CM1244

4-Channel ESD Array in CSP

Features

- Four Channels of ESD Protection
- ±15 kV ESD Protection on Each Channel (IEC 61000−4−2 Level 4, Contact Discharge)
- ±30 kV ESD Protection on Each Channel (HBM)
- Chip Scale Package Features Extremely Low Lead Inductance for Optimum ESD Protection
- 5−bump, 0.760 mm x 1.053 mm Footprint, 0.4 mm Pitch, Chip Scale Package (CSP)
- *OptiGuard*™ Coating for Improved Reliability at Assembly
- These Devices are Pb−Free and are RoHS Compliant

Applications

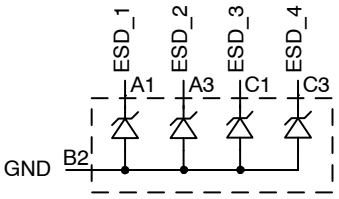
- ESD Protection for Sensitive Electronic Equipment
- I/O Port and Keypad and Button Circuitry Protection for Portable Devices
- Can be Used for EMI Filtering when Combined with External Series Resistance
- Wireless Handsets
- Handheld PCs/PDAs
- MP3 Players
- Digital Camcorders
- Notebooks
- Desktop PCs

ON Semiconductor®

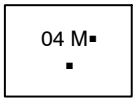
http://onsemi.com

WLCSP5
CP SUFFIX
CASE 567AX

BLOCK DIAGRAM



MARKING DIAGRAM



04 = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
CM1244−04CP	CSP−5 (Pb−Free)	3500/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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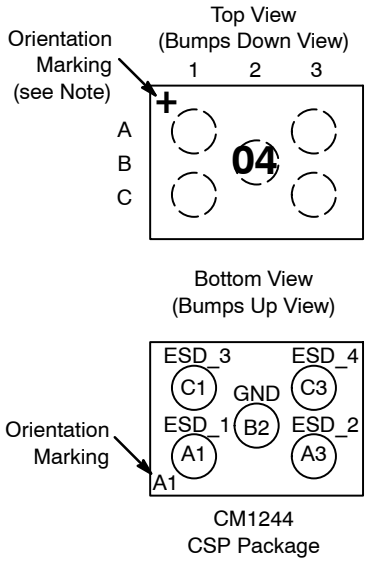
Table 1. PIN DESCRIPTIONS

5−bump CSP Package		
Pin	**Name**	**Description**
A1	ESD_1	ESD Channel 1
A3	ESD_2	ESD Channel 2
B2	GND	Device Ground
C1	ESD_3	ESD Channel 3
C3	ESD_4	ESD Channel 4

PACKAGE / PINOUT DIAGRAMS



CM1244
CSP Package

Note: The "+" orientation marking indicates that the package is lead−free.

SPECIFICATIONS

Table 2. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Storage Temperature Range	−65 to +150	°C
DC Package Power Rating	200	mW

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 Range	−40 to +85	°C

Table 4. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{DIODE}	Diode Reverse Breakdown Voltage	I_{DIODE} = 10 μA	5.5			V
I_{LEAK}	Diode Leakage Current	T_A = 25°C; V_{IN} = 3.3 V			100	nA
V_{SIG}	Signal Voltage Positive Clamp Negative Clamp	I_{DIODE} = 10 mA	 5.6 −1.5	 6.8 −0.8	 9.0 −0.4	V
V_{ESD}	In−system ESD Withstand Voltage a) Human Body Model, MIL−STD−883, Method 3015 b) Contact Discharge per IEC 61000−4−2	(Note 2)	 ±30 ±15			kV
V_{CL}	Clamping Voltage during ESD Discharge MIL−STD−883 (Method 3015), 8 kV Positive Transients Negative Transients	(Note 2)		 +15 −8		V
C_{DIODE}	Diode Capacitance	At 2.5 VDC Reverse Bias, 1 MHz, 30 mVAC	22	27	32	pF

1. T_A = −40°C to +85°C unless otherwise specified.
2. ESD applied to input and output pins with respect to GND, one at a time.

APPLICATION INFORMATION

Refer to Application Note “The Chip Scale Package,” for a detailed description of Chip Scale Packages offered by ON Semiconductor.

PERFORMANCE INFORMATION

Diode Characteristics (nominal conditions unless specified otherwise)

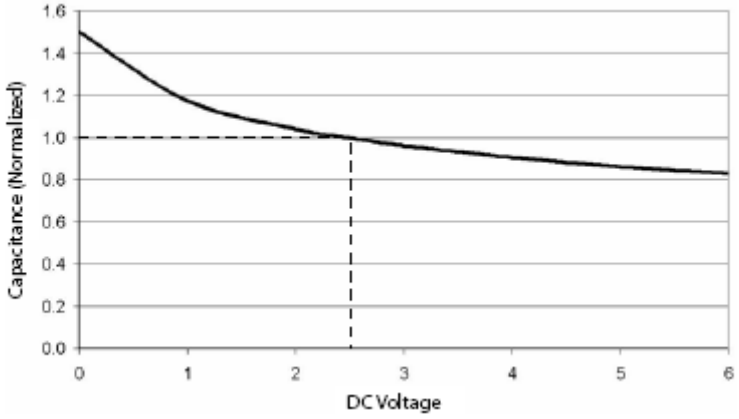


Figure 1. Typical Diode Capacitance vs. Input Voltage (normalized to 2.5 VDC)

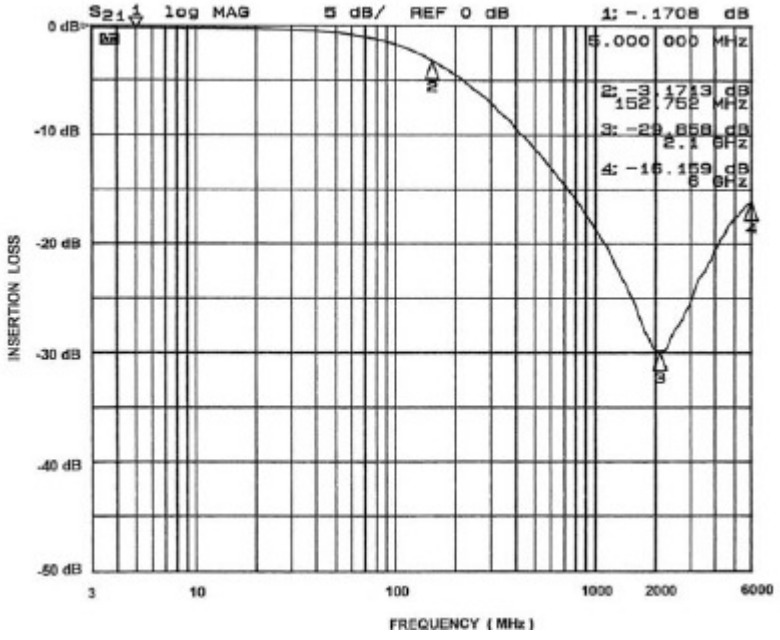


Figure 2. Frequency Response (single channel vs. GND, in 50 Ω system)

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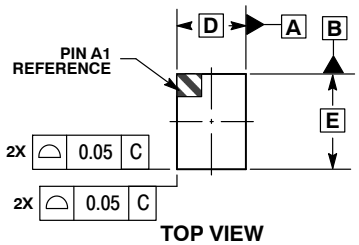
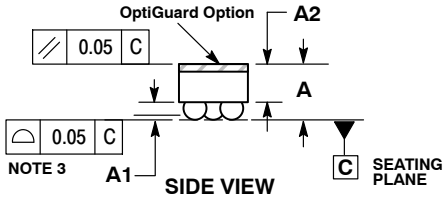
WLCSP5, 0.76x1.05
CASE 567AX
ISSUE O

SCALE 4:1

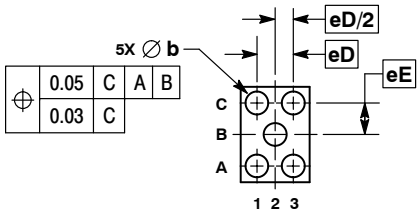
DATE 26 JUL 2010



TOP VIEW



SIDE VIEW

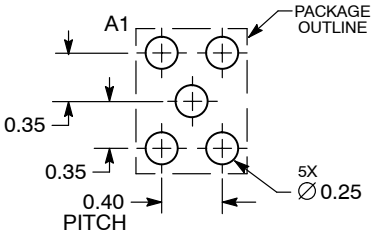


BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.54	0.69
A1	0.17	0.24
A2	0.42 REF	
b	0.24	0.29
D	0.76 BSC	
E	1.05 BSC	
eD	0.400 BSC	
eE	0.347 BSC	

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: 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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DESCRIPTION:	**WLCSP5, 0.76X1.05**		**PAGE 1 OF 1**

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