CM1248-04QG

EDS Protection Diode

Low Capacitance

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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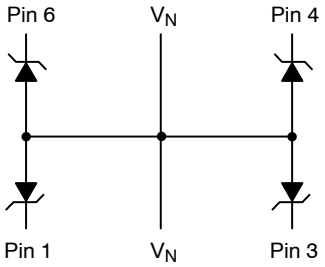
UDFN−6
QG SUFFIX
CASE 517BM

BLOCK DIAGRAM

CM1248−04QG



MARKING DIAGRAM

LR

LR = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping†
CM1248−04QG	uDFN−0.4 mm (Pb−Free)	3000/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.

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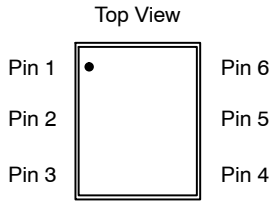
PACKAGE / PINOUT DIAGRAMS



6−Lead uDFN (.4 mm)
CM1248−04QG

Table 1. PIN DESCRIPTIONS

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

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

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

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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; Note 2		10		pF
		0 VDC, 1 MHz; Note 1	7		15	pF
ΔC_{IN}	Differential Channel I/O to GND Capacitance	T_A = 25°C, 2.5 VDC, 1 MHz; Note 2		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			0.25	μA
		V_{IN} = 5.0 VDC, Note 1			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	T_A = 25°C (Notes 2, 4 and 5)	 ±15			kV
R_D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T_A = 25°C (Notes 2 and 3)		 0.57 1.36		Ω

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

PERFORMANCE INFORMATION

Diode Capacitance

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

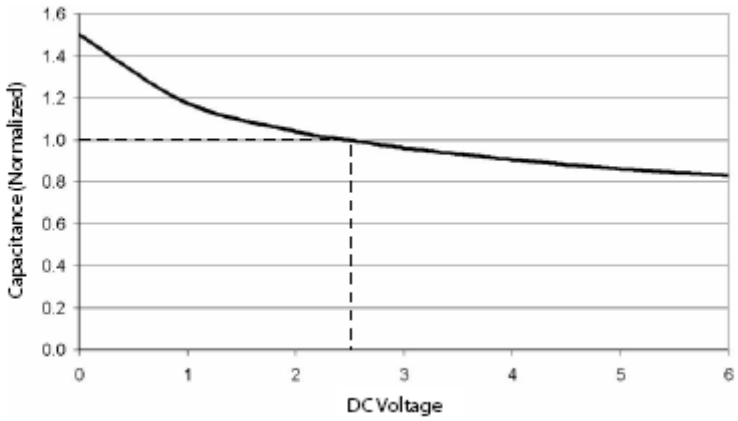


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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

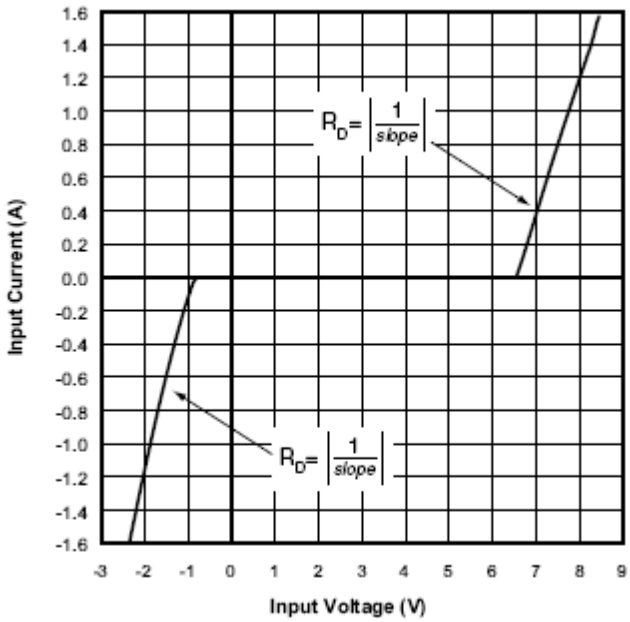
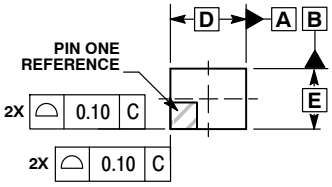


Figure 2. Typical Input VI Characteristics
(Pulse−mode Measurements, Pulse Width = 0.7 ms nominal)

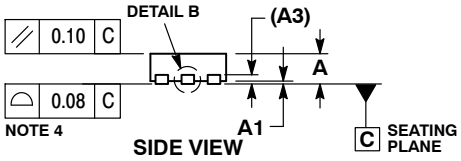
UDFN6, 1.25x1, 0.4P
CASE 517BM
ISSUE O

DATE 20 JUL 2010

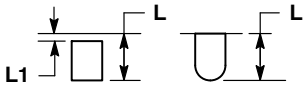
SCALE 4:1



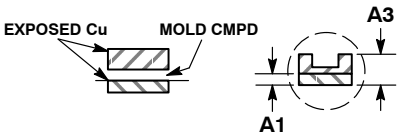
TOP VIEW



SIDE VIEW



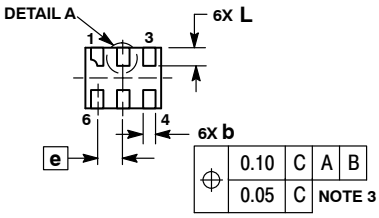
DETAIL A
ALTERNATE TERMINAL CONSTRUCTIONS



DETAIL B
ALTERNATE CONSTRUCTIONS

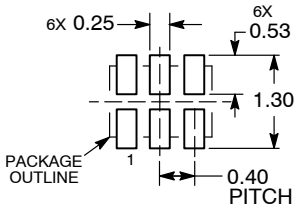
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 MM FROM TERMINAL TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3	0.15 REF	
b	0.15	0.25
D	1.25 BSC	
E	1.00 BSC	
e	0.40 BSC	
L	0.20	0.40
L1	–––	0.15



BOTTOM VIEW

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

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

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