

## Features

- Low Capacitance
- Small Surface Mount Package
- For ESD Protection of High Speed Data Lines
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

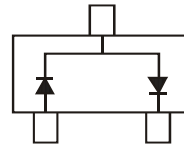
## Mechanical Data

- Case: SOT323
- 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
- Weight: 0.006 Grams (Approximate)

SOT323



Top View



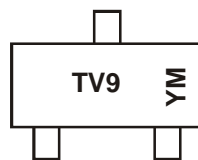
Top View  
Internal Schematic

## Ordering Information (Notes 3)

Part Number	Qualification	Case	Packaging
DESD1P0RFW-7	Commercial	SOT323	3000/Tape & Reel
DESD1P0RFWQ-7	Automotive	SOT323	3000/Tape & Reel

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>
  3. For Packaging Details, go to our website at <http://www.diodes.com>.

## Marking Information



TV9 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Y = 2011)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017
Code	Y	Z	A	B	C	D	E

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** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	$I_{PP}$	15	A	8/20 $\mu\text{s}$ (Notes 4 & 5)
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 30$	kV	Standard IEC 61000-4-2(Notes 5)
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 30$	kV	Standard IEC 61000-4-2(Notes 5)

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_D$	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic (Note 4)	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	$V_{RWM}$	-	-	70	V	-
Reverse Current	$I_{RM}$	-	-	100	nA	$V_{RM} = 70\text{V}$
Forward Clamping Voltage (Note 5)	$V_{FC}$	-	2	6	V	$I_{PP} = 3\text{A}$ ; per IEC 61000-4-5 (Note 7)
		-	4	8		$I_{PP} = 10\text{A}$ ; per IEC 61000-4-5 (Note 7)
Capacitance	$C_T$	-	1	1.5	pF	$V_R = 0\text{V}, f = 1\text{MHz}$ (Note 8)

- Notes:
4. Diodes Short duration pulse test used to minimize self-heating effect.
  5. Anti-parallel or rail-to-rail connection
  6. Device mounted on FR-4 PCB with minimum recommended pad layout.
  7. Clamping voltage value is based on an 8x20  $\mu\text{s}$  peak pulse current ( $I_{pp}$ ) waveform.
  8. Total capacitance line to ground (2 diodes in parallel)

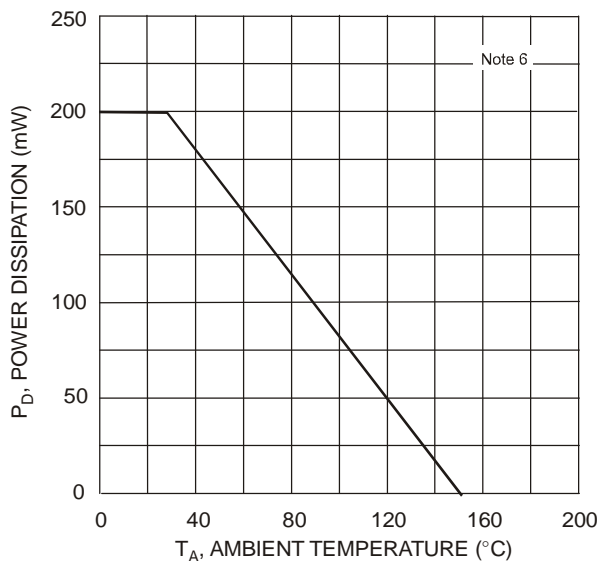


Fig. 1 Power Derating Curve, Total Package

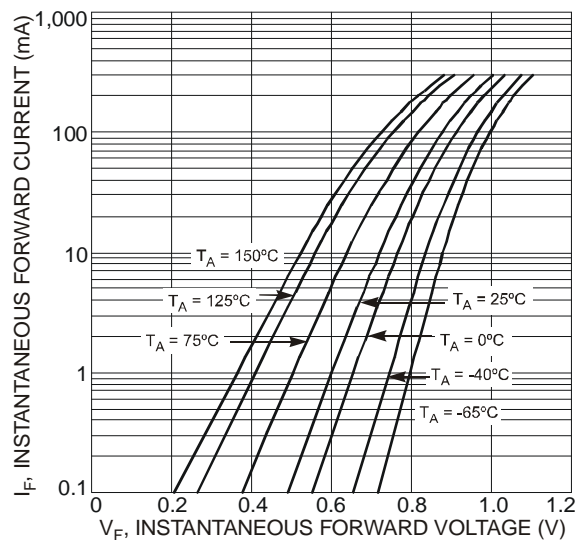
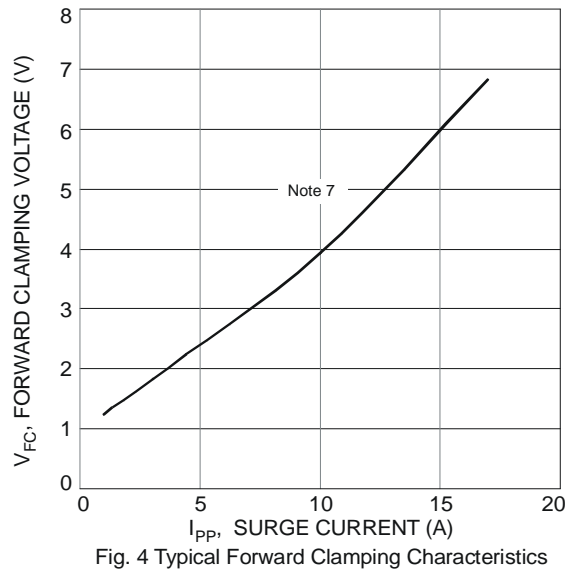
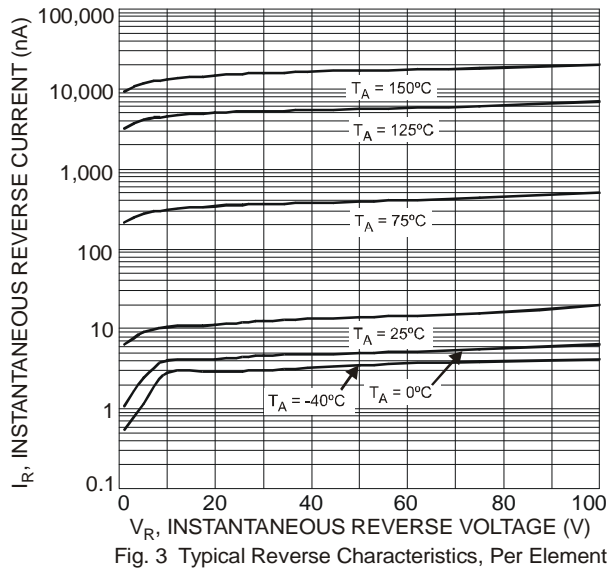
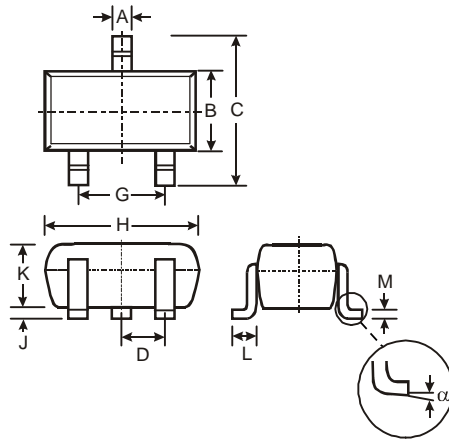


Fig. 2 Typical Forward Characteristics, Per Element

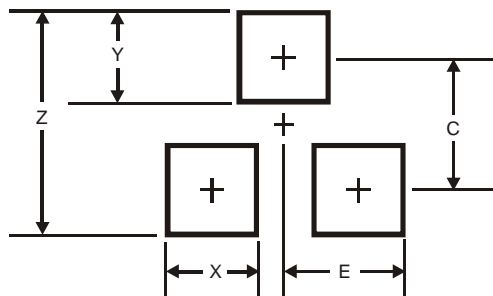


**Package Outline Dimensions**



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
$\alpha$	0°	8°	-
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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