LOW CAPACITANCE, ESD PROTECTION DIODE ARRAY

Features

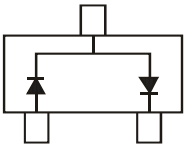
- Low Capacitance
- Small Surface Mount Package
- For ESD Protection of High Speed Data Lines
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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



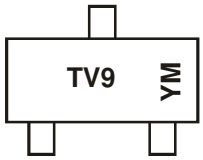
Top View
Internal Schematic

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°C unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	15	A	8/20μs (Notes 4 & 5)
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±30	kV	Standard IEC 61000-4-2(Note 5)
ESD Protection – Air Discharge	V_{ESD_Air}	±30	kV	Standard IEC 61000-4-2(Note 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	°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 4)	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 5)	V_{FC}	-	2	6	V	I_{PP} = 3A; per IEC 61000-4-5 (Note 7)
		-	4	8		I_{PP} = 10A; per IEC 61000-4-5 (Note 7)
Capacitance	C_T	-	1	1.5	pF	V_R = 0V, f = 1MHz (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 μs peak pulse current (I_{pp}) waveform.
8. Total capacitance line to ground (2 diodes in parallel)

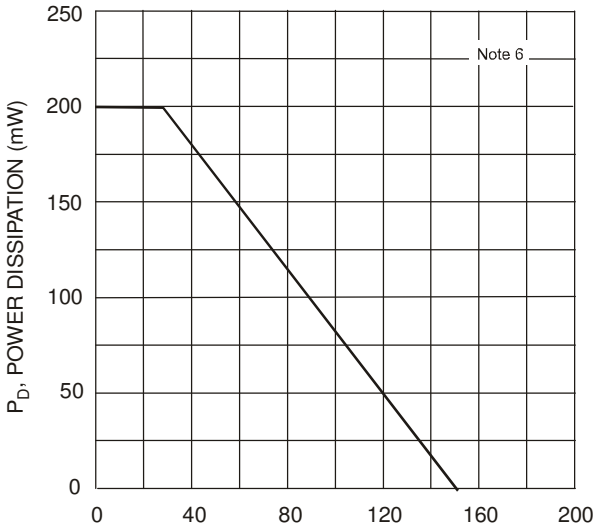


Fig. 1 Power Derating Curve, Total Package

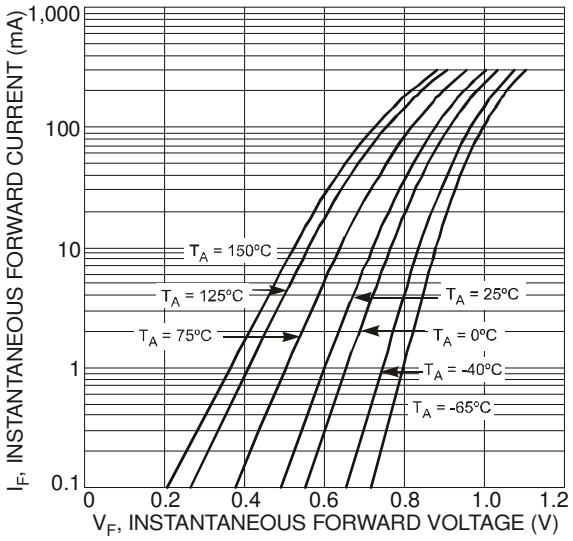


Fig. 2 Typical Forward Characteristics, Per Element

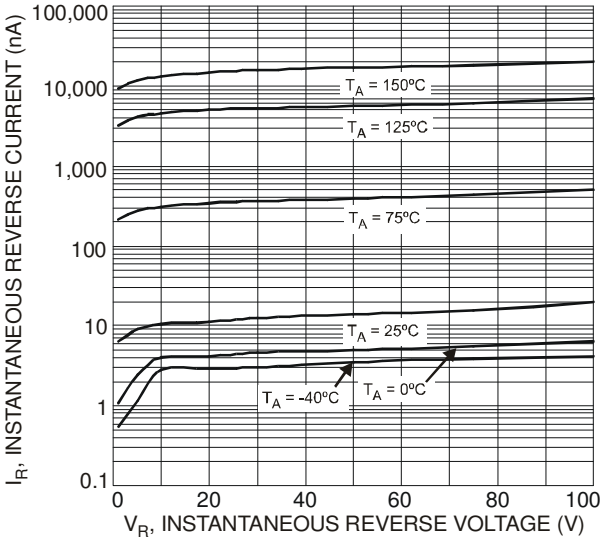


Fig. 3 Typical Reverse Characteristics, Per Element

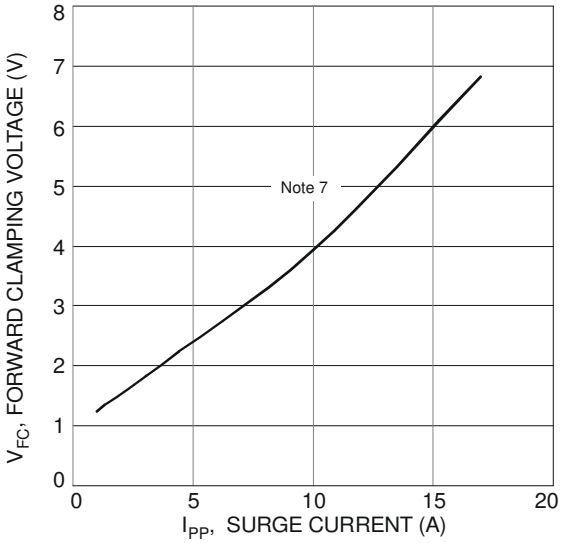
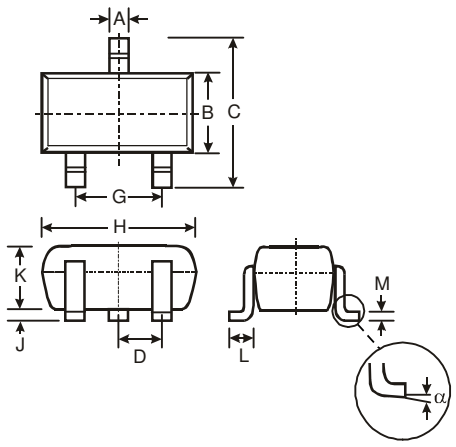


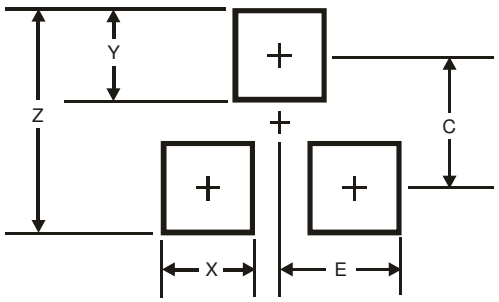
Fig. 4 Typical Forward Clamping Characteristics

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
α	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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