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.

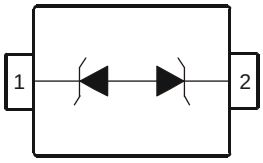
- LIN Bus protection

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 e3
- Weight: 0.005 grams (Approximate)

SOD323

Top View



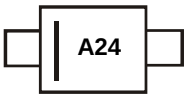
Device Schematic

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

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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	A	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)	$R_{\theta JA}$	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	Typ	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 = 8/20µS
		-	-	35	V	I_{PP} = 5A, tp = 8/20µS
Clamping Voltage, from Pin 2 to Pin 1	V_{CL2}	-	-	40	V	I_{PP} = 1A, tp = 8/20µS
		-	-	50	V	I_{PP} = 3A, tp = 8/20µS
Differential Resistance	R_{DIF}	-	0.5	-	Ω	I_R = 1A, tp = 8/20µS
Channel Input Capacitance	C_T	-	13	17	pF	V_R = 0V, f = 1MHz

Notes: 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.
7. Short duration pulse test used to minimize self-heating effect.

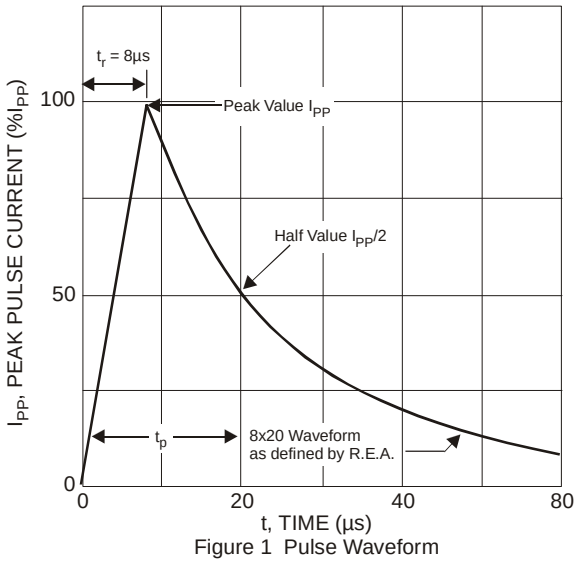


Figure 1 Pulse Waveform

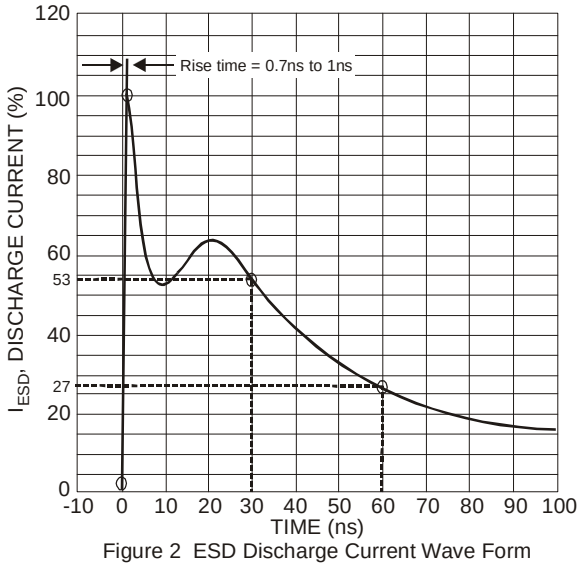


Figure 2 ESD Discharge Current Wave Form IEC 6100-4-2 (330Ω/150pF)

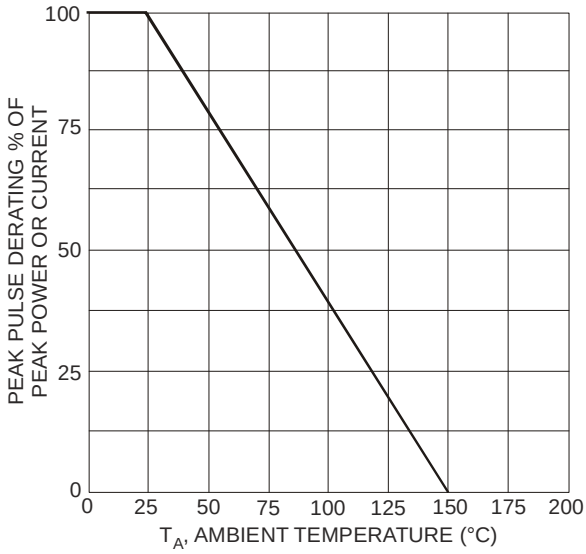


Figure 3 Power Dissipation vs. Ambient Temperature

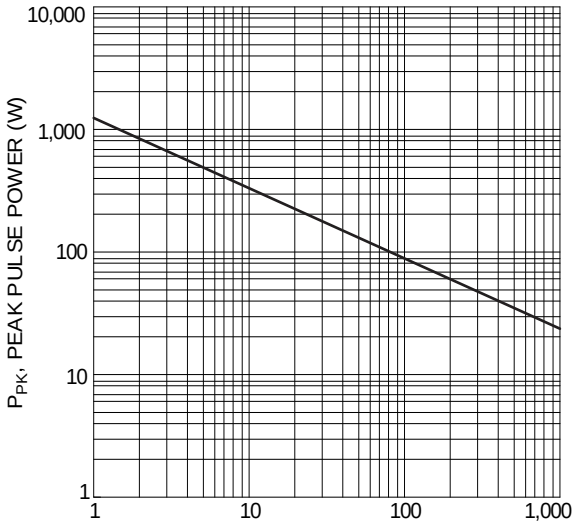


Figure 4 Peak Pulse Power vs. Pulse Duration

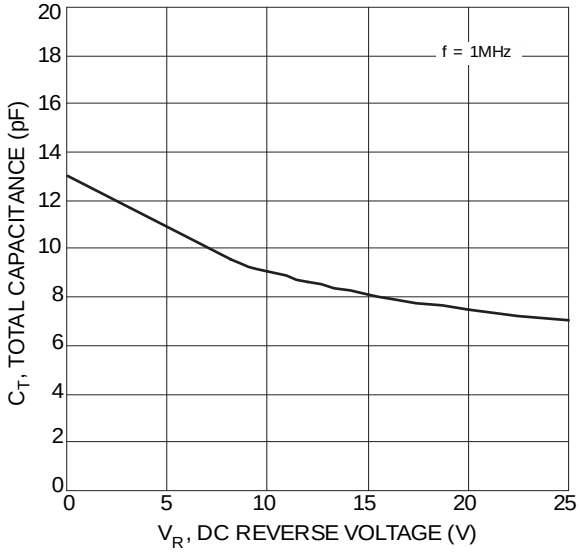
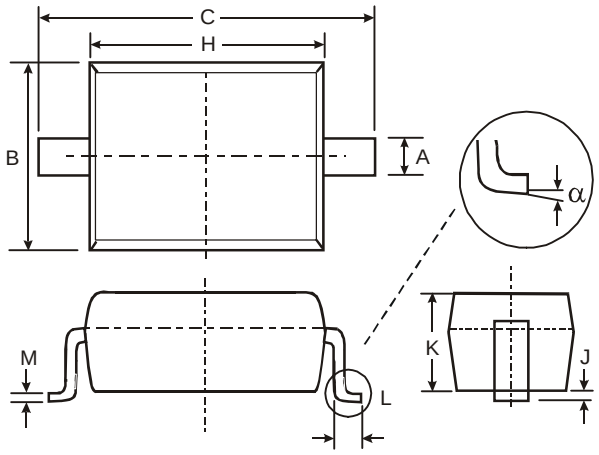


Figure 5 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

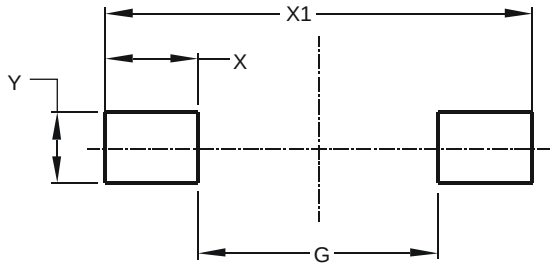
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOD323		
Dim	**Min**	**Max**
A	0.25	0.35
B	1.20	1.40
C	2.30	2.70
H	1.60	1.80
J	0.00	0.10
K	1.0	1.1
L	0.20	0.40
M	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
X	0.590
X1	2.700
Y	0.450

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