

ON Semiconductor

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CM1248-04S9

Low Capacitance Transient Voltage Suppressors / ESD Protectors

Features

- Low I/O Capacitance at 10 pF at 0 V
- In-System ESD Protection to ± 15 kV 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
- These Devices are Pb-Free and are RoHS Compliant



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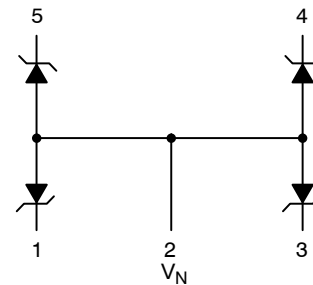
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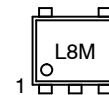
**SOT-953
S9 SUFFIX
CASE 527AE**

BLOCK DIAGRAM

CM1248-04S9



MARKING DIAGRAM



L8 = Specific Device Code
M = Month Code

ORDERING INFORMATION

Device	Package	Shipping†
CM1248-04S9	SOT-953 (Pb-Free)	8000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

CM1248-04S9

PACKAGE / PINOUT DIAGRAM

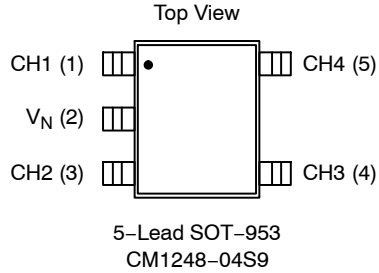


Table 1. PIN DESCRIPTIONS

Pins	Name	Description
(Refer to package / pinout diagram)	CHx	The cathode of the respective TVS diode, which should be connected to the node requiring transient voltage protection.
(Refer to package / pinout diagram)	V _N	The anode of the TVS diodes.

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	-65 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Table 3. STANDARD OPERATING CONDITIONS

Parameter	Rating	Units
Operating Temperature	-40 to +85	°C

Table 4. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C _{IN}	Channel Input Capacitance	T _A = 25°C, 0 VDC, 1 MHz		10	13	pF
ΔC _{IN}	Differential Channel I/O to GND Capacitance	T _A = 25°C, 2.5 VDC, 1 MHz		0.19		pF
V _{RSO}	Reverse Stand-off Voltage	I _R = 10 μA, T _A = 25°C	5.5			V
		I _R = 1 mA, T _A = 25°C	6.1			V
I _{LEAK}	Leakage Current	V _{IN} = 5.0 VDC, T _A = 25°C			0.75	μA
V _{SIG}	Small Signal Clamp Voltage Positive Clamp Negative Clamp	I = 10 mA, T _A = 25°C I = -10 mA, T _A = 25°C		6.8 -0.89		V
V _{ESD}	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 Standard Human Body Model, MIL-STD-883, Method 3015	T _A = 25°C (Notes 3 and 4) T _A = 25°C (Notes 2 and 4)	±15 ±30			kV
R _D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T _A = 25°C (Note 2)		0.57 1.36		Ω

1. All parameters specified at T_A = -40°C to +85°C unless otherwise noted.
2. Human Body Model per MIL-STD-883, Method 3015, C_{Discharge} = 100 pF, R_{Discharge} = 1.5 KΩ, V_N grounded.
3. Standard IEC 61000-4-2 with C_{Discharge} = 150 pF, R_{Discharge} = 330 Ω, V_N grounded.
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.

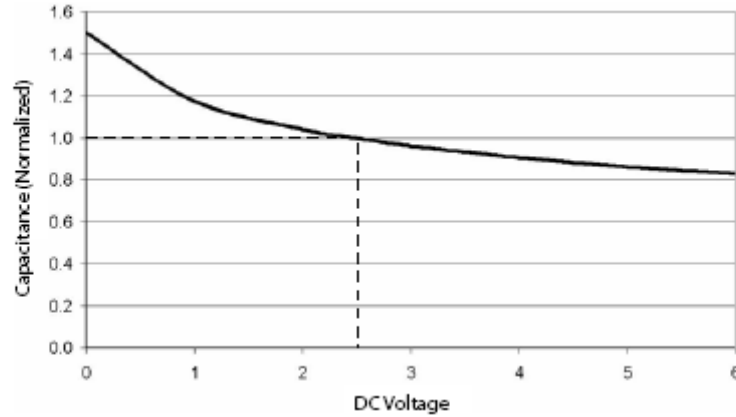


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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

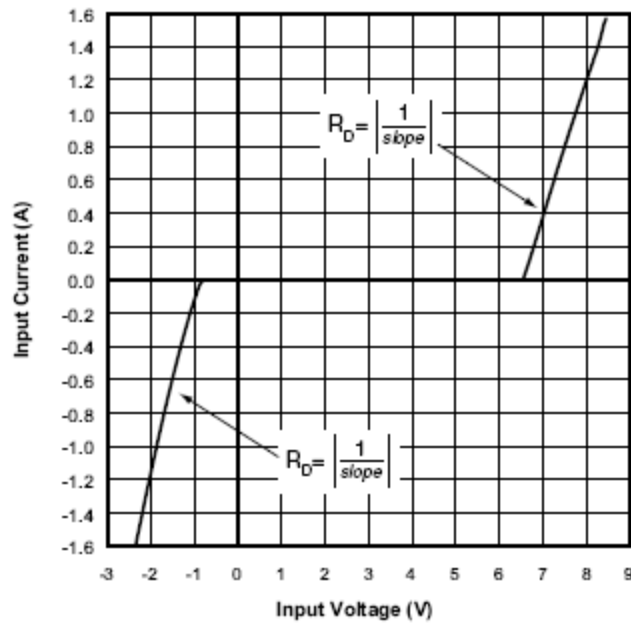
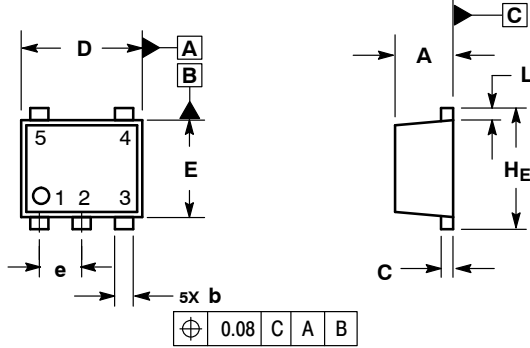


Figure 2. Typical Input VI Characteristics
(Pulse-mode Measurements, Pulse Width = 0.7 ms nominal)

CM1248-04S9

PACKAGE DIMENSIONS

SOT-953
CASE 527AE-01
ISSUE D

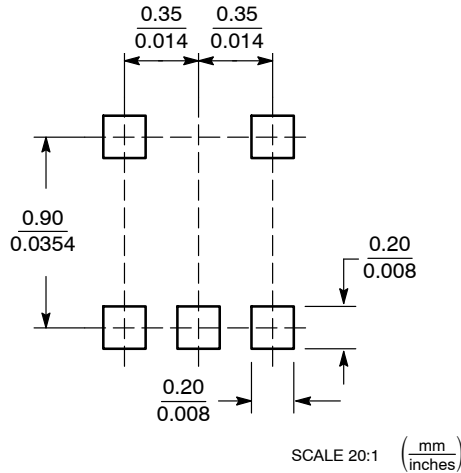


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.34	0.37	0.40			
b	0.10	0.15	0.20	0.004	0.006	0.008
C	0.07	0.12	0.17	0.003	0.005	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
E	0.75	0.80	0.85	0.03	0.032	0.034
e	0.35 BSC			0.014 BSC		
L	0.05	0.10	0.15	0.002	0.004	0.006
He	0.95	1.00	1.05	0.037	0.039	0.041

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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