NEW PRODUCT

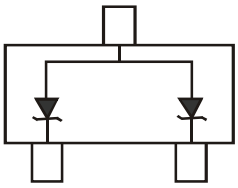
Features

- 300 Watts Peak Pulse Power (tp = 8x20µs)
- IEC 61000-4-2 (ESD): Air – 15kV, Contact – 8kV
- Dual Common Anode TVS
- SOT-23 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- **Lead Free/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound, Note 3. 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
- Ordering Information: See Page 2
- Marking Information: See Page 2
- Weight: 0.0089 grams (approximate)

Top View



Device Schematic

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Peak Pulse Power (tp = 8x20µs)	(Note 6) T_A = 25°C	P_{pk}	300	W
Thermal Resistance, Junction to Ambient	(Note 6) T_A = 25°C	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified (Note 7)

Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 5)	Max. Clamping Voltage @ I_{PP} = 5A (Note 2)	Max. Clamping Voltage V_C @ I_{PP} (Note 2)		Typical Capacitance C_T (Note 1)
V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	V_C (V)	I_{PP} (A)	(pF)
5	6.2	7.3	1.0	10	9.8	20.6	17	230

Notes:
1. V_R = 0V, f = 1MHz.
2. Clamping voltage value is based on an 8x20 µs peak pulse current (I_{pp}) waveform.
3. No purposefully added lead.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
5. Short duration pulse test used to minimize self-heating effect.
6. Device mounted on FR-4 PC board with suggested pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. Measured across pin 1 and pin 2.

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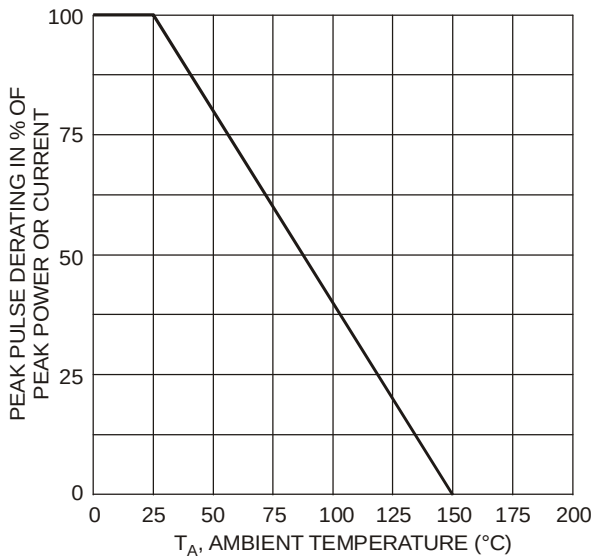


Fig. 1 Pulse Derating Curve

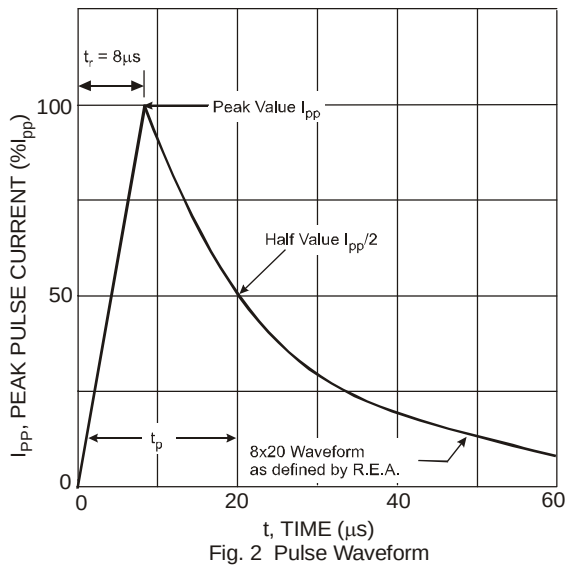


Fig. 2 Pulse Waveform

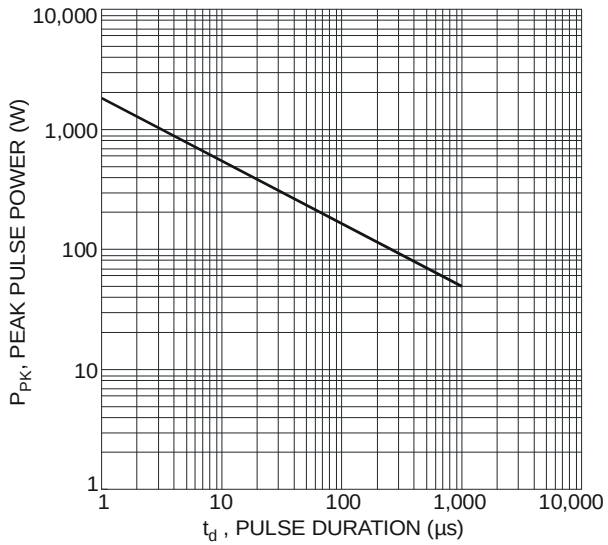


Fig. 3 Max. Peak Pulse Power vs. Pulse Duration

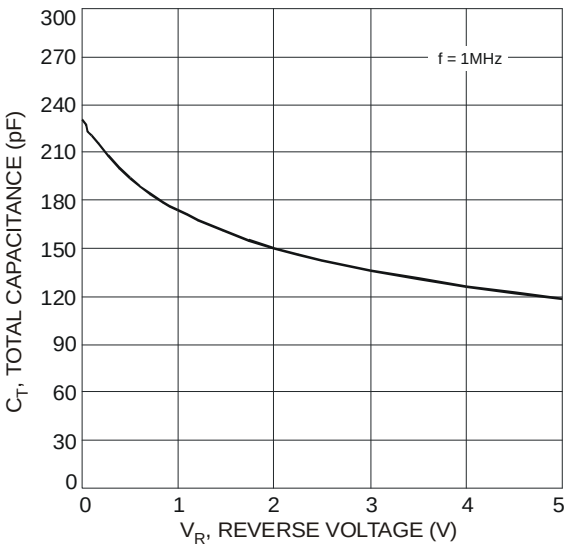


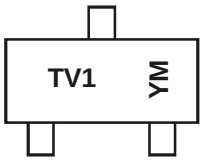
Fig. 4 Typical Total Capacitance vs. Reverse Voltage

Ordering Information (Note 8)

Part Number	Case	Packaging
SM05-7	SOT-23	3000/Tape & Reel

Notes: 8. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



TV1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: X = 2010)
M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016
Code	X	Y	Z	A	B	C	D

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

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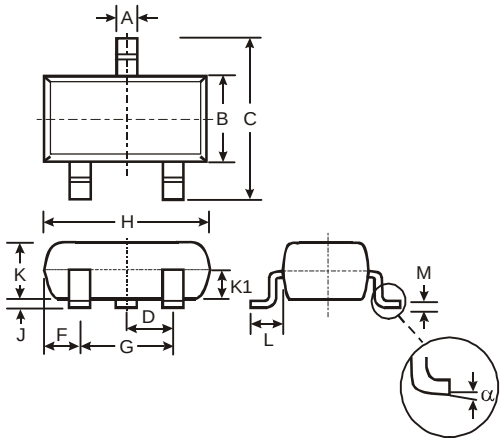
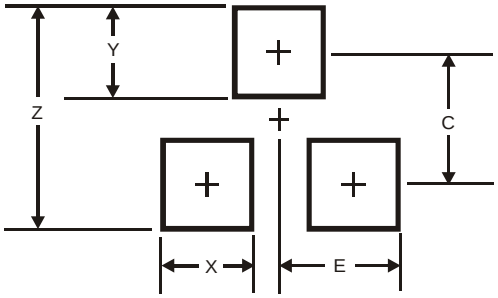
Package Outline Dimensions



SOT-23			
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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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