HBL2050WP

1-Channel ESD Protector

ON Semiconductor®

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Product Description

The HBL2050WP provides robust ESD protection for sensitive parts that may be subjected to electrostatic discharge (ESD). The tiny form factor and single wirebond requirement enable it to be used in very confined spaces. This device is designed and characterized to safely dissipate ESD strikes of at least ±8 kV, according to the MIL−STD−883 (Method 3015) specification for Human Body Model (HBM) ESD.

Features

- Compact Die Protects from ESD Discharges
- Almost No Conduction at Signal Amplitudes Smaller than −45 V
- ESD Protection Over ±8 kV Contact Discharge per MIL_STD_883 International ESD Standard

Applications

- LED Lighting
- Modules
- Interface Circuits

ELECTRICAL SCHEMATIC

Aluminum bondpad on topside
(“Signal” node mentioned in
Electrical Specification table)

Bare Silicon on backside
(Reference node)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

ORDERING INFORMATION

Ordering Part Number	Topside Metal	Backside Metal	BG Thickness	Shipping Method
HBL2050WP	Aluminum	Bare Silicon	4 mils	Wafer Form

OPERATING CONDITIONS

Parameter	Rating	Unit
Operating Temperature Range	−40 to +125	°C
Storage Temperature Range	−65 to +150	°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.

ELECTRICAL OPERATING CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{LEAK}	Leakage Current	V = −35 V, 25°C			100	nA
		V = −45 V, 25°C			500	nA
V_{CL}	Signal Clamp Voltage Positive polarity on signal node (V_{CL+}) Negative polarity on signal node (V_{CL-})	T_A = 25°C; at 10 mA (I_{CL+}) at −10 mA (I_{CL-}) (Note 1)	 0.4 −57.0	 0.8 −52.0	 1.5 −47.0	V
V_{ESD}	ESD Protection − withstand voltage: Human Body Model (MIL−STD−883, Method 3015)	T_A = 25°C (Note 2)	±8			kV

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. V_{CL-} is measured with a −10 mA pulse at 1 ms.
2. This parameter is guaranteed by design.

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MECHANICAL DETAILS

MECHANICAL SPECIFICATIONS

Parameter	Condition	Unit
Composition	Silicon wafer, n+ doped	
Die shape	Square	
Length (Stepping Size)	270	μm
Width (Stepping Size)	270	μm
Thickness	100	μm
Top Pad Length	190	μm
Top Pad Width	190	μm
Top Pad Composition	Aluminum	
Back Metal (Backside)	None (Bare Silicon)	

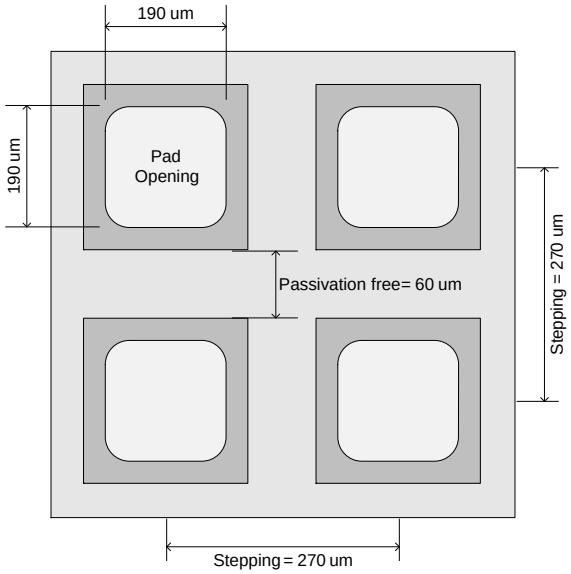

Figure 1. Wafer Array

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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