

Features

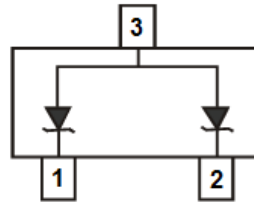
- 300 Watts Peak Pulse Power ($t_P = 8 \times 20 \mu s$)
- IEC 61000-4-2 (ESD): Air – 15kV, Contact – 8kV
- Dual Common Anode TVS
- SOT23 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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. Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (Approximate)



Top View



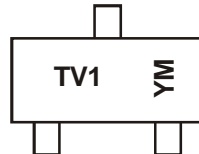
Device Schematic

Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
SM05-7	AEC-Q101	SOT23	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/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>.

Marking Information



TV1 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: D = 2016)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	2015	2016	2017	2018	2019
Code	X	C	D	E	F	G

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

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Peak Pulse Power ($t_P = 8 \times 20 \mu s$) (Note 5) $T_A = +25^\circ C$	P_{PK}	300	W
Thermal Resistance, Junction to Ambient (Note 5) $T_A = +25^\circ C$	$R_{\theta JA}$	417	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

- Note: 5. Device mounted on FR-4 PC board with suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>. Measured across pin 1 and pin 2.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified) (Note 7)

Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T		Test Current I_T (mA)	Max. Reverse Leakage @ V_{RWM} (Note 6) I_R (μA)	Max. Clamping Voltage @ $I_{PP} = 5\text{A}$ (Note 7) V_C (V)	Max. Clamping Voltage V_C @ I_{PP} (Note 7)		Typical Capacitance C_T (Note 8) (pF)
	V_{RWM} (V)	Min (V)				Max (V)	V_C (V)	
5	6.2	7.3	1.0	10	9.8	20.6	17	230

- Notes:
- 6. Short duration pulse test used to minimize self-heating effect.
 - 7. Clamping voltage value is based on an 8x20 μs peak pulse current (I_{PP}) waveform.
 - 8. Measured at $V_R = 0\text{V}$, $f = 1\text{MHz}$.

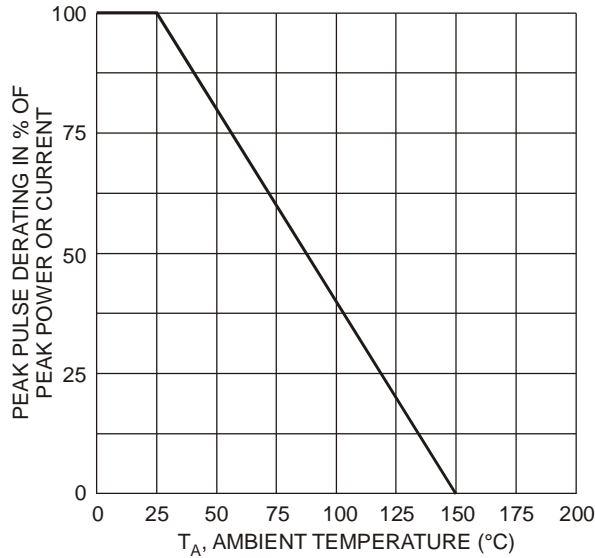


Fig. 1 Pulse Derating Curve

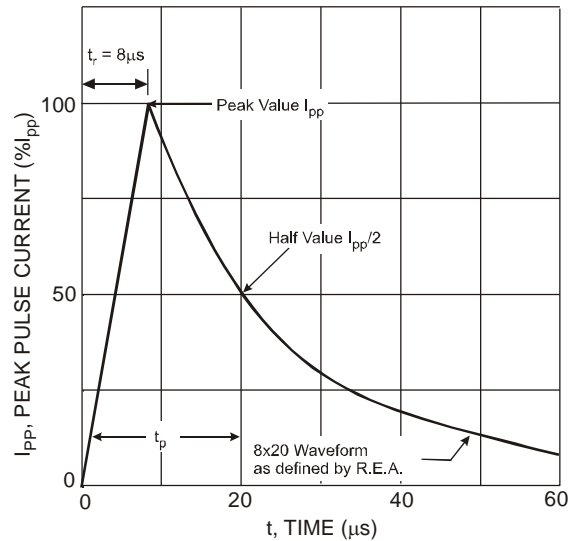


Fig. 2 Pulse Waveform

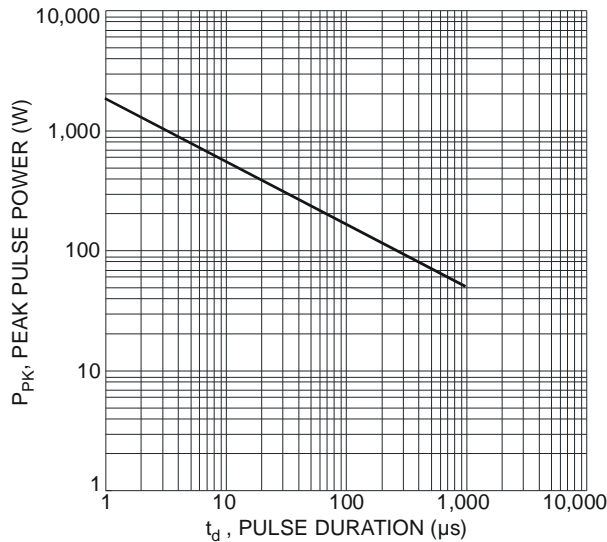


Fig. 3 Max. Peak Pulse Power vs. Pulse Duration

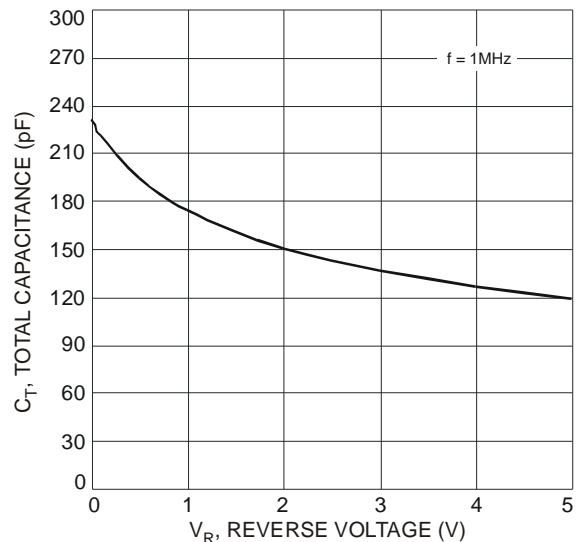
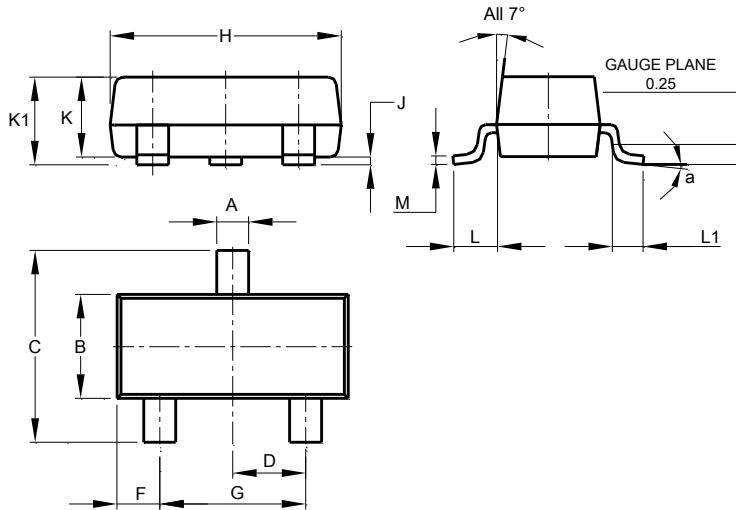


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOT23

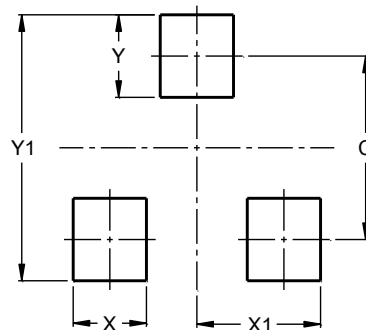


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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