ON Semiconductor®

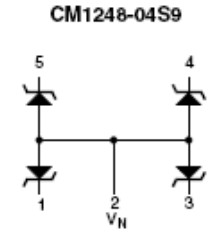
Low Capacitance Transient Voltage Suppressors / ESD Protectors

CM1248-04S9

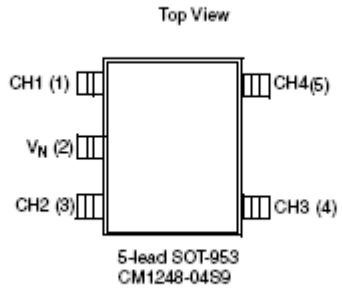
Features

- Low I/O capacitance at 10pF at 0V
- In-system ESD protection to ±15kV contact discharge, per the IEC 61000-4-2 international standard
- Compact SMT package saves board space and facilitates layout in space-critical applications
- Each I/O pin can withstand over 1000 ESD strikes

Block Diagram



PACKAGE / PINOUT DIAGRAMS



Note: This drawing is not to scale.

PIN DESCRIPTIONS

Pins	NAME	DESCRIPTION
(Refer to package / pinout diagrams)	CHx	The cathode of the respective TVS diode, which should be connected to the node requiring transient voltage protection.
(Refer to package / pinout diagrams)	V_N	The anode of the TVS diodes.

April 2010 – Rev. 2

Publication Order Number:
CM1248-04S9/D

Ordering Information

PART NUMBERING INFORMATION				
			Lead-free Finish	
Pins	Channels	Package	Ordering Part Number[1]	Part Marking
5	4	SOT-953	CM1248-04S9	L8

Note 1: Parts are shipped in Tape & Reel form unless otherwise specified.

Specifications

ABSOLUTE MAXIMUM RATINGS		
PARAMETER	RATING	UNITS
Storage Temperature Range	-65 to +150	℃

STANDARD OPERATING CONDITIONS		
PARAMETER	RATING	UNITS
Operating Temperature	-40 to +85	℃

ELECTRICAL OPERATING CHARACTERISTICS (NOTE 1)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
C_{IN}	Channel Input Capacitance	T_A = 25°C, 0VDC, 1MHz		10	13	pF
ΔC_{IN}	Differential Channel I/O to GND Capacitance	T_A = 25°C, 2.5VDC, 1MHz		0.19		pF
V_{RSO}	Reverse Stand-off Voltage	I_R=10μA, T_A = 25°C	5.5			V
		I_R=1mA, T_A = 25°C	6.1			V
I_{LEAK}	Leakage Current	V_{IN}=5.0VDC, T_A = 25°C			0.75	μA
V_{SIG}	Small Signal Clamp Voltage Positive Clamp Negative Clamp	 I = 10mA, T_A = 25°C I = -10mA, T_A = 25°C		 6.8 -0.89		 V V
V_{ESD}	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 standard Human Body Model, MIL-STD-883, Method 3015	 Notes 3 and 4; T_A = 25°C Notes 2 and 4; T_A = 25°C	 ±15 ±30			 kV kV
R_D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T_A = 25°C; Note 2		 0.57 1.36		 Ω Ω

Note 1: All parameters specified at T_A = -40°C to +85°C unless otherwise noted.
Note 2: Human Body Model per MIL-STD-883, Method 3015, $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5KΩ, V_N grounded.
Note 3: Standard IEC 61000-4-2 with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω, V_N grounded.
Note 4: These measurements performed with no external capacitor on CH_X.

Performance Information

Diode Capacitance

Typical diode capacitance with respect to positive TVS cathode voltage (reverse voltage across the diode) is given in Diode Capacitance vs. Reverse Voltage .

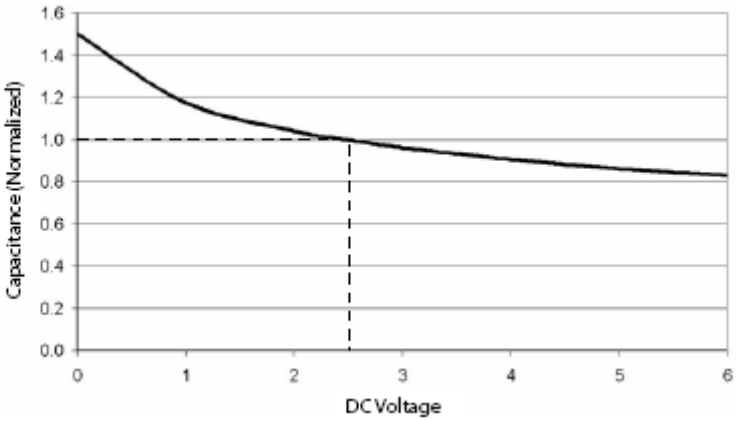
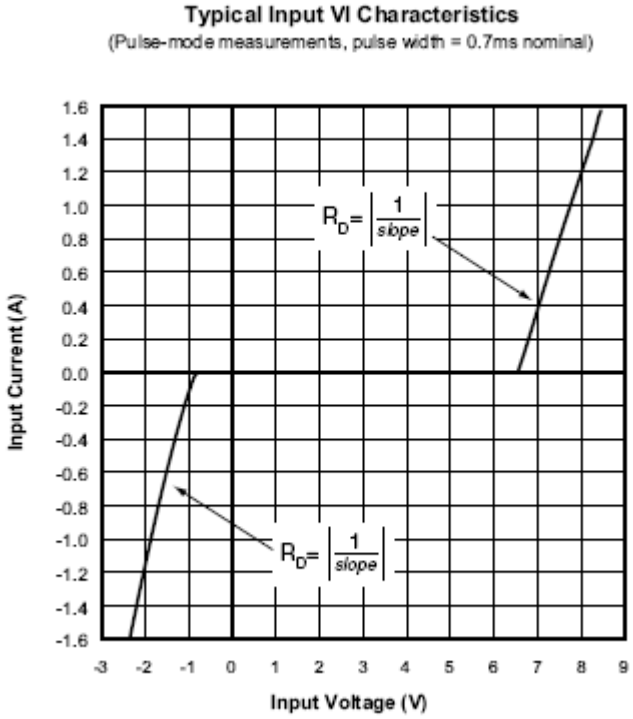


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

Measurements are made in pulsed mode with a nominal pulse width of 0.7ms.

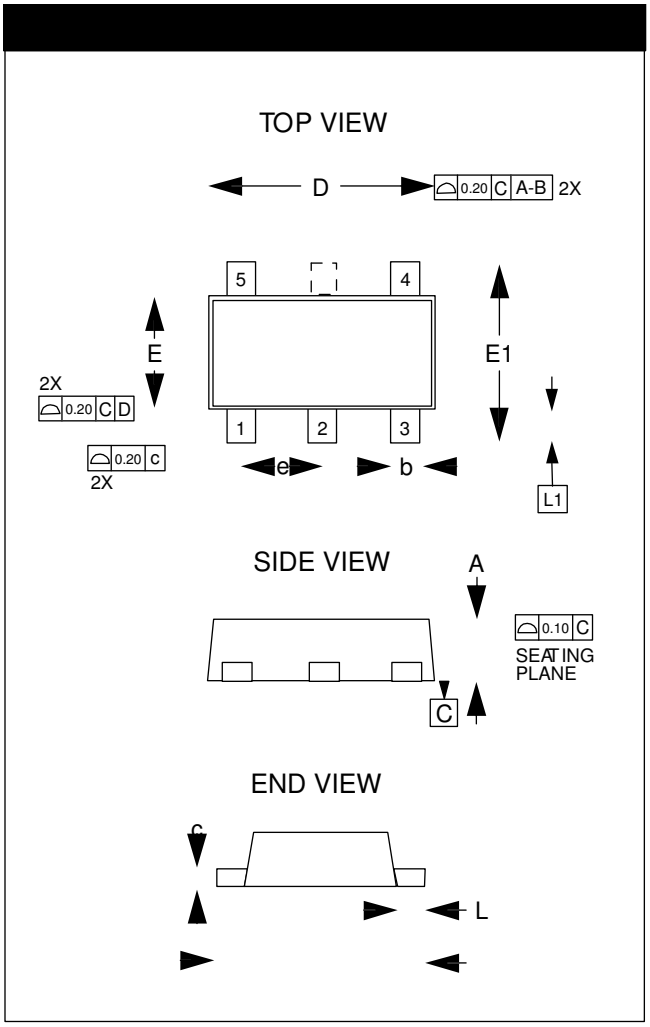


Mechanical Details

SOT-953 Mechanical Specifications, 5 pin

The 5-pin SOT-953 package dimensions are shown below.

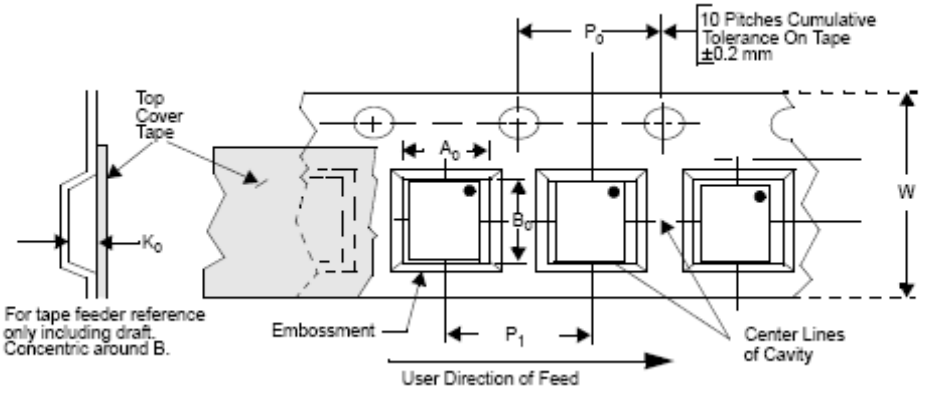
PACKAGE DIMENSIONS						
Package	SOT-953					
Leads	5					
Dim.	**Millimeters**			**Inches**		
	Min	**Nom**	**Max**	**Min**	**Nom**	**Max**
A	0.400	0.450	0.500	0.016	0.018	0.020
b	0.100	0.150	0.200	0.004	0.006	0.008
c	0.050	0.100	0.150	0.002	0.004	0.006
D	0.950	1.000	1.050	0.037	0.039	0.041
E	0.750	0.800	0.850	0.029	0.031	0.033
E1	0.950	1.000	1.050	0.037	0.039	0.041
e	0.350 BSC			0.014 BSC		
L	0.050	0.100	0.150	0.002	0.004	0.006
L1	0.125	0.150	0.175	0.005	0.006	0.007
# per tape and reel	8000 pieces					
Controlling dimension: millimeters						



Package Dimensions for SOT-953

Tape and Reel Specifications

PART NUMBER	PACKAGE SIZE (mm)	POCKET SIZE (mm) B_0 X A_0 X K_0	TAPE WIDTH W	REEL DIAMETER	QTY PER REEL	P_0	P_1
CM1248-04S9	1.00 X 0.80 X 0.45	1.16 X 1.16 X 0.63	8mm	178mm (7")	8000	4mm	4mm



PUBLICATION ORDERING INFORMATION

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