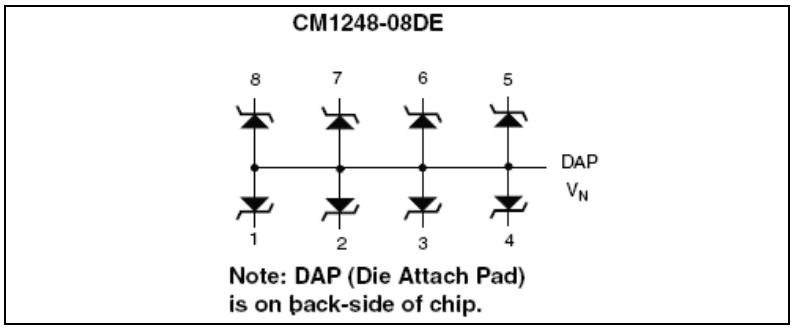
ON Semiconductor®

Low Capacitance Transient Voltage Suppressors / ESD Protectors

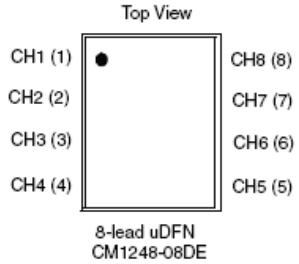
CM1248-08DE

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



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. 3

Publication Order Number:
CM1248-08DE/D

Ordering Information

PART NUMBERING INFORMATION				
			Lead-free Finish	
Pins	Channels	Package	Ordering Part Number[1]	Part Marking
8 + DAP	8	uDFN	CM1248-08DE	L48

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	°C

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

ELECTRICAL OPERATING CHARACTERISTICS (NOTE 1)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
C_{IN}	Channel Input Capacitance	T_A = 25°C, 0VDC, 1MHz		10		pF
		0VDC, 1MHz	7		15	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			0.25	μA
		V_{IN}=5.0VDC			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	 Notes 2 and 3; T_A = 25°C	 ±15			 kV
R_D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T_A=25°C, I_{PP} = 1A, t_P = 8/20ms		 0.57 1.36		 Ω Ω

Note 1: All parameters specified at T_A = -40°C to +85°C unless otherwise noted.
Note 2: Standard IEC 61000-4-2 with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω, V_N grounded.
Note 3: 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 .

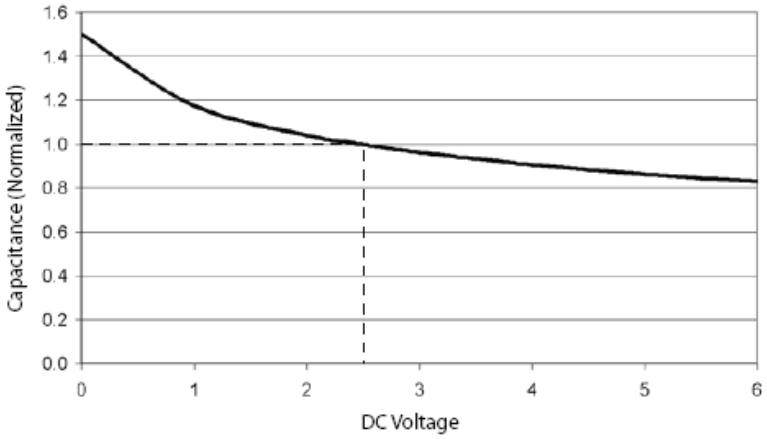
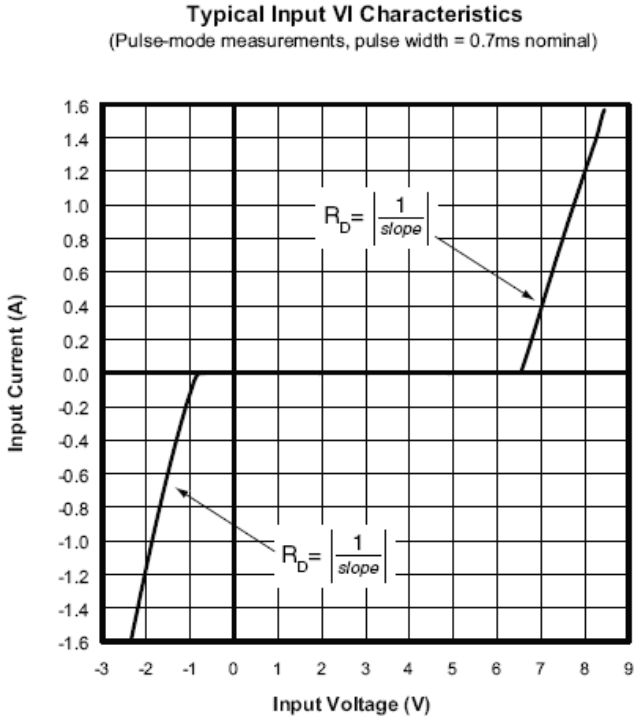


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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



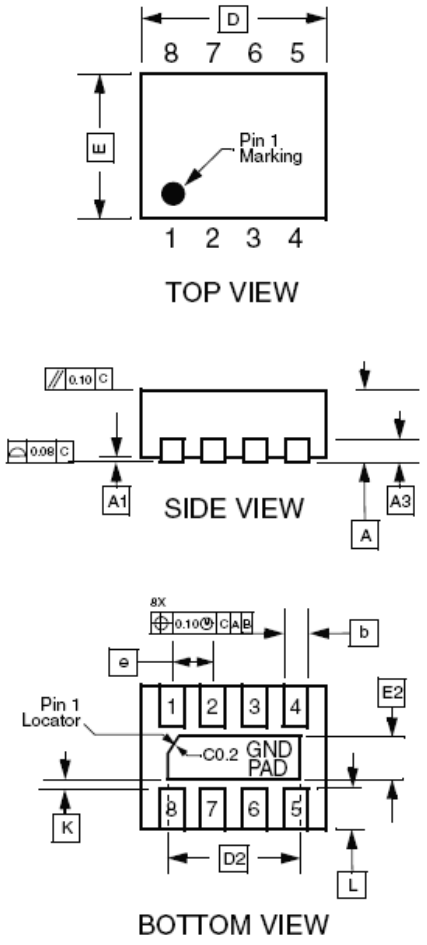
Mechanical Details

uDFN-08 Mechanical Specifications, 0.4mm

PACKAGE DIMENSIONS						
Package	uDFN					
JEDEC No.	MO-229C*					
Leads	8					
Dim.	**Millimeters**			**Inches**		
	Min	**Nom**	**Max**	**Min**	**Nom**	**Max**
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	0.127 REF			0.005 REF		
b	0.15	0.20	0.25	0.006	0.008	0.010
D	1.60	1.70	1.80	0.063	0.067	0.071
D2	1.10	1.20	1.30	0.043	0.047	0.051
E	1.25	1.35	1.45	0.049	0.053	0.057
E2	0.30	0.40	0.50	0.012	0.016	0.020
e	0.40 BSC			0.016 BSC		
K	0.20			0.008		
L	0.15	0.25	0.35	0.006	0.010	0.014
# per tape and reel	3000 pieces					
Controlling dimension: millimeters						

*This package is compliant with JEDEC standard MO-229C with the exception of the D, D2, E, E2, K and L dimensions as called out in the table above.

Mechanical Package Diagrams



Dimensions for 8-Lead, 0.4mm pitch uDFN package

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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