



LIN-BUS BIDIRECTIONAL TVS DIODE

Product Summary

V _{BR (min)}	I _{PP (max)}	C _{T (typ)}
25.4V & 17.1V	3A	13pF

Features and Benefits

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

Description and Applications

This DESD1LIN2WSQ is a next generation ESD and surge protection device packaged in a small footprint surface mount package. It is qualified to AECQ101, supported by a PPAP and is designed to protect one data line of the Local Information Network (LIN) in an automotive.

LIN Bus protection

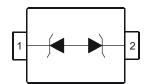
Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.005 grams (Approximate)

SOD323



Top View



Device Schematic

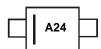
Ordering Information (Note 5)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD1LIN2WSQ-7	Automotive	A24	7	8	3,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



A24 = Product Type Marking Code



Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{PP}	160	W	8/20µs, Per Figure 1
Peak Pulse Current	I _{PP}	3.0	Α	8/20µs, Per Figure 1
ESD Protection – Contact Discharge	V _{ESD_Contact}	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V_{ESD_Air}	±30	kV	Standard IEC 61000-4-2

Thermal Characteristics

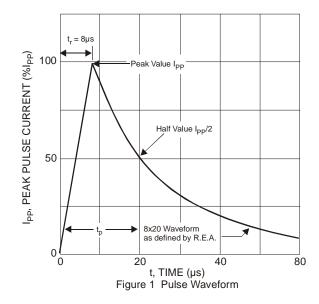
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{ heta JA}$	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Standoff Voltage, from Pin 1 to Pin 2	V_{RWM1}	-	-	15	V	-
Reverse Standoff Voltage, from Pin 2 to Pin 1	V_{RWM2}	-	=	24	V	-
Channel Leakage Current, from Pin 1 to Pin 2 (Note 7)	I _{RM1}	-	1	50	nA	V _{RWM} = 15V
Channel Leakage Current, from Pin 2 to Pin 1 (Note 7)	I _{RM2}	-	1	50	nA	V _{RWM} = 24V
Breakdown Voltage, from Pin 1 to Pin 2	V_{BR1}	17.1	18.9	20.3	V	$I_R = 1mA$
Breakdown Voltage, from Pin 1 to Pin 1	V_{BR2}	25.4	27.8	30.3	V	$I_R = 1mA$
Clamping Voltage, from Pin 1 to Pin 2	V _{CL1}	-	-	25	V	$I_{PP} = 1A$, $tp = 8/20 \mu S$
Clamping Voltage, from Firm 1 to Firm 2		-	=	35	V	$I_{PP} = 5A$, $tp = 8/20\mu S$
Clamping Voltage, from Pin 2 to Pin 1	V _{CL2}	-	=	40	V	$I_{PP} = 1A$, $tp = 8/20 \mu S$
		-	-	50	V	$I_{PP} = 3A$, $tp = 8/20 \mu S$
Differential Resistance	R_{DIF}	-	0.5	-	Ω	$I_R = 1A$, $tp = 8/20\mu S$
Channel Input Capacitance	Ст	-	13	17	pF	$V_R = 0V$, $f = 1MHz$

Notes:

^{7.} Short duration pulse test used to minimize self-heating effect.



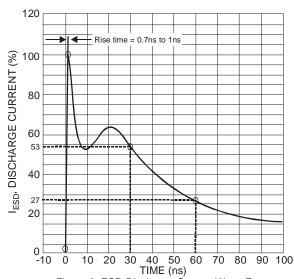
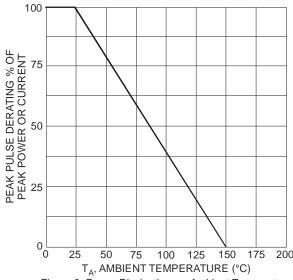
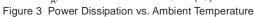


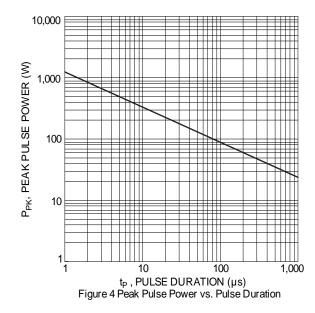
Figure 2 ESD Discharge Current Wave Form IEC 6100-4-2 (330Ω/150pF)

^{6.} Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.









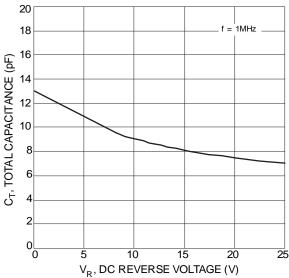
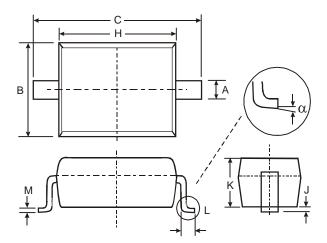


Figure 5 Total Capacitance vs. Reverse Voltage



Package Outline Dimensions

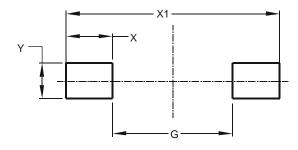
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOD323				
Dim	Min	Max		
Α	0.25	0.35		
В	1.20	1.40		
С	2.30	2.70		
Н	1.60	1.80		
J	0.00	0.10		
K	1.0	1.1		
L	0.20	0.40		
М	0.10	0.15		
α	0°	8°		
All Dimensions in mm				

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
G	1.520
Х	0.590
X1	2.700
V	0.450



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