

CM1250-04QF

Low Capacitance Transient Voltage Suppressors / ESD Protectors

Features

- Low I/O Capacitance at 6 pF at 0 V
- In-System ESD Protection to ± 8 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



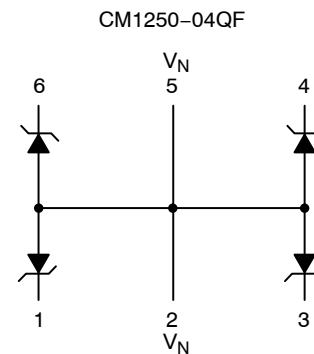
ON Semiconductor®

<http://onsemi.com>



UDFN-6
QF SUFFIX
CASE 517BN

BLOCK DIAGRAM



MARKING DIAGRAM



LS = CM1250-04QF

ORDERING INFORMATION

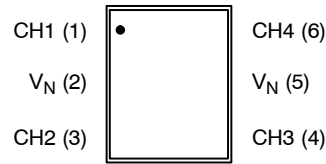
Device	Package	Shipping†
CM1250-04QF	UDFN6 (Pb-Free)	3000/Tape & Reel

†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.

CM1250-04QF

PACKAGE / PINOUT DIAGRAM

Top View



6-Lead uDFN (0.5mm)

Table 1. PIN DESCRIPTIONS

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

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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		6	7.5	pF
ΔC _{IN}	Differential Channel I/O to GND Capacitance	T _A = 25°C, 2.5 VDC, 1 MHz		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			0.75	μA
V _{SIG}	Small Signal Clamp Voltage Positive Clamp Negative Clamp	I = 10 mA, T _A = 25°C		6.8		V
		I = -10 mA, T _A = 25°C		-0.89		V
V _{ESD}	ESD Withstand Voltage Contact Discharge per IEC 61000-4-2 standard Human Body Model, MIL-STD-883, Method 3015	T _A = 25°C; (Notes 3 and 4)	±8			kV
		T _A = 25°C; (Notes 2 and 4)	±30			kV
R _D	Diode Dynamic Resistance Forward Conduction Reverse Conduction	T _A = 25°C (Note 2)		0.66		Ω
				1.88		Ω

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

CM1250-04QF

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.

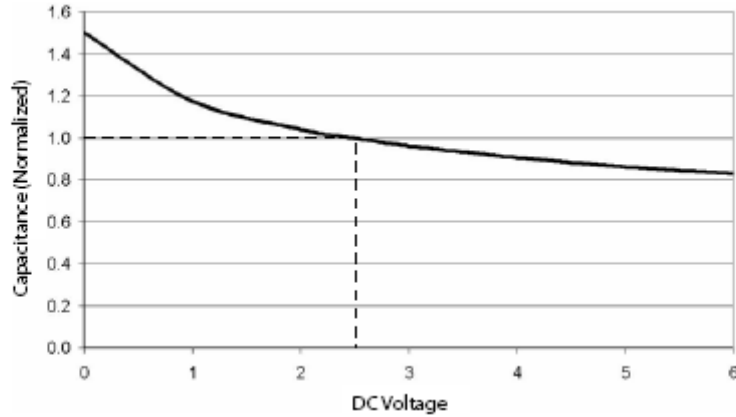


Figure 1. Diode Capacitance vs. Reverse Voltage

Typical High Current Diode Characteristics

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

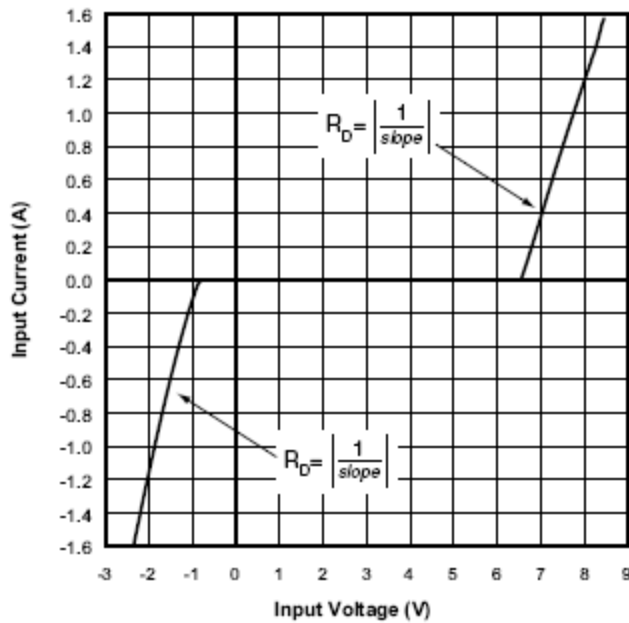
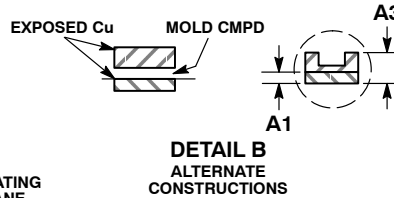
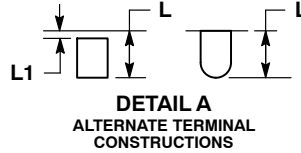
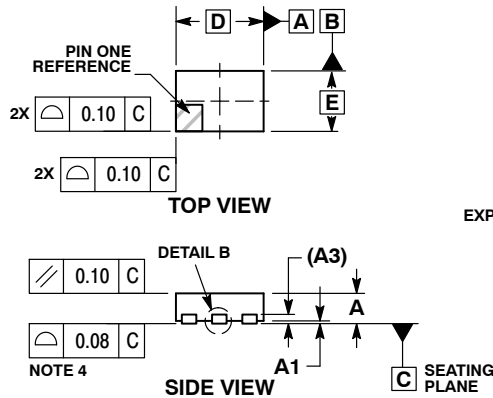


Figure 2. Typical Input VI Characteristics
(Pulse-mode Measurements, Pulse Width = 0.7 ms nominal)

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PACKAGE DIMENSIONS

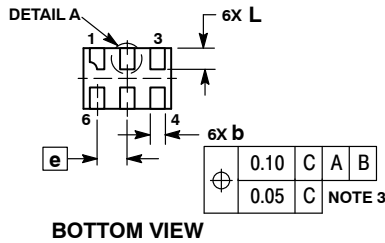
UDFN6, 1.45x1, 0.5P
CASE 517BN-01
ISSUE O



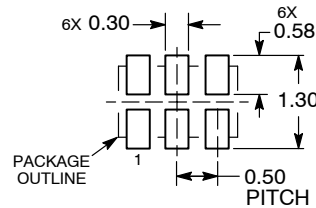
NOTES:

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	0.18	0.30
D	1.45	BSC
e	1.00	BSC
L	0.25	0.45
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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