

Features

- IEC 61000-4-2 (ESD): Air ±15kV, Contact ±8kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Low Profile Package (0.65mm max) with a Small PCB Footprint (only 1.7*0.9mm) Suitable for Portable Electronics Applications
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

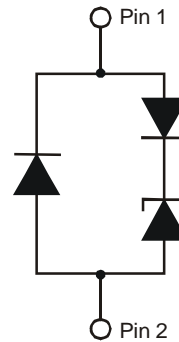
Mechanical Data

- Case: SOD523
- 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 **e3**
- Weight: 0.001 grams (Approximate)

SOD523



Top View



Device Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
D1213A-01T-7	SOD523	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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 <http://www.diodes.com>.
 5. Dispensed every other cavity of the carrier tape.

Marking Information



U4 = Product Type Marking Code
Line Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	5	A	8/20 μs , Per Fig. 2
ESD Protection – Contact Discharge	$V_{ESD_Contact}$	± 8	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V_{ESD_Air}	± 15	kV	Standard IEC 61000-4-2

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse working voltage	V_{RWM}	-	-	3.3	V	-
Reverse current (Note 7)	I_R	-	0.1	1.0	μA	$V_R = V_{RWM} = 3.3\text{V}$
Reverse breakdown voltage	V_{BR}	6.0	7.5	9.0	V	$I_R = 1\text{mA}$
Forward voltage	V_F	0.6	0.8	0.95	V	$I_F = 8\text{mA}$
Reverse clamping voltage, Positive Transients	V_{CL1}	-	10.0	-	V	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$
Reverse clamping voltage, Negative Transients	V_{CL2}	-	-1.7	-	V	$I_{PP} = -1\text{A}$, $t_p = 8/20\mu\text{s}$
Dynamic resistance	R_{DYN}	-	0.9	-	Ω	$I_R = 1\text{A}$, $t_p = 8/20\mu\text{s}$
Capacitance	C_T	-	0.85	1.2	pF	$V_R = 1.65\text{V}$, $f = 1\text{MHz}$

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 - Short duration pulse test used to minimize self-heating effect.

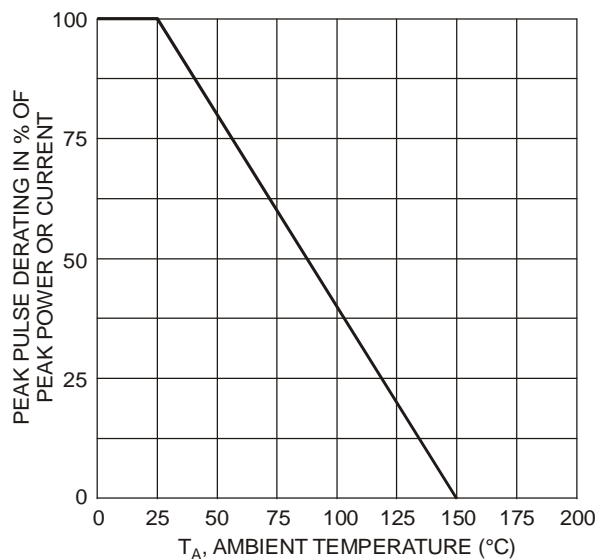


Fig. 1 Pulse Derating Curve

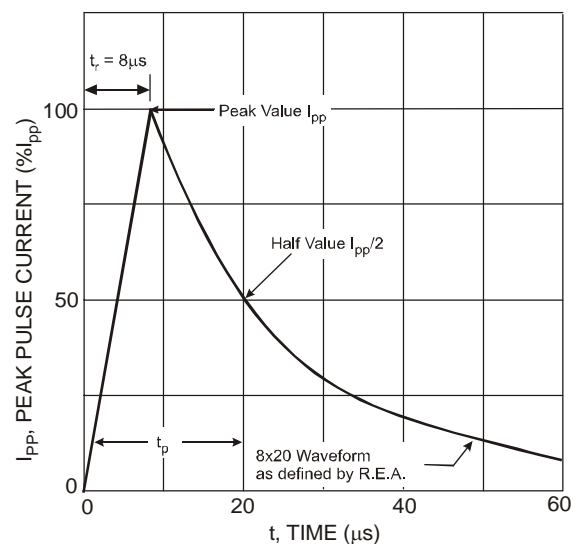
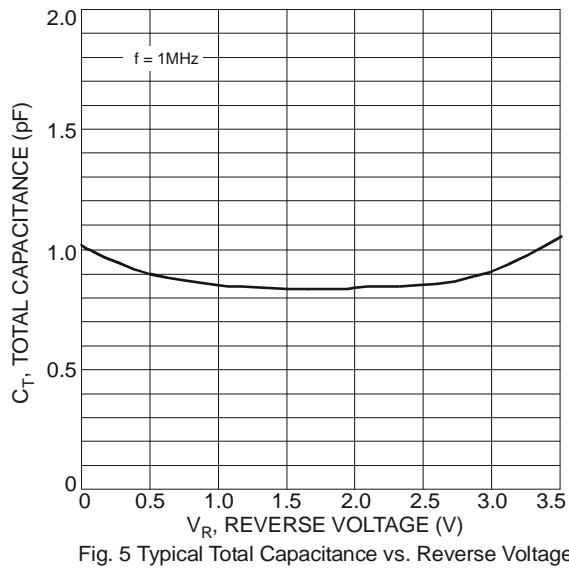
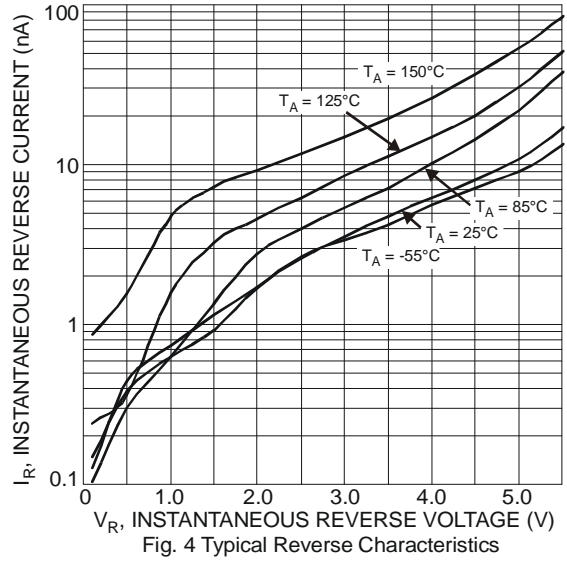
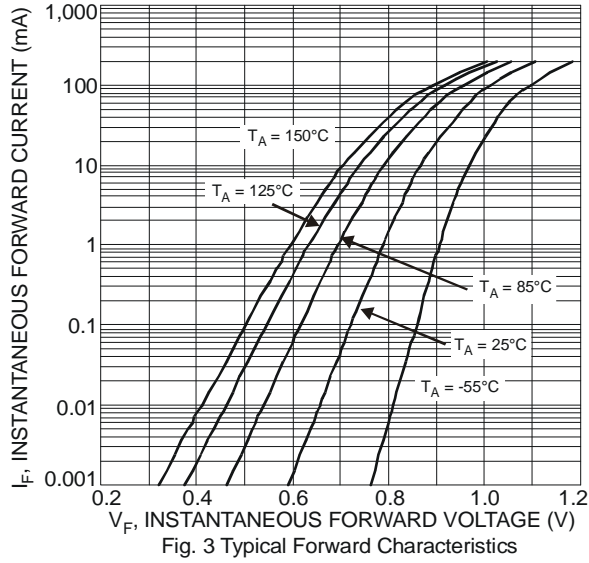
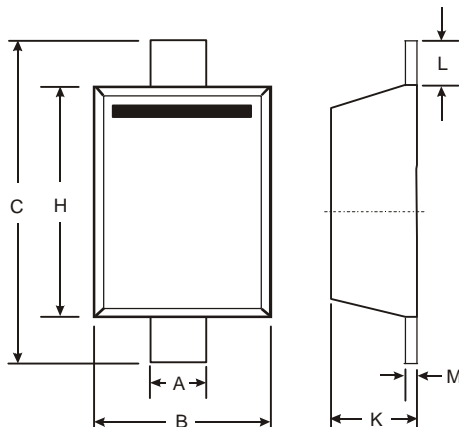


Fig. 2 Pulse Waveform

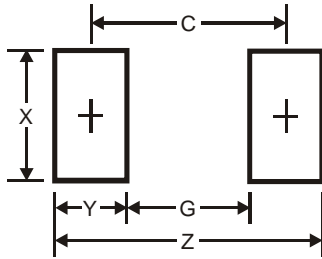


Package Outline Dimensions



SOD523		
Dim	Min	Max
A	0.25	0.35
B	0.70	0.90
C	1.50	1.70
H	1.10	1.30
K	0.55	0.65
L	0.10	0.30
M	0.10	0.12
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.3
G	1.1
X	0.8
Y	0.6
C	1.7

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