

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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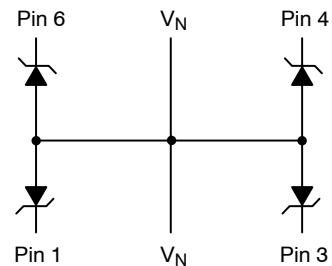
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UDFN-6
QG SUFFIX
CASE 517BM

BLOCK DIAGRAM

CM1248-04QG



MARKING DIAGRAM



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.

CM1248-04QG

PACKAGE / PINOUT DIAGRAMS

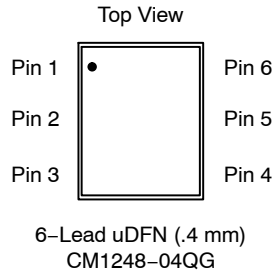


Table 1. PIN DESCRIPTIONS

| 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 |

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

CM1248-04QG

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.

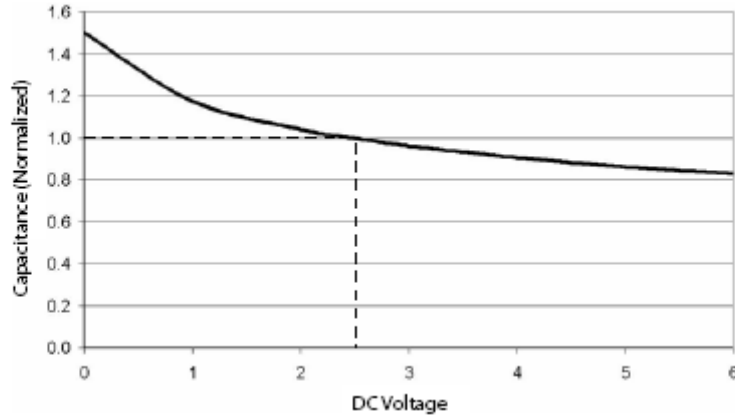


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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

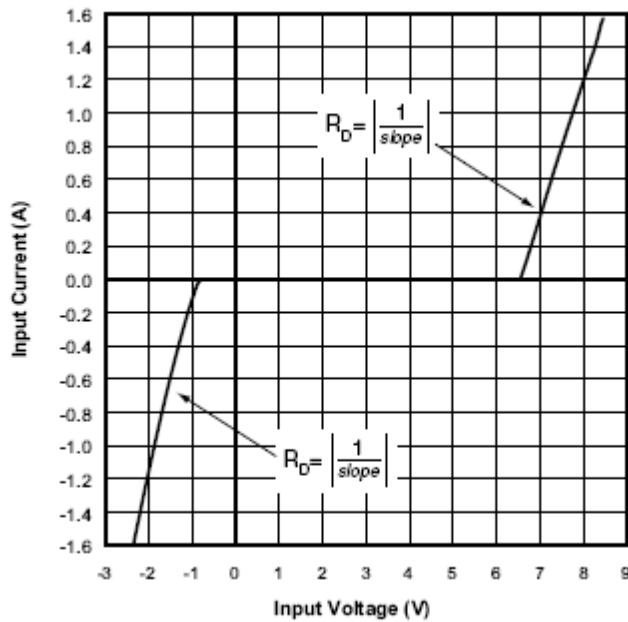


Figure 2. Typical Input VI Characteristics
(Pulse-mode Measurements, Pulse Width = 0.7 ms nominal)

MECHANICAL CASE OUTLINE

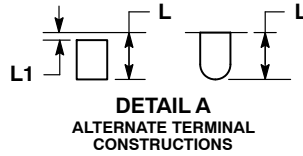
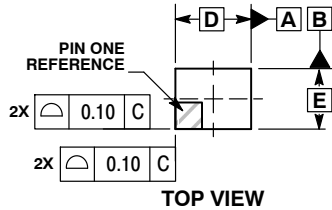
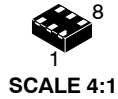
PACKAGE DIMENSIONS

ON Semiconductor®



UDFN6, 1.25x1, 0.4P
CASE 517BM-01
ISSUE O

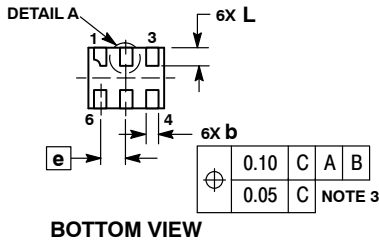
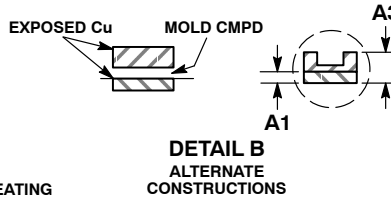
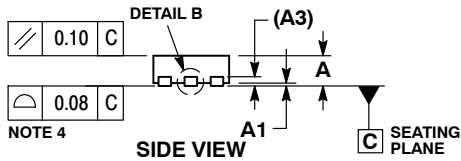
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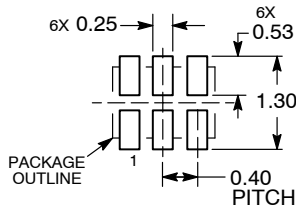
NOTES:

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.

| DIM | MILLIMETERS | |
|-----|-------------|------|
| | 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 |



RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

*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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|-------------------------|----------------------------|--|
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| DESCRIPTION: | UDFN6, 1.25X1, 0.4P | PAGE 1 OF 1 |

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