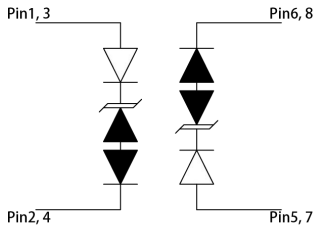
Ultra-Low Capacitance ESD/Surge Protection

Features

- Package optimized for high-speed lines
- Low capacitance: 1.5pF @ 3.0V (Typical)
- Low leakage current: 0.1uA @ V_{RWM} (Typical)
- Low operating and clamping voltage

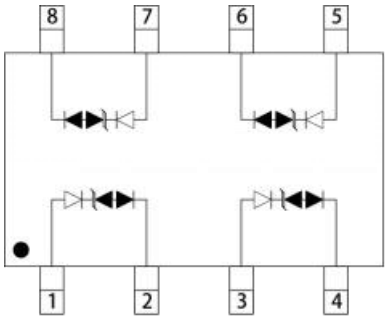
Circuit Diagram



Applications

- 10/100M Ethernet Ports
- WAN/LAN Equipment
- Desktops, Servers and Notebooks
- Cellular Phones

Pin Configuration



MSOP-8
(Top View)

Mechanical Characteristics

- MSOP-8 package
- Flammability Rating: UL 94V-0
- Marking: Part number
- Quantity Per Reel:3,000 pcs
- Reel size: 13 inch
- Marking Code: S2814VXXXX

Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	KV
T_{OPT}	Operating Temperature	-55to+125	℃
T_{STG}	Storage Temperature	-55to+150	℃
T_{LST}	Lead Soldering Temperature	260(10sec.)	℃

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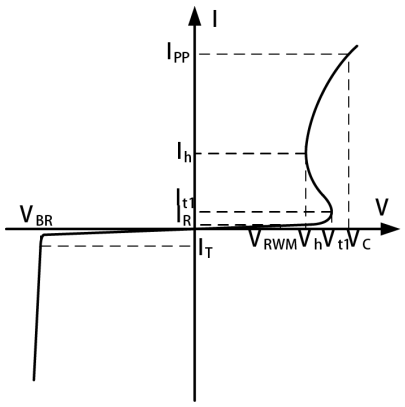
Electrical Parameters (T = 25℃)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
C_J	Parasitic Capacitance



Uni-Directional TVS

Electrical Characteristics (T_C=25℃, unless otherwise noted)

Symbol	Test Condition	Minimum	Typical	Maximum	Unit
V_{RWM}	--	--	--	2.8	V
I_R	V_{RWM}=2.8V, T=25℃	--	0.1	1.0	μA
V_{t1}	I_{t1}=100μA	3.0	3.7	4.5	V
V_h	I_h=10mA	3.0	--	4.0	V
V_C	I_{PP}=2A, tp=8/20μs (Each Line)	--	--	5.0	V
V_C	I_{PP}=10A, tp=8/20μs (Each Line)	--	--	8.0	V
V_C	I_{PP}=24A, tp=8/20μs (Each Line)	--	--	14.0	V
C_J	V_R=3.0V, f=1MHz (Each Line)	--	1.5	2.5	pF

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Characteristic Curves

Fig1. 8/20µs Pulse Waveform

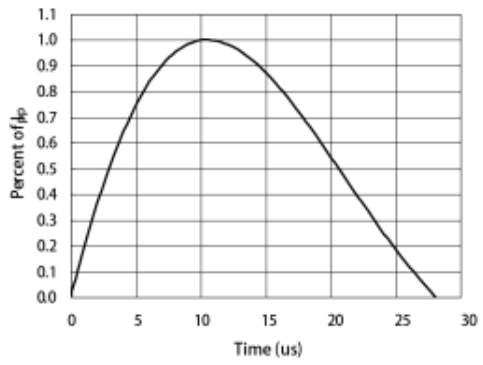


Fig2. Clamping Voltage V_C vs. Current I_{PP}

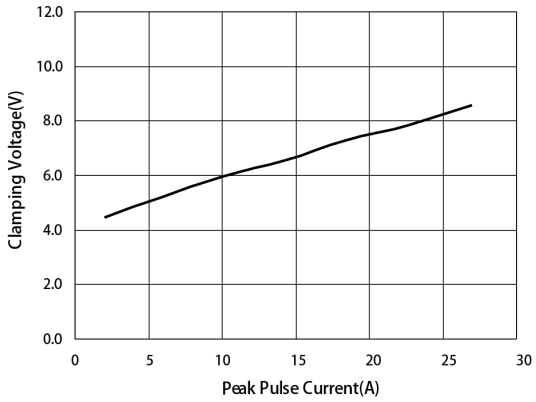


Fig3. ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

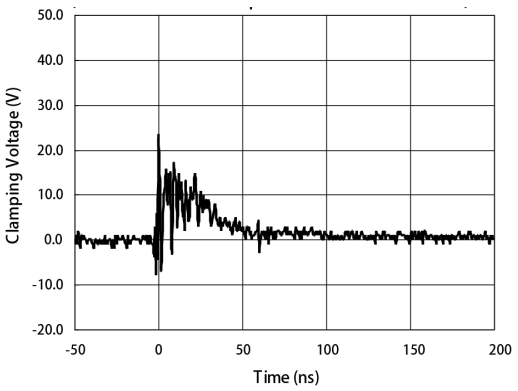
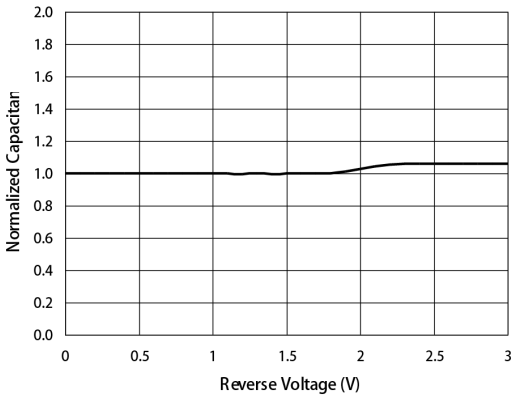


Fig4. Normalized Capacitance vs. Voltage



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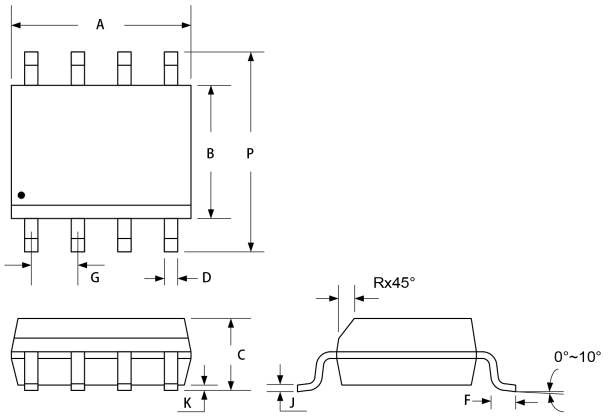
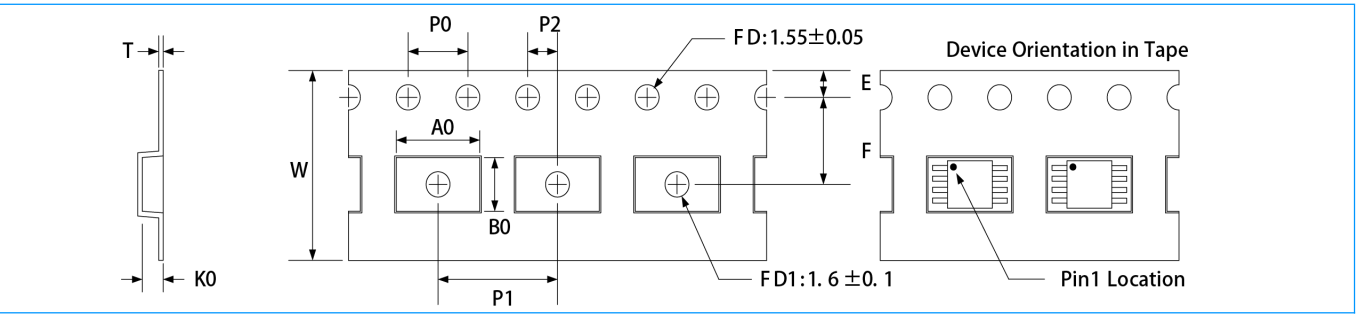
Package Outline and Dimensions

MSOP-8 Package

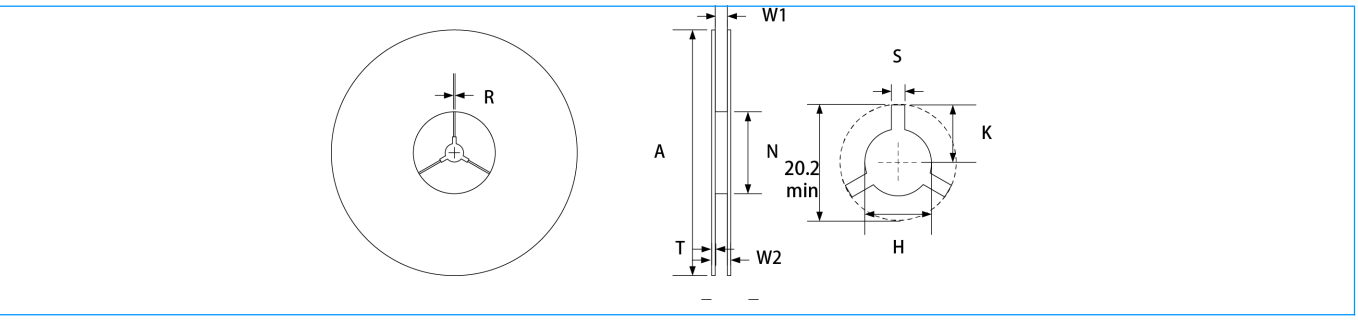


Symbol	Millimeters		Inches	
	Minimum	Maximum	Minimum	Maximum
A	4.800	5.000	0.189	0.196
B	3.800	4.000	0.150	0.157
C	1.350	1.750	0.054	0.068
D	0.350	0.490	0.014	0.019
F	0.400	1.250	0.016	0.049
G	1.27 BSC.		0.05 BSC.	
J	0.180	0.250	0.007	0.009
K	0.100	0.250	0.004	0.008
P	5.800	6.200	0.229	0.244
R	0.250	0.500	0.010	0.019

Tape and Reel Specification



Symbol	W	A1	B0	K0	E	F	P1	P0	P2	T
Dimensions (mm)	12.00±0.3	6.40±0.1	5.2±0.1	2.10±0.1	1.75±0.1	5.50±0.1	8.0±0.1	4.0±0.1	2.0±0.1	0.3±0.05



Symbol	Reel Size	M	N	W	W1	H	T	S	K	R
Dimensions (mm)	Φ330	330.0±2.0	100.0±2.0	18.4 max.	12.4+2.0/ -0.0	13.0+0.5/ -0.2	2.0±0.2	1.5 min.	10.1 min.	2.5 min.