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[SM05-7](#)

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SM05

DUAL SURFACE MOUNT TVS

NEW PRODUCT

## Features

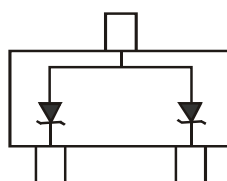
- 300 Watts Peak Pulse Power ( $t_p = 8 \times 20 \mu s$ )
- IEC 61000-4-2 (ESD): Air – 15kV, Contact – 8kV
- Dual Common Anode TVS
- SOT-23 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- **Lead Free/RoHS Compliant (Note 3)**
- **“Green” Device (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 ( $t_p = 8 \times 20 \mu s$ ) (Note 6) $T_A = 25^\circ C$	$P_{pk}$	300	W
Thermal Resistance, Junction to Ambient (Note 6) $T_A = 25^\circ C$	$R_{\theta JA}$	417	$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

## Electrical Characteristics @ $T_A = 25^\circ C$ 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 5) $I_R$ ( $\mu A$ )	Max. Clamping Voltage @ $I_{PP} = 5A$ (Note 2) $V_C$ (V)	Max. Clamping Voltage $V_C$ @ $I_{PP}$ (Note 2)		Typical Capacitance $C_T$ (Note 1) (pF)	
	Min (V)	Max (V)				$V_C$ (V)	$I_{PP}$ (A)		
$V_{RWM}$ (V)	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  $8 \times 20 \mu s$  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](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.

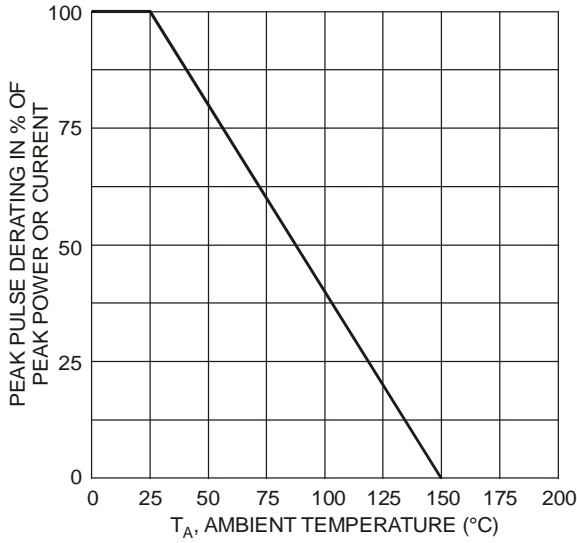


Fig. 1 Pulse Derating Curve

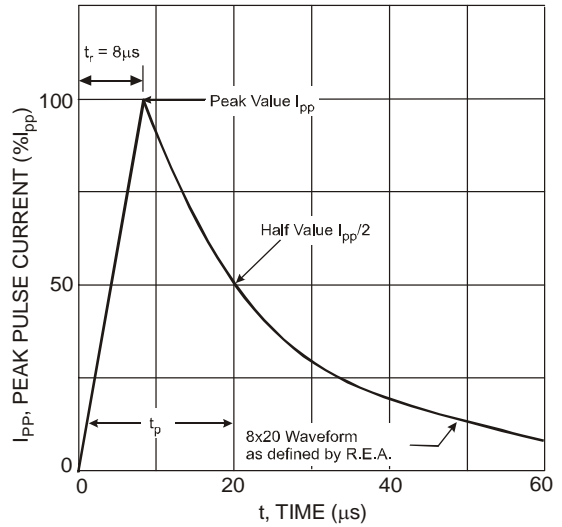


Fig. 2 Pulse Waveform

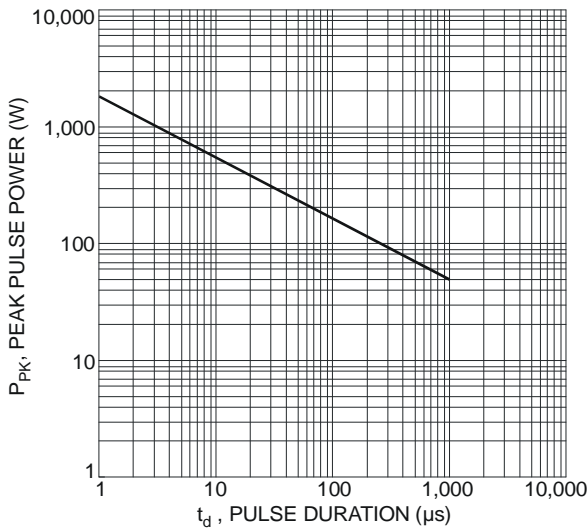


Fig. 3 Max. Peak Pulse Power vs. Pulse Duration

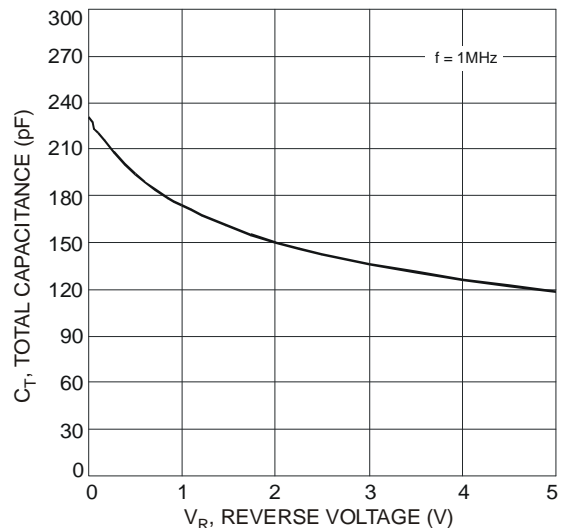


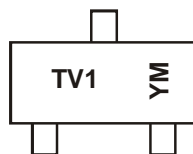
Fig. 4 Typical Total Capacitance vs. Reverse Voltage

**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)

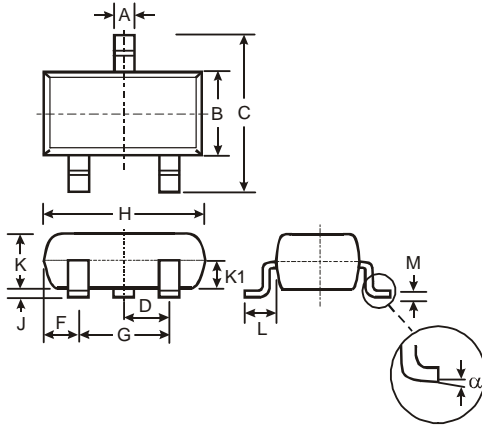
Date Code Key

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

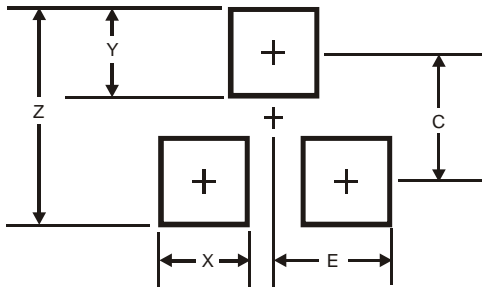
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**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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