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FCDN608

1-Channel ESD Protector

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Product Description

The FCDN608−TKY provides robust ESD protection for sensitive parts that may be subjected to electrostatic discharge (ESD). The tiny form factor and single pad allows it to be used in very confined spaces. The electrical ‘back−to−back zener’ configuration provides symmetrical ESD protection in cases where nodes with AC signals are present. This device is designed and characterized to safely dissipate ESD strikes of at least ±15 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 Less than ±5 V
- ESD Protection to over ±15 kV (Human Body Model HBM) per MIL_STD_883 International ESD Standard

Applications

- LED Lighting
- Modules
- Interface Circuits

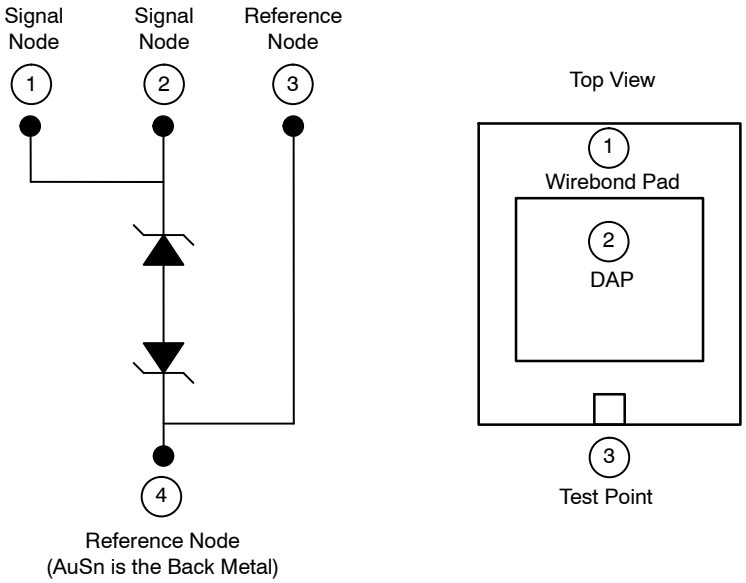

Figure 1. Electrical Schematic and Top View

ORDERING INFORMATION

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

Table 1. PIN DESCRIPTIONS

FCDN608−TKY (Schematic and Top View)			
Designation	**Schematic**	**Top View**	**Metal Composition (Package)**
1	Signal Node	Wirebond Pad	Al
2	Signal Node	DAP	Cu
3	Reference Node	Test Point	−
4	Reference Node	N/A	AuSn

Table 2. ORDERING INFORMATION

Ordering Part Number	DAP (Die Attach Pad)	Backside Metal	Thickness	Shipping Method
FCDN608−TKY	Cu	AuSn	10 mils	Metal Film Frame/Clamshell

SPECIFICATIONS

Table 3. ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Unit
Operating Junction Temperature Range	−40 to +150	°C
Storage Junction 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 4. STANDARD OPERATING CONDITIONS

Parameter	Rating	Unit
Operating Junction Temperature Range	−40 to +150	°C

Table 5. ELECTRICAL OPERATING CHARACTERISTICS (See Note 1)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{LEAK}	Leakage Current	V = +5 V, 25°C V = −10 V, 25°C V = 5 V, 150°C (Note 2)			+0.35 −0.35 4.0	μA μA mA
V_{CL}	Clamp Voltage on Signal Node Positive Polarity Negative Polarity	T_A = 25°C at 10 mA at −10 mA	 +5 −14	 +7 −11.5	 +9 −10	V
V_{ESD}	ESD Protection − Withstand Voltage: Human Body Model (MIL−STD−883, Method 3015)	T_A = 25°C (Note 2)	 ±15			kV
V_{CL_ESD}	Clamping Voltage on Signal Node for Transients Positive Polarity Negative Polarity	I_{PP} = 1 A, t_P = 8/20 μs Positive Transients Negative Transients (Note 2)		 +7 −12		V
R_{DYN}	Dynamic Resistance R_{DYN+} $R_{DYN−}$	I_{PP} = 1 A, t_P = 8/20 μs Positive Transients Negative Transients (Note 2)		 0.2 0.4		Ω
C_{IN}	Input Capacitance	At 1 MHz, 30 mV osc. Level, 0 VDC Bias At 1 MHz, 30 mV osc. Level, 3 VDC Bias (Note 2)		175 120		pF

1. Operating characteristics are over standard operating conditions unless otherwise specified.
2. This parameter is guaranteed by design and characterization.

MECHANICAL DETAILS

Table 6. MECHANICAL SPECIFICATIONS

Parameter	Condition	Unit
Composition	Silicon Wafer, n+ Doped	
Die Shape	Rectangular	
Length	1540 (After Saw)	μm
Width	1140 (After Saw)	μm
Thickness	10	mils
Die Attach Pad Length	1	mm
Die Attach Pad Width	1	mm
Die Attach Pad Composition	Cu (Copper)	
Back Metal (Underside)	AuSn (Gold−Tin)	

MECHANICAL PACKAGE DIAGRAM

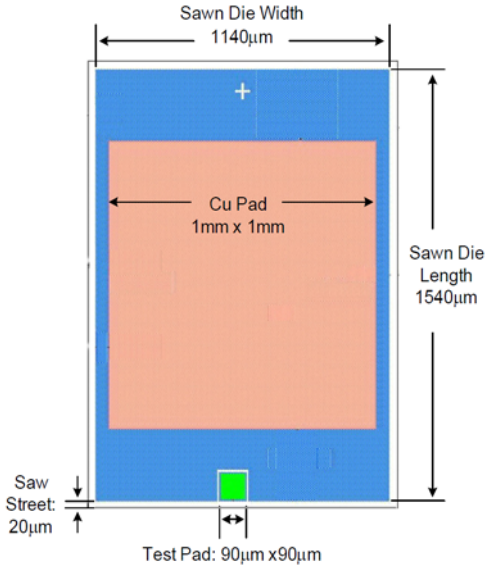

Figure 2. Die Dimensions

PUBLICATION ORDERING INFORMATION

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