



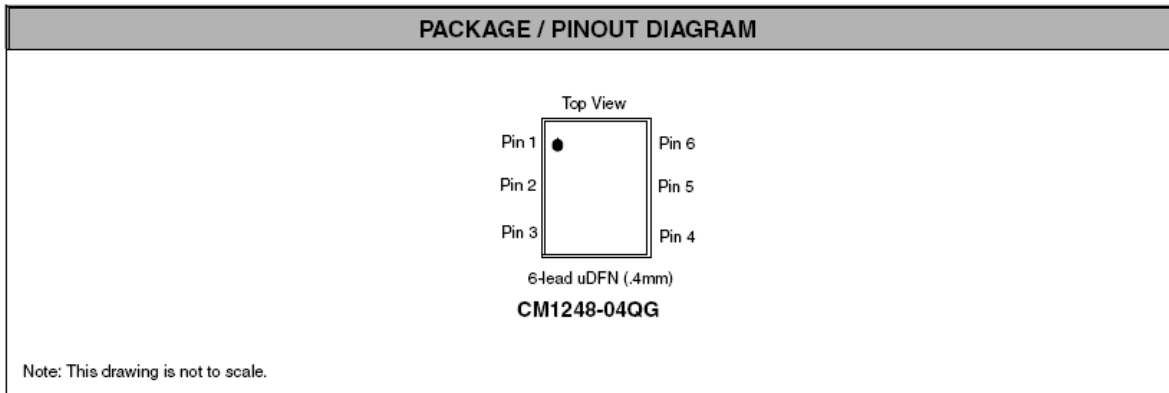
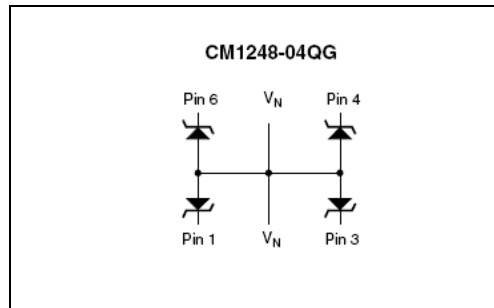
Low Capacitance Transient Voltage Suppressors / ESD Protectors

CM1248-04QG

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



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.

Ordering Information

PART NUMBERING INFORMATION				
Pins	Channels	Package	Lead-free Finish	
			Ordering Part Number ¹	Part Marking
6	4	uDFN-0.4mm	CM1248-04QG	LR

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

CM1248-04QG

ELECTRICAL OPERATING CHARACTERISTICS (NOTE 1)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
C _{IN}	Channel Input Capacitance	T _A = 25 °C, 0VDC, 1MHz; Note 2		10		pF
		0VDC, 1MHz; Note1	7		15	pF
ΔC _{IN}	Differential Channel I/O to GND Capacitance	T _A = 25 °C, 2.5VDC, 1MHz; Note 2		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; Note 1			0.75	μA
V _{SIG}	Small Signal Clamp Voltage Positive Clamp Negative Clamp	I = 10mA, T _A = 25 °C		6.8		V
		I = -10mA, T _A = 25 °C		-0.89		V
V _{ESD}	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 standard	Notes 2, 4 & 5; T _A = 25 °C	±15			kV
R _D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T _A = 25 °C; Notes 2 & 3		0.57		Ω
				1.36		Ω

Note 1: All parameters specified at T_A = -40 °C to +85 °C unless otherwise noted.

Note 2: These parameters guaranteed by design and characterization.

Note 3: Human Body Model per MIL-STD-883, Method 3015, C_{Discharge} = 100pF, R_{Discharge} = 1.5KΩ, V_N grounded.

Note 4: Standard IEC 61000-4-2 with C_{Discharge} = 150pF, R_{Discharge} = 330Ω, V_N grounded.

Note 5: These measurements performed with no external capacitor on Pin_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 .

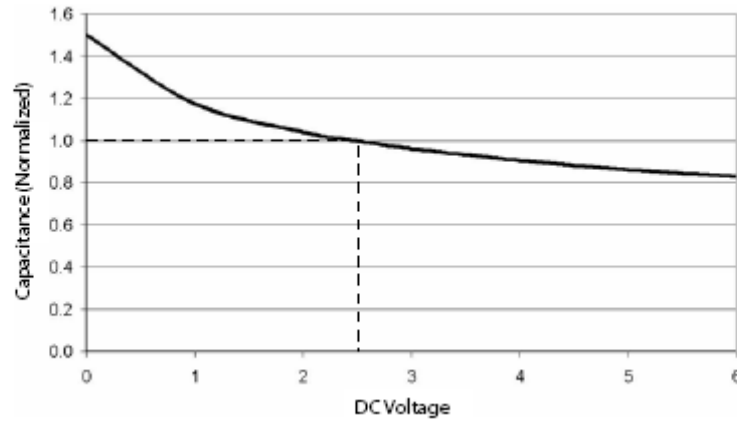
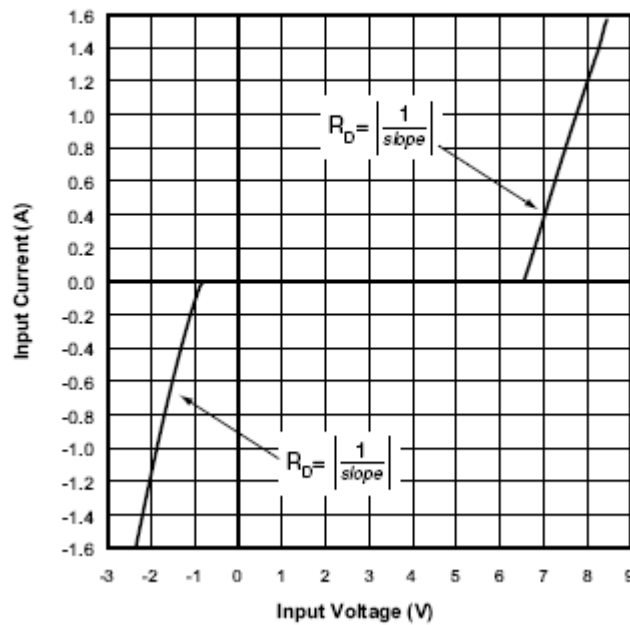


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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

Typical Input VI Characteristics
(Pulse-mode measurements, pulse width = 0.7ms nominal)



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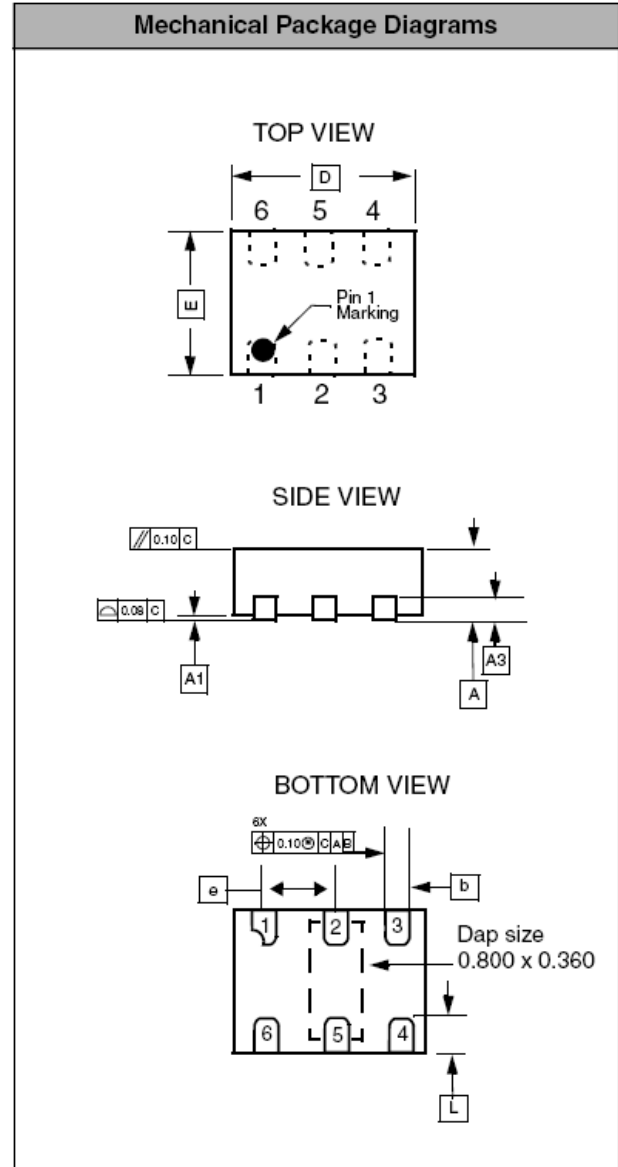
Mechanical Details

uDFN-06 Mechanical Specifications, 0.4mm


The 6-lead, 0.4mm pitch uDFN package dimensions are presented below.

PACKAGE DIMENSIONS						
Package	uDFN					
JEDEC No.	MO-229C*					
Leads	6					
Dim.	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.450	0.500	0.550	0.018	0.020	0.022
A1	0.000	0.020	0.050	0.000	0.001	0.002
A3	0.100	0.150	0.200	0.004	0.006	0.008
b	0.150	0.200	0.250	0.006	0.008	0.010
D	1.150	1.250	1.350	0.045	0.049	0.053
E	0.900	1.000	1.100	0.035	0.039	0.043
e	0.350	0.400	0.450	0.014	0.016	0.018
L	0.200	0.300	0.400	0.008	0.012	0.016
# per tape and reel	3000 pieces					
Controlling dimension: millimeters						

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



Dimensions for 6-Lead, 0.4mm pitch uDFN package

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