ESD6100

2 Channel Very Low Capacitance ESD Protection Device in CSP

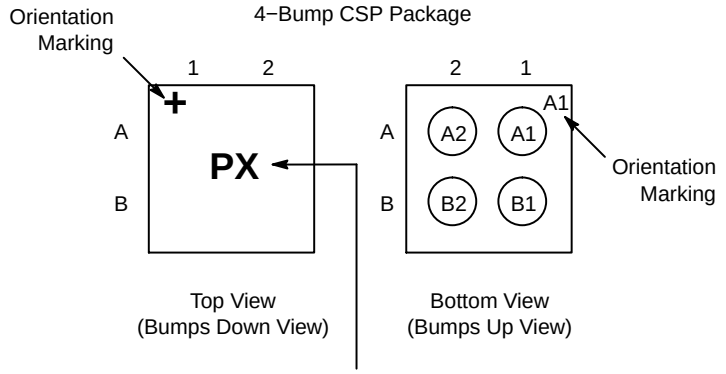
Product Description

The ESD6100 is a 4−bump very low capacitance ESD protection device in 0.4 mm CSP form factor. It is fully compliant with IEC 61000−4−2. The ESD6100 is RoHS II compliant.

Table 1. PIN DESCRIPTIONS

4−bump CSP Package	
Pin	**Description**
A1	ESD Channel 1
A2	ESD Channel 2
B1 and B2	Device Ground

PACKAGE / PINOUT DIAGRAMS



WHERE X =		
A = ww01, ww02	**J = ww19, ww20**	**S = ww37, ww38**
B = ww03, ww04	**K = ww21, ww22**	**T = ww39, ww40**
C = ww05, ww06	**L = ww23, ww24**	**U = ww41, ww42**
D = ww06, ww08	**M = ww25, ww26**	**V = ww43, ww44**
E = ww08, ww10	**N = ww27, ww28**	**W = ww45, ww46**
F = ww11, ww12	**O = ww29, ww30**	**X = ww47, ww48**
G = ww13, ww14	**P = ww31, ww32**	**Y = ww49, ww50**
H = ww15, ww16	**Q = ww33, ww34**	**Z = ww51, ww52**
I = ww17, ww18	**R = ww35, ww36**	

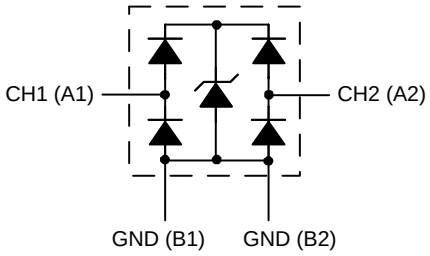
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WLCSP4
CASE 567CB

ELECTRICAL SCHEMATIC



MARKING DIAGRAM



P = ESD6100
X = Single Digit Date Code

ORDERING INFORMATION

Device	Package	Shipping†
ESD6100	WLCSP4 (Pb−Free)	10000/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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ELECTRICAL SPECIFICATIONS AND CONDITIONS

Table 2. PARAMETERS AND OPERATING CONDITIONS

Parameter	Rating	Units
Storage Temperature Range	–55 to +150	°C
Operating Temperature Range	–40 to +85	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

Table 3. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

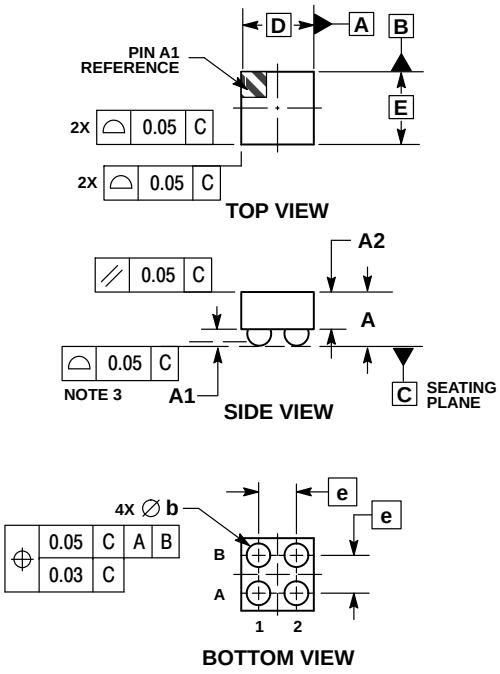
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IN}	Input Operating Supply Voltage			3.0	5.5	V
V_B	Breakdown Voltage (Positive)	I_F = 1 mA	6			V
I_{LEAK}	Channel Leakage Current	V_{IN} = 3 V (Note 2)		1.0	100	nA
C_{IN}	Channel Input Capacitance	At 1 MHz, V_{IN} = 0 V (Note 2)			1.5	pF
ΔC_{IN}	Channel Input Capacitance Matching	At 1 MHz, V_{IN} = 0 V (Note 2)		0.02		pF
V_{ESD}	ESD Protection Peak Discharge Voltage at any channel input a) Contact Discharge per IEC 61000−4−2 standard b) Air Discharge per IEC 61000−4−2 standard	(Notes 2 and 3)	 ±8 ±15			kV
V_{CL}	Channel Clamp Voltage Positive Transients Negative Transients	I_{PP} = 1 A, t_P = 8/20 μs (Note 2)		 +9.8 −1.5		V
R_{DYN}	Dynamic Resistance Positive Transients Negative Transients	I_{PP} = 1 A, t_P = 8/20 μs Any I/O pin to Ground (Note 2)		 0.7 0.5		Ω

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. All parameters specified at T_A = 25°C unless otherwise noted.
2. These parameters are guaranteed by design and characterization.
3. Standard IEC 61000−4−2 with $C_{Discharge}$ = 150 pF, $R_{Discharge}$ = 330 Ω.

PACKAGE DIMENSIONS

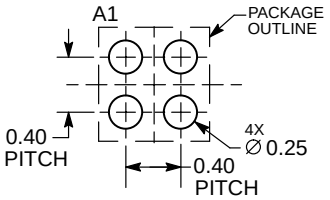
WLCSP4, 0.8x0.8
CASE 567CB
ISSUE O



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	0.57	0.63
A1	0.17	0.24
A2	0.41 REF	
b	0.24	0.29
D	0.80 BSC	
E	0.80 BSC	
e	0.40 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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