T3V3S5 / T5V0S5 / T6V0S5 / T12S5

UNIDIRECTIONAL SURFACE MOUNT TVS

Please click here to visit our online spice models database.

Features

- Ideally Suited for ESD Protection
- Ultra-Small Surface Mount Package
- Excellent Clamping Capability, Fast Response Time
- Low Capacitance
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

- Case: SOD-523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.001 grams (approximate)

Top View

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 3) (See figure 2)	P_D	150	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	$R_{\theta JA}$	833	°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 4)	Typ. Clamping Voltage @ I_{PP} =5A (t_p = 8 x 20 µs) (See figure 1)	Max. Clamping Voltage V_c @ I_{PP} (t_p = 8 x 20 µs) (See Figure 1)		Max. Clamping Voltage V_c @ I_{PP} (t_p = 8 x 20 µs) (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	60	EJ
T6V0S5	6.0	6.8	1.0	0.05	11.2	17	8.8	23	15	260	90	EL
T12S5	12	14.1	1.0	0.01	19.7	25	9.6	28	12	300	60	ES

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
4. Short duration pulse test used to minimize self-heating effect.

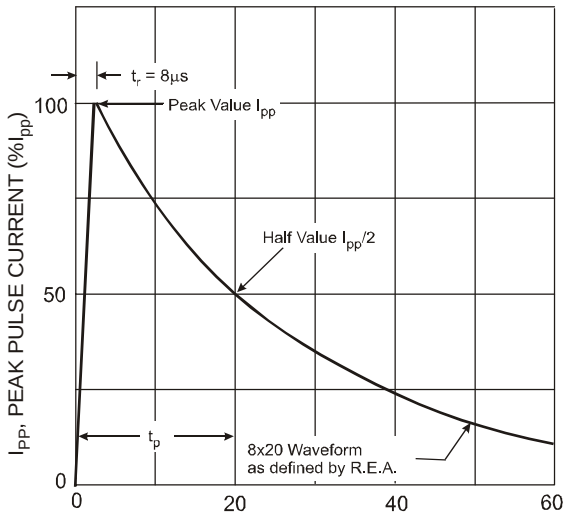


Fig. 1 Pulse Waveform

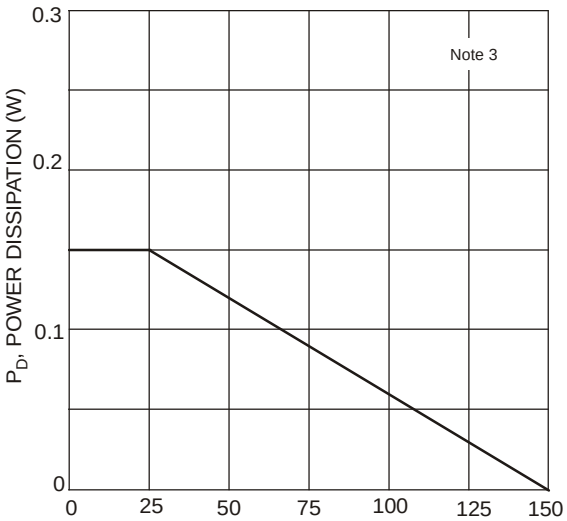


Fig. 2 Power Derating Curve

Ordering Information (Note 5)

Part Number	Case	Packaging
(Type Number)-7* (Note 6)	SOD-523	3000/Tape & Reel

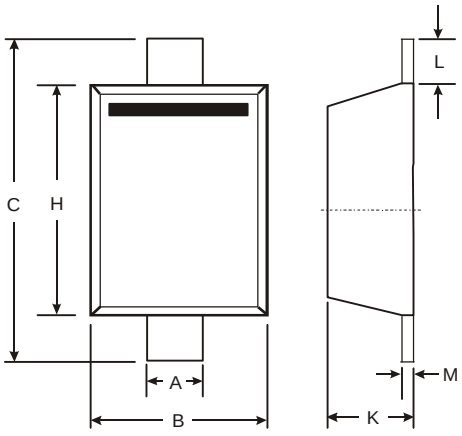
* Add "-7" to the appropriate type number in Electrical Characteristics Table on page 1 example: 2.5V TVS = T2V5S5-7.

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.
6. Dispensed in every other cavity of the tape.

Marking Information

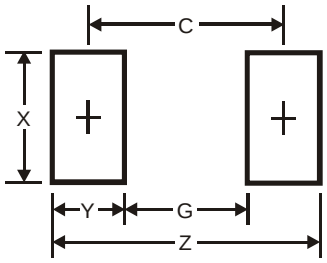
xx = Product Type Marking Code
(See Electrical Characteristics Table)

Package Outline Dimensions



SOD-523		
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