



**THE DATASHEET OF
DF13C-8P-1.25V(21)**



Product Summary

V_{BR} (min)	I_{PP} (max)	C_T (typ)
28V	3A	14pF

Features and Benefits

- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 30kV$, Contact $\pm 30kV$
- 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)**
- **The DESD11VN27V2WSQ is suitable for automotive application requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Description and Applications

This DESD11VN27V2WSQ is a next generation ESD and surge protection device packaged in a small footprint surface mount package. It is qualified to AEC-Q101, supported by a PPAP, and is designed to protect automotive In-vehicle network bus lines.

- CAN
- LIN
- FlexRay
- SENT

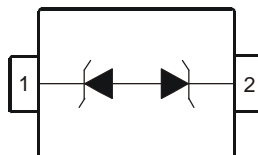
Mechanical Data

- Package: SOD323
- Package 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: 0.004 grams (Approximate)

SOD323



Top View



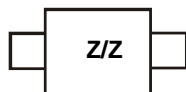
Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD11VN27V2WSQ-7	Automotive	Z/Z	7	8	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



Z/Z = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{PP}	135	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 5)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	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	V _{RWM}	-	-	27	V	-
Channel Leakage Current (Note 6)	I _{RM}	-	1	50	nA	V _{RWM} = 27V
Breakdown Voltage	V _{BR}	28	33	38	V	I _R = 10mA
Clamping Voltage	V _{CL}	-	34	43	V	I _{PP} = 1A, t _p = 8/20μS
		-	36	45	V	I _{PP} = 3A, t _p = 8/20μS
		-	35	-	V	I _{PP} = 16A, t _p = TLP
Dynamic Resistance	R _{dyn}	-	0.2	-	Ω	I _R = 10A, t _p = TLP
Channel Input Capacitance	C _T	-	14	17	pF	V _R = 0V, f = 1MHz

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout, which can be found on our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 - Short duration pulse test used to minimize self-heating effect.

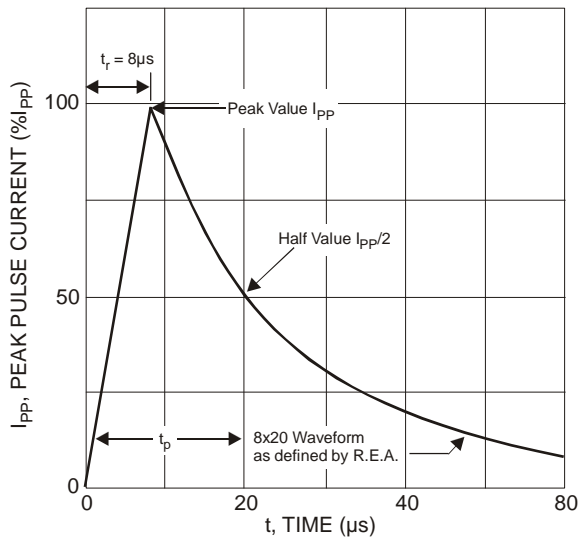


Figure 1 Pulse Waveform

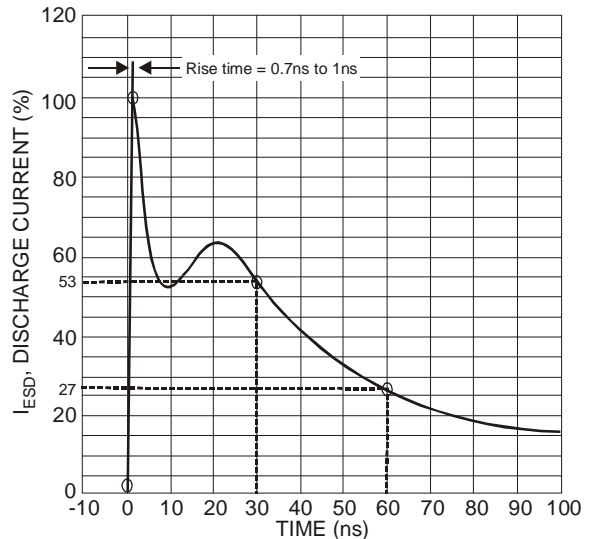


Figure 2 ESD Discharge Current Wave Form IEC 6100-4-2 (330Ω/150pF)

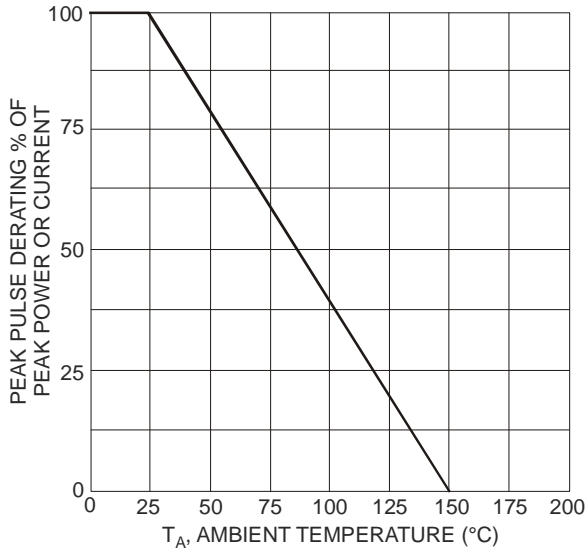


Figure 3 Power Dissipation vs. Ambient Temperature

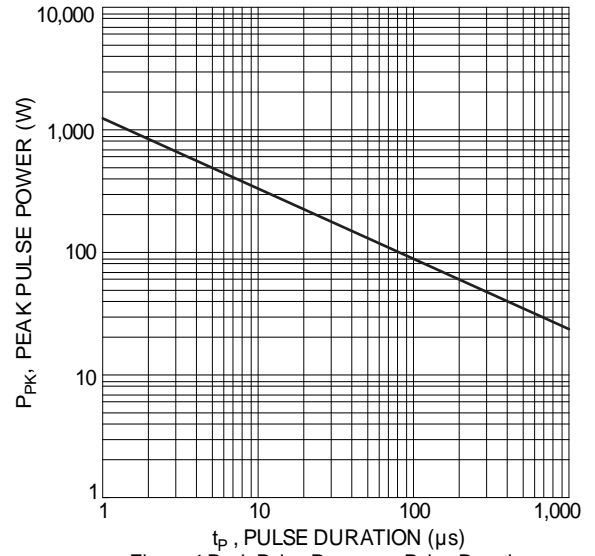


Figure 4 Peak Pulse Power vs. Pulse Duration

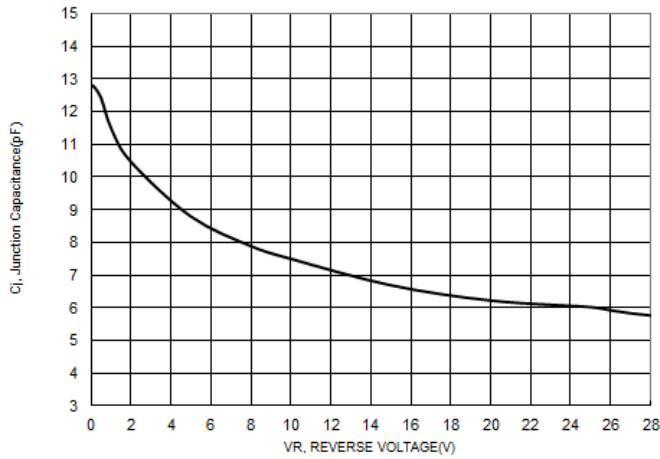


Figure 5: Typical Junction Capacitance

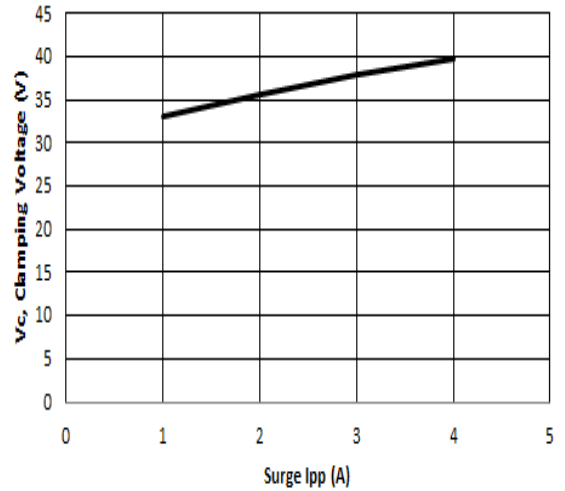


Figure 6 Clamping Voltage Characteristic (t_p = 8/20μs)

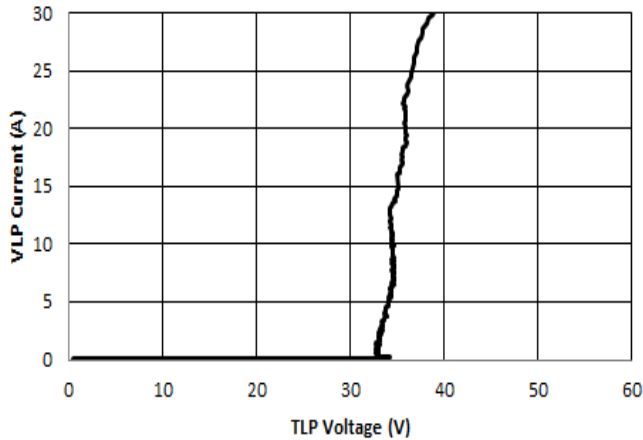
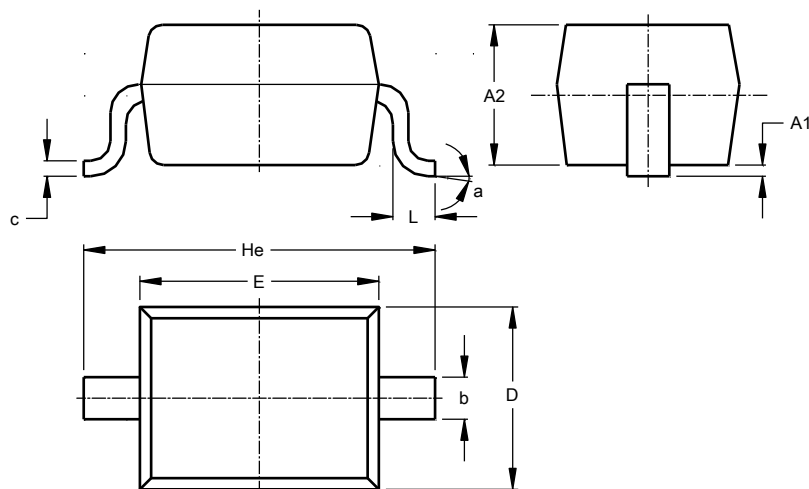


Figure 7 TLP Curve (t_p = 100 ns)

Package Outline Dimensions

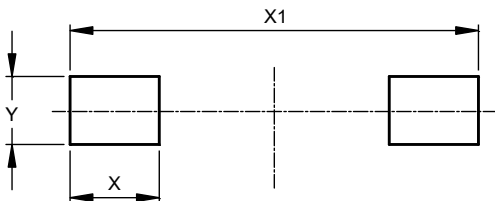
Please see <https://www.diodes.com/design/support/packaging/diodes-packaging/> for the latest version.



SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
α	0°	8°	
All Dimensions in mm			

Suggested Pad Layout

Please see <https://www.diodes.com/design/support/packaging/diodes-packaging/> for the latest version.



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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