

Product Summary

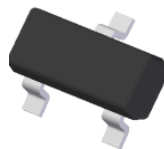
$V_{BR}(\text{Min})$	$I_{PP}(\text{Max})$	$C_T(\text{Max})$
5.3V	20A	220pF

Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in Automotive Infotainment applications.

- USB Modules
- HDMI Inputs
- Infotainment Consoles

SOT23




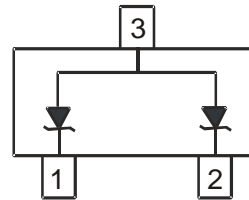
Top View

Features and benefits

- Provides ESD Protection per IEC 61000-4-2 Standard: Air – $\pm 16\text{kV}$, Contact – $\pm 9\text{kV}$
- 2 Channels of ESD Protection
- 250W Peak Pulse Power
- Typically Used at Computers, Printers and Communication Systems
- **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)**

Mechanical Data

- Case: SOT23
- 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: 0.0089 grams (Approximate)



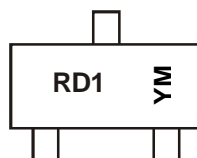
Device Schematic

Ordering Information (Note 5)

Part Number	Compliance	Marking	Reel Size(inches)	Tape Width(mm)	Quantity Per Reel
DESDA5V3LQ-7	Automotive	RD1	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



RD1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023
Code	E	F	G	H	I	J	K

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 Power Dissipation	P _{PP}	250	W	8/20μs, Figure 2
Peak Pulse Current	I _{PP}	20	A	8/20μs, Figure 2
ESD Protection – Contact Discharge	V _{ESD Contact}	±9	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V _{ESD Air}	±16	kV	Standard IEC 61000-4-2
ESD Protection – Human Body Model	V _{HBM}	±25	kV	MIL STD 883C – Method 3015-6

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage	V _{BR}	5.3	—	5.9	V	I _R = 1mA
Reverse Current (Note 7)	I _{RM}	—	—	2	μA	V _{RM} = 3V
Forward Voltage	V _F	—	—	1.25	V	I _F = 200mA
Dynamic Resistance	R _D	—	0.28	—	Ω	I _{pp} = 15A, t _p = 2.5μs
Channel Input Capacitance	C _{IN}	—	—	220	pF	V _{IN} = 0V, f = 1MHz

- Notes: 6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown in Diodes Incorporated's package outline PDFs, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 7. Short duration pulse test used to minimize self-heating effect.

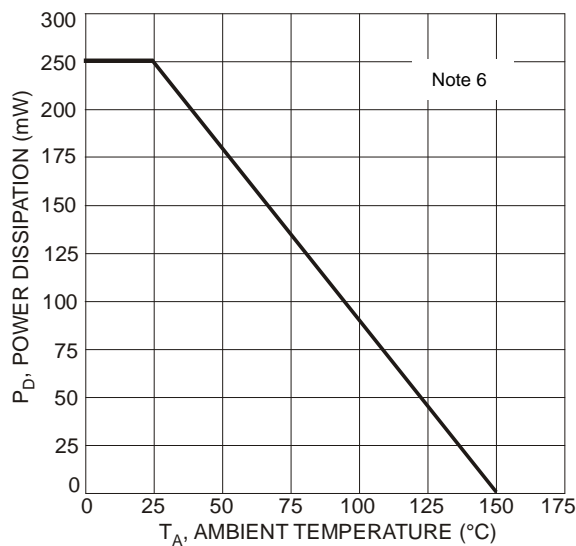


Figure 1 Power Derating Curve

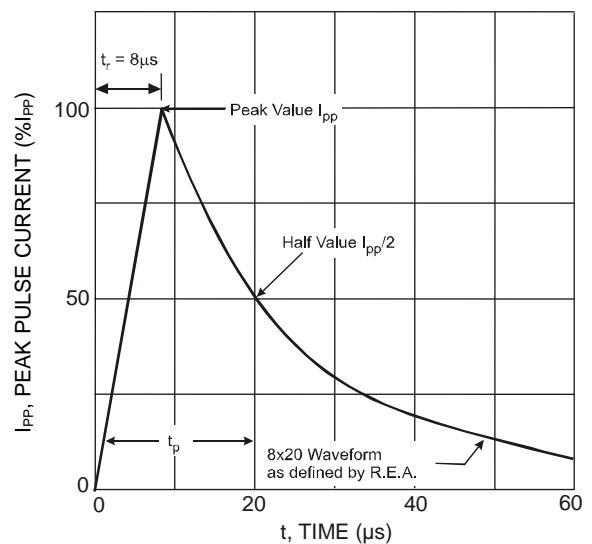


Figure 2 Typical 8 x 20μs Pulse Waveform

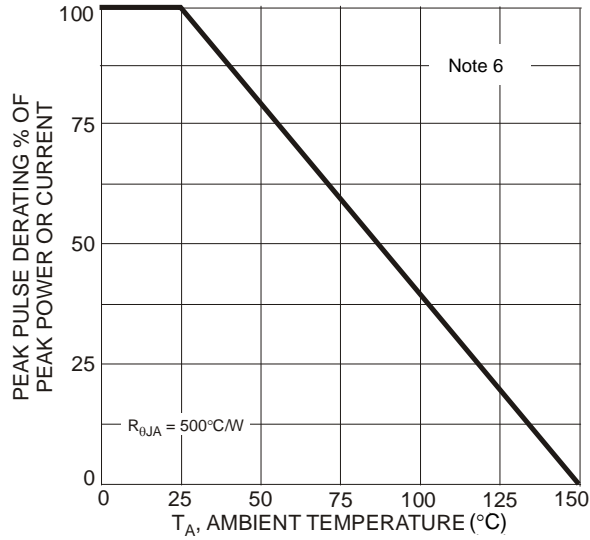


Figure 3 Power Dissipation vs. Ambient Temperature

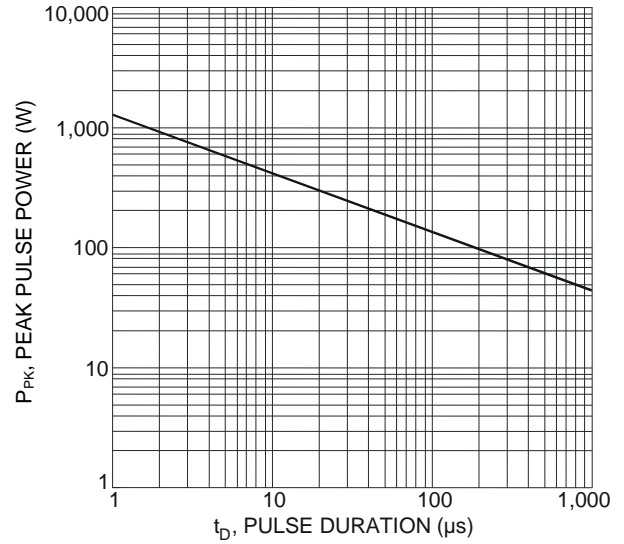


Figure 4 Max. Peak Pulse Power vs. Pulse Duration

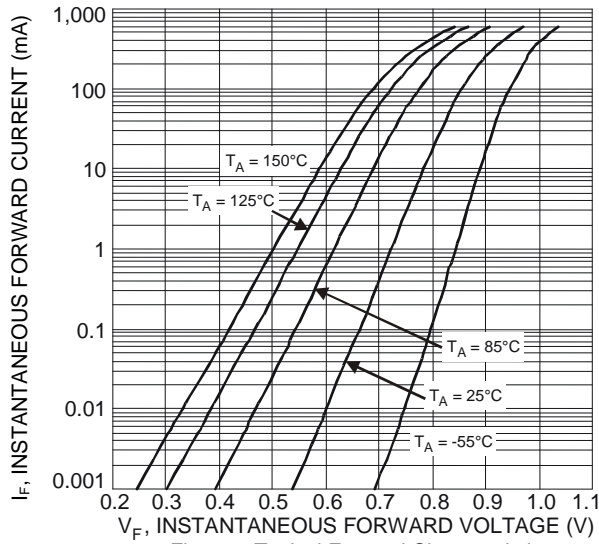


Figure 5 Typical Forward Characteristics

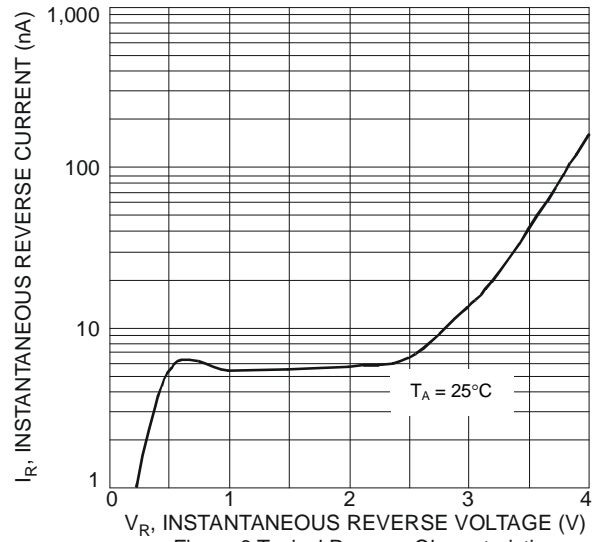


Figure 6 Typical Reverse Characteristics

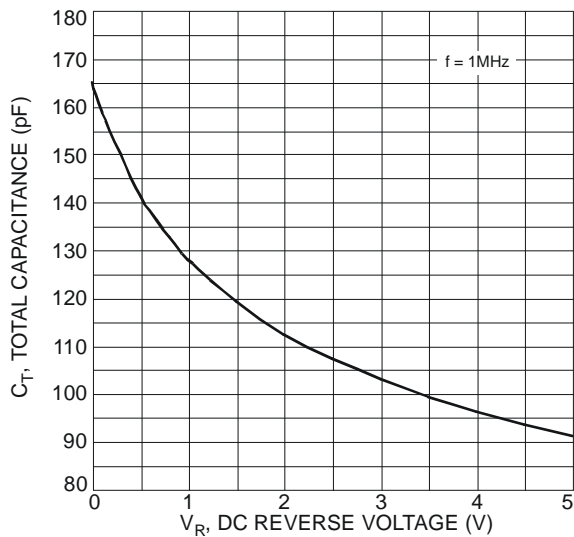
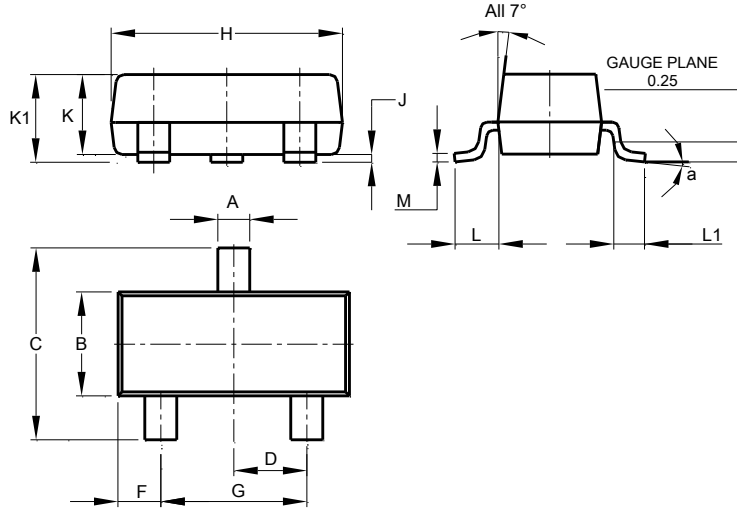


Figure 7 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOT23

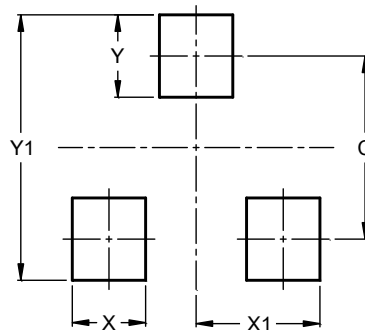


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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