

Features

- Ideally Suited for ESD Protection
- Small Surface Mount Package
- Excellent Clamping Capability, Fast Response Time
- **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
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe.
Solderable per MIL-STD-202, Method 208③
- Weight: 0.001 grams (Approximate)



Top View

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
(Type Number)-7* (Note 5)	Standard	XX (Note 6)	7	8	3,000/Tape & Reel

* Add "-7" to the appropriate type number in Electrical Characteristics Table on Page 2, Example: 5.0V TVS = T5V0S5-7

- 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/quality/lead_free.html 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/products/packages.html>.
 5. Dispensed in every other cavity of the tape.
 6. See Electrical Characteristics Table for marking code by part number.

Marking Information



xx = Product Type Marking Code
(See Electrical Characteristics Table)

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

Characteristic		Symbol	Value	Unit
Forward Voltage @ I _F = 10mA		V _F	0.9	V
ESD Rating	Human Body Model	ESD	8	kV
	Machine Model		400	V
	IEC61000-4-2 Air Discharge		±30	kV
	IEC61000-4-2 Contact Discharge		±30	kV

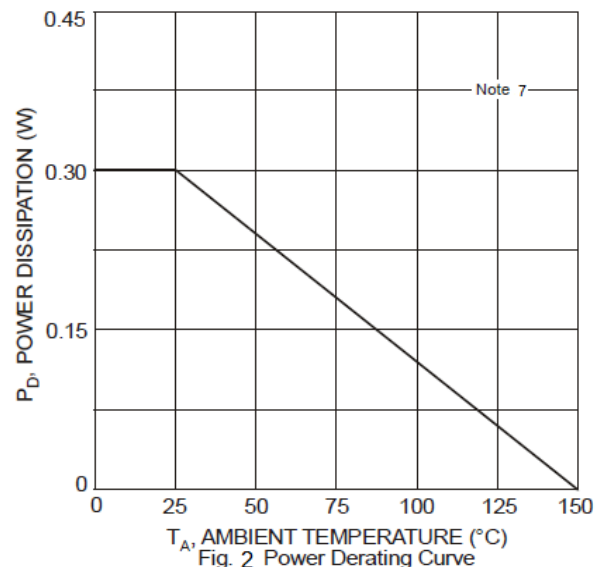
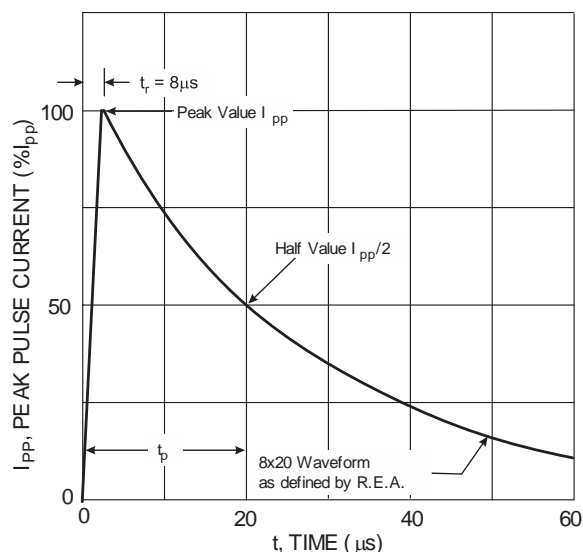
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7) (See Figure 2)	P _D	300	mW
Thermal Resistance, Junction to Ambient Air (Note 7)	R _{θJA}	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

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

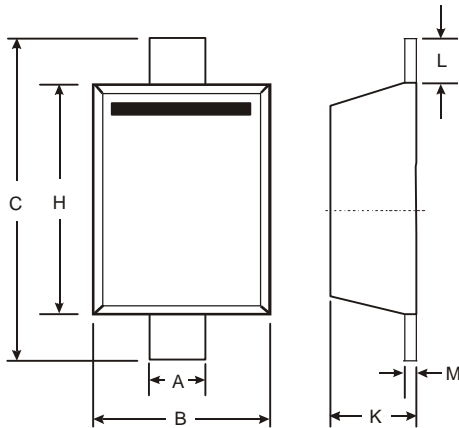
Part Number	Reverse Standoff Voltage	Min. Breakdown Voltage V_{BR} @ I_T	Test Current	Max. Reverse Leakage @ V_{RWM} (Note 8)	Typ. Clamping Voltage @ $I_{PP}=5A$ ($t_p = 8 \times 20 \mu s$) (See Figure 1)	Max. Clamping Voltage V_{C1} @ I_{PP1} ($t_p = 8 \times 20 \mu s$) (See Figure 1)		Max. Clamping Voltage V_{C2} @ I_{PP2} ($t_p = 8 \times 20 \mu s$) (See Figure 1)		Peak Power Dissipation (See Figure 1)	Typical Total Capacitance $V_R = 0V$ $f = 1MHz$	Marking Code
	V_{RWM} (V)	Min (V)	I_T (mA)	I_R (μA)	V_C (V)	V_C (V)	I_{PP} (A)	V_C (V)	I_{PP} (A)	P_{PK} (W)	C_T (pF)	
T3V3S5	3.3	5.0	1.0	1	8.4	14.1	11.2	16	16	220	85	ED
T5V0S5	5.0	6.2	1.0	0.05	15	22	9.4	27	15	260	100	EJ
T6V0S5	6.0	6.8	1.0	0.05	11.6	17	8.8	22.4	13	260	90	EL
T12S5	12	14.1	1.0	0.01	19.7	25	9.6	28	12	300	60	ES

- Notes: 7. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
 8. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

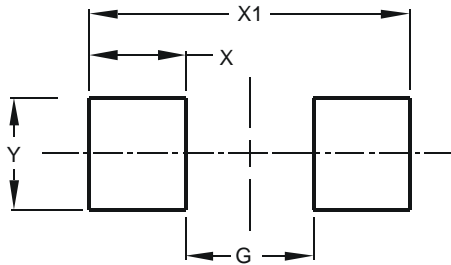
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
G	0.80
X	0.60
X1	2.00
Y	0.70

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