

Features

- Low Capacitance
- Small Surface Mount Package
- For ESD Protection of High-Speed Data Lines
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact_us) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

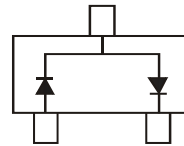
Mechanical Data

- Package: SOT323
- 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: 0.006 grams (Approximate)

SOT323



Top View



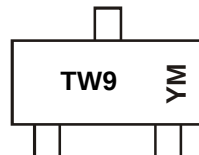
Top View
Internal Schematic

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DESD1P0RFWA-7	SOT323	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



TW9 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: J = 2022)
 M = Month (ex: 9 = September)

Date Code Key

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	J	K	L	M	N	O	P	R	S	T	U	V

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP}	15	A	8/20μs (Notes 5 & 6)
ESD Protection – Contact Discharge	V _{ESD_Contact}	±30	kV	Standard IEC 61000-4-2 (Note 6)
ESD Protection – Air Discharge	V _{ESD_Air}	±30	kV	Standard IEC 61000-4-2 (Note 6)

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P _D	200	mW
Thermal Resistance Junction to Ambient Air (Note 7)	R _{θJA}	625	°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 (Note 5)	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V _{RWM}	—	—	70	V	—
Reverse Current	I _{RM}	—	—	100	nA	V _{RM} = 70V
Forward Clamping Voltage (Note 6)	V _{FC}	—	2	6	V	I _{PP} = 3A, per IEC 61000-4-5 (Note 8)
		—	4	8		I _{PP} = 10A, per IEC 61000-4-5 (Note 8)
Capacitance	C _T	—	1	1.5	pF	V _R = 0V, f = 1MHz (Note 9)
		—	1.7	2.5		V _R = 0V, f = 1MHz (Note 10)

- Notes:
- Diodes short duration pulse test used to minimize self-heating effect.
 - Anti-parallel connection.
 - Device mounted on FR-4 PCB with minimum recommended pad layout.
 - Clamping voltage value is based on an 8×20μs peak pulse current (I_{PP}) waveform.
 - Total capacitance line to ground (per diode).
 - Total capacitance line to ground (anti-parallel connection).

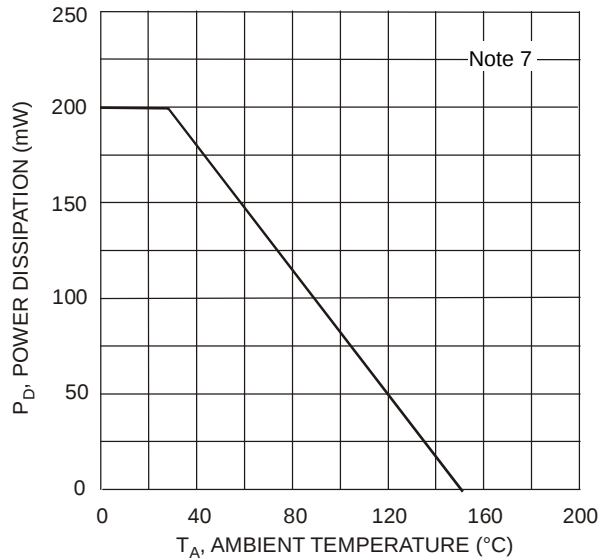


Figure 1. Power Derating Curve, Total Package

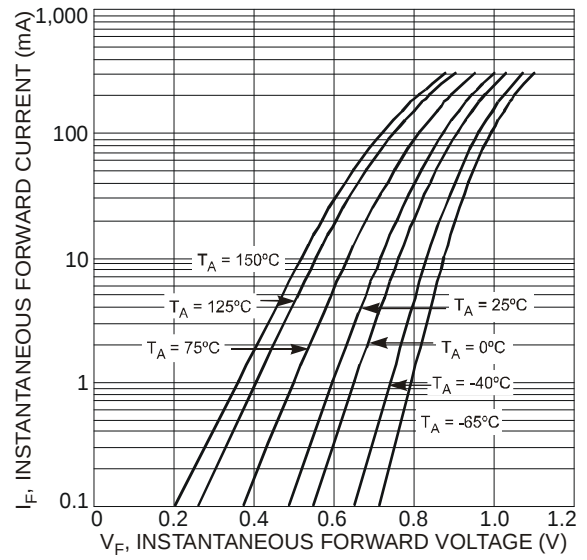


Figure 2. Typical Forward Characteristics, Per Element

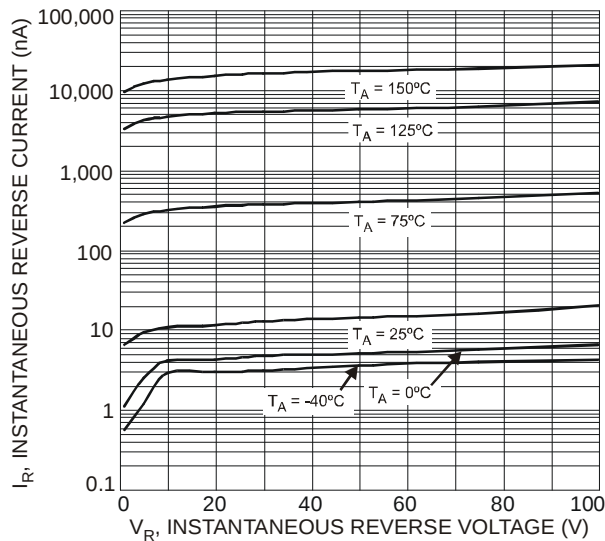


Figure 3. Typical Reverse Characteristics, Per Element

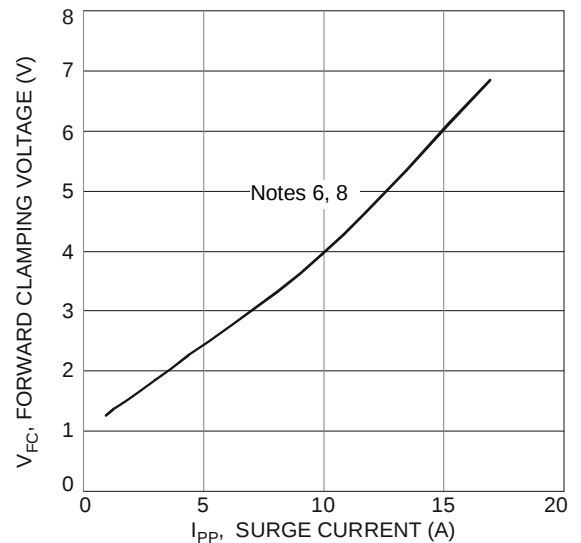


Figure 4. Typical Forward Clamping Characteristics

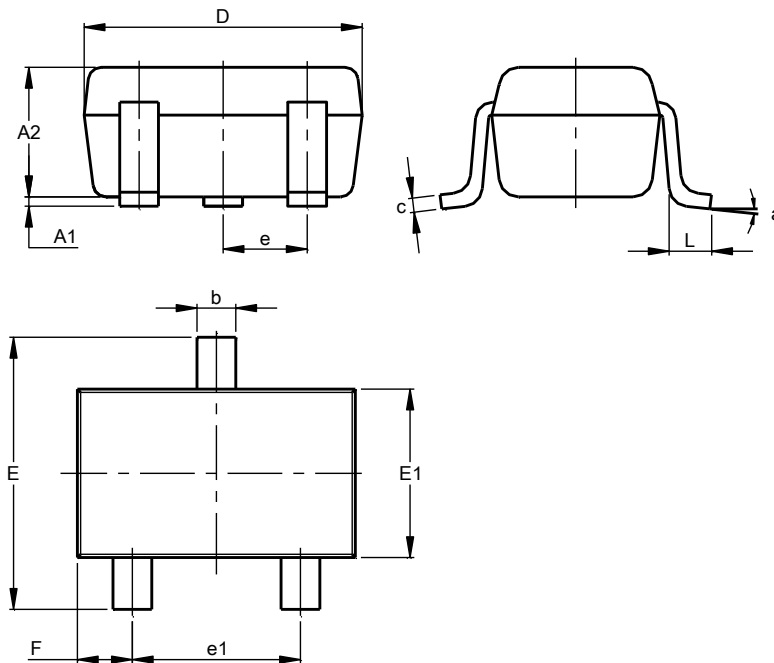
Notes:

6. Anti-parallel connection.
7. Device mounted on FR-4 PCB with minimum recommended pad layout.
8. Clamping voltage value is based on an 8×20μs peak pulse current (I_{PP}) waveform.

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT323

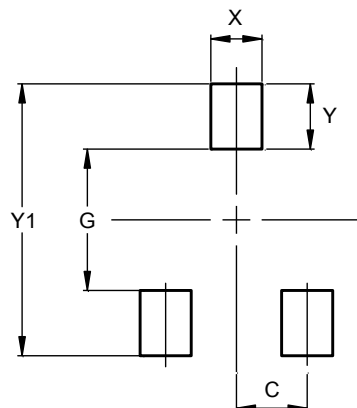


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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