rating of class 3(>16KV)per Human Body Mode
- Fast response ,response time less than 1ns.
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings

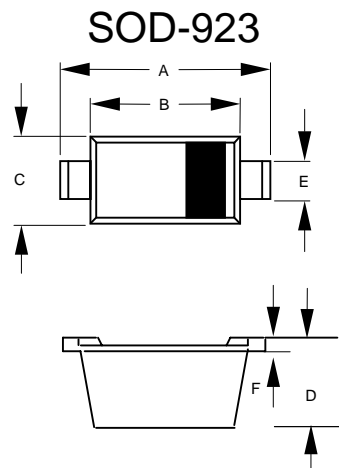
- Operating Junction & Storage Temperature: -55°C to +150°C

Parameter	Symbol	Limits	unit
IEC61000-4-2(ESD) Air Contact		±15 ±8	KV
ESD Voltage per human body mode		16	KV
Peak Pulse Power(8/20us)	Ppp	100	w

### Pin Configuration-Top View

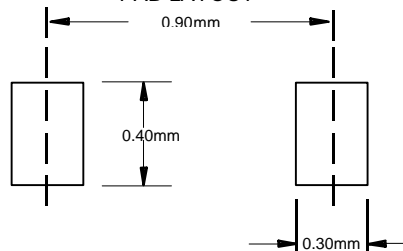


Marking: E1



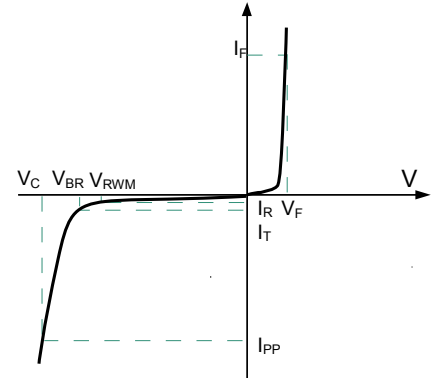
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.037	.041	0.95	1.05	
B	.030	.033	0.75	0.85	
C	.022	.026	0.55	0.65	
D	.014	.017	0.36	0.43	
E	.006	.010	0.15	0.25	
F	.003	.007	0.07	0.17	

### SUGGESTED SOLDER PAD LAYOUT



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

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
C	Capacitance @ $V_R=0$ and $f=1\text{MHz}$



**Electrical characteristics per line @25 °C ( unless otherwise specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Working Voltage	$V_{RWM}$				3.3	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	5			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3\text{V}$		0.005	1	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F = 10\text{mA}$		0.8		V
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ $t_p = 8/20\mu\text{S}$			5.8	V
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}$ $t_p = 8/20\mu\text{S}$			8.8	V
Junction Capacitance	$C_j$	$V_R = 0\text{V}$ $f = 1\text{MHz}$		35	50	pF
Junction Capacitance	$C_j$	$V_R = 2.5\text{V}$ $f = 1\text{MHz}$		20	27	pF

**Typical Characteristics**

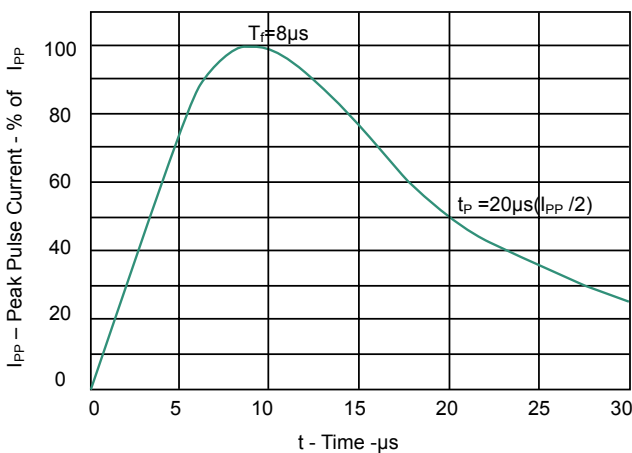


Fig 1.Pulse Waveform

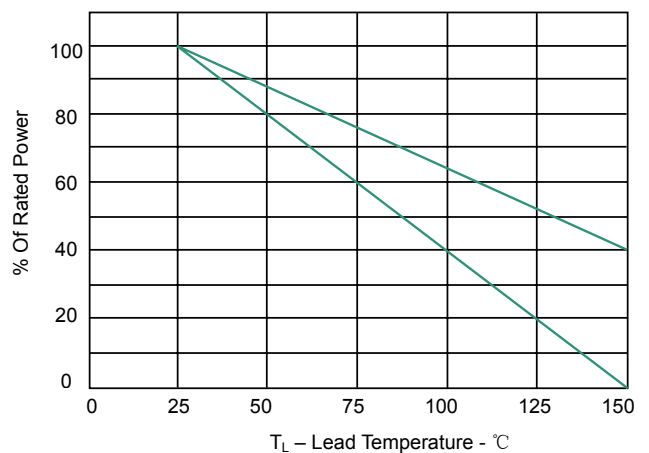


Fig 2.Power Derating Curve



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 8Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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