



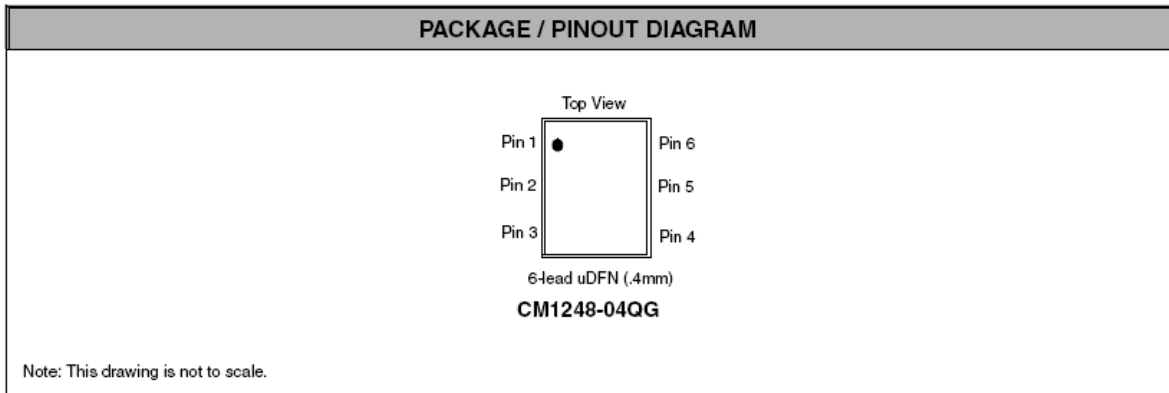
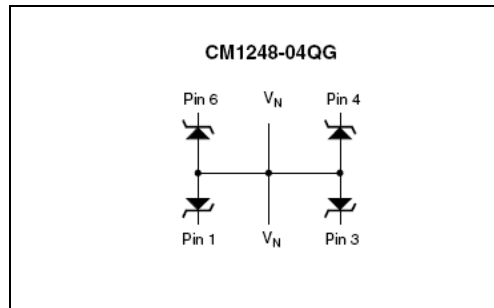
Low Capacitance Transient Voltage Suppressors / ESD Protectors

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 .

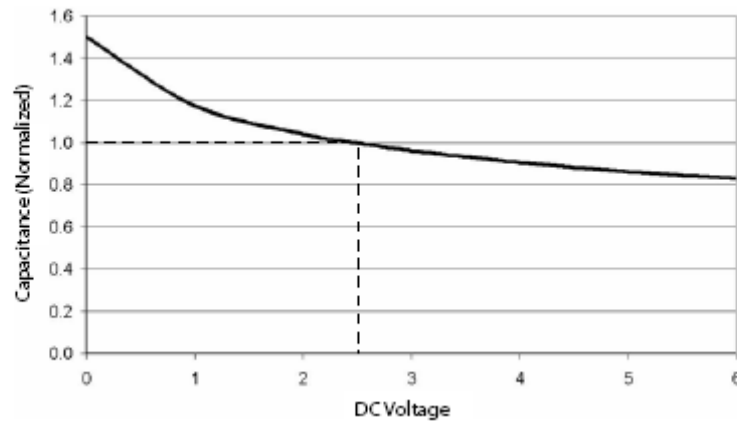
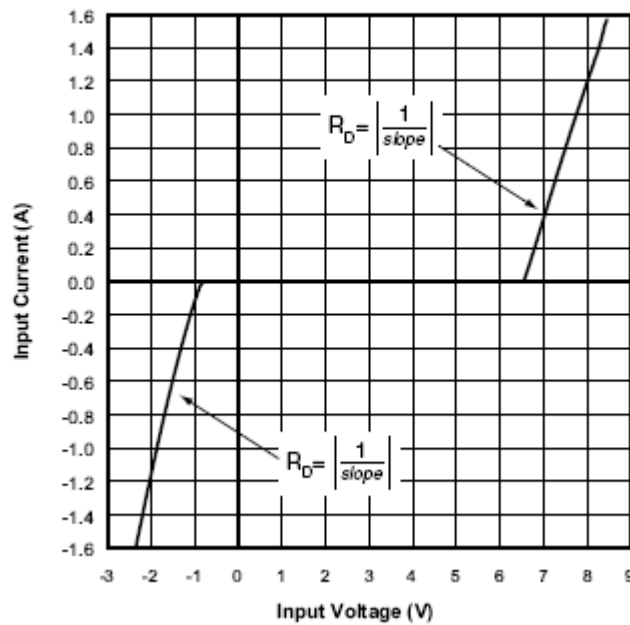


Figure 1. Diode Capacitance vs. Reverse Voltage

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)



CM1248-04QG

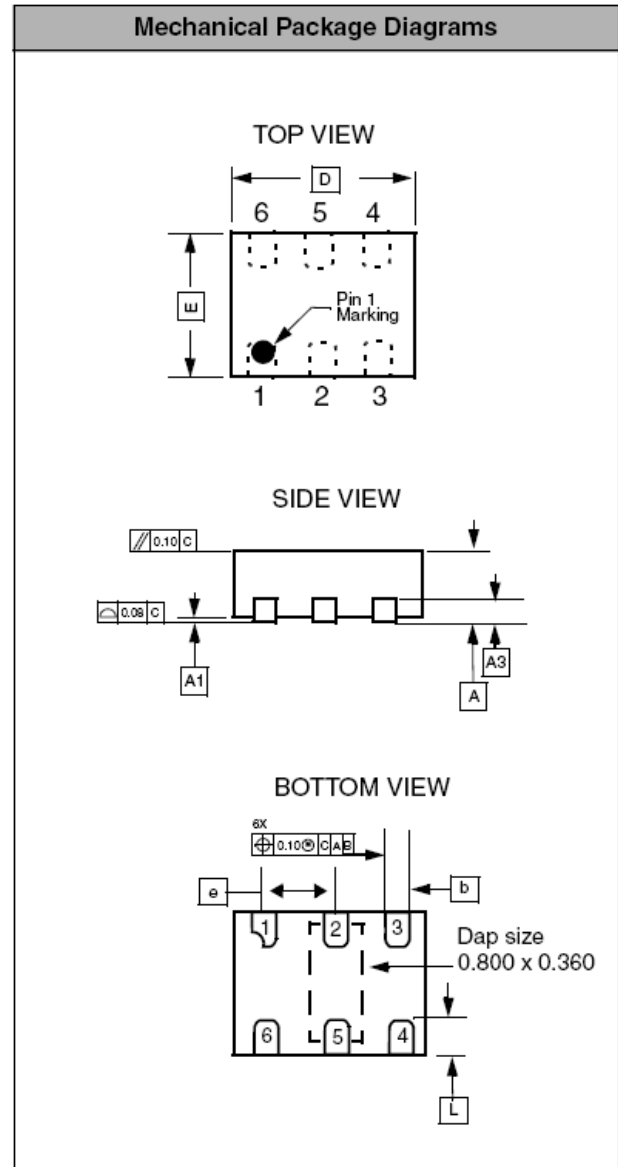
Mechanical Details

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

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855
Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative