



**THE DATASHEET OF  
SMAT70A-13-F**

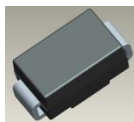


**400W, 600W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**
**Features**

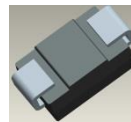
- 400, 600W Peak Pulse Power Dissipation
- 70V Standoff Voltage
- 100V Maximum Clamping Voltage
- Suitable for 48V Backplane Telecom Applications
- Glass Passivated Die Construction
- Fast Response Time: Typically Less than 1ps
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

- Case: SMA / SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead-Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Polarity Indicator: Cathode Band
- Weight: SMA 0.064 grams (Approximate)  
SMB 0.093 grams (Approximate)



Top View

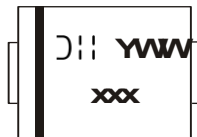


Bottom View

**Ordering Information** (Note 4)

Part Number	Case	Packaging
SMAT70A-13-F	SMA	5,000/Tape & Reel
SMBT70A-13-F	SMB	3,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](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**


xxx = Product Type Marking Code  
 See Electrical Characteristics Table  
 DII = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year ex: 4 for 2014  
 WW = Week Code 01 to 53

**Maximum Ratings** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Characteristic	Symbol	SMAT70A	SMBT70A	Unit
Peak Pulse Power Dissipation (Non-repetitive current pulse derated above T <sub>A</sub> = +25°C)	P <sub>PK</sub>	400	600	W
Peak Forward Surge Current, 8.3ms Single Half-Sine Wave Superimposed on Rated Load (Note 5)	I <sub>FSM</sub>	40	100	A
Instantaneous Forward Voltage @ I <sub>PP</sub> = 35A (Note 5)	V <sub>F</sub>	3.5		V

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 6)		Test Current	Max. Reverse Leakage @ V <sub>RWM</sub>	Max. Clamping Voltage @ I <sub>PP</sub>	Max. Peak Pulse Current I <sub>PP</sub>	Typical Total Capacitance (Note 6)	Typical Voltage Temp. Variation of V <sub>BR</sub>	Marking Code
	V <sub>RWM</sub> (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (µA)	V <sub>C</sub> (V)	(A)	(pF)	mV/°C	
SMAT70A	70	77.8	89.5	1.0	5.0	100	3.5	140	80	KEX
SMBT70A	70	77.8	89.5	1.0	5.0	100	5.3	290	80	NPX

Notes: 5. V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10 ~ 15 ms.  
6. f = 1MHz, V<sub>R</sub> = 0VDC.

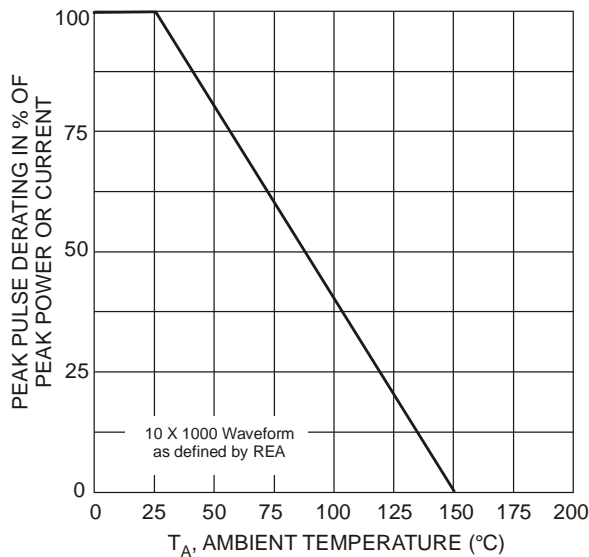


Fig. 1 Pulse Derating Curve

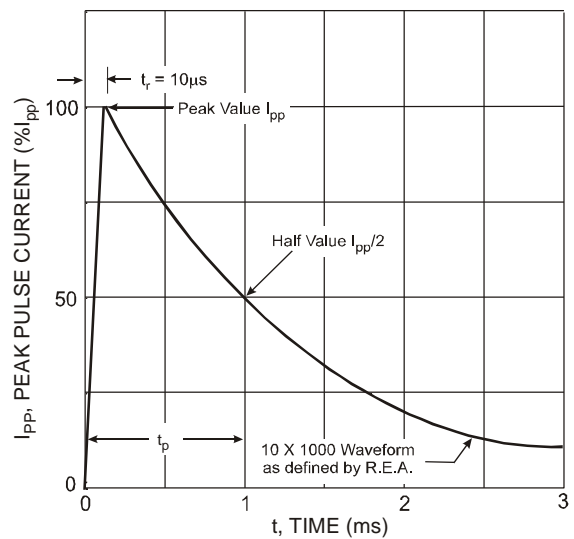
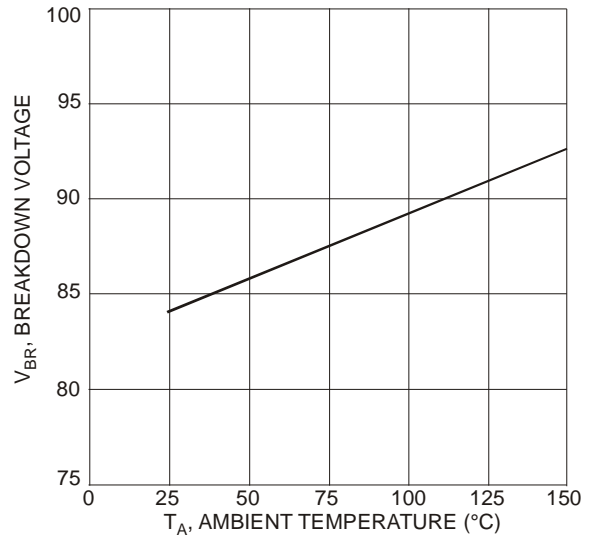
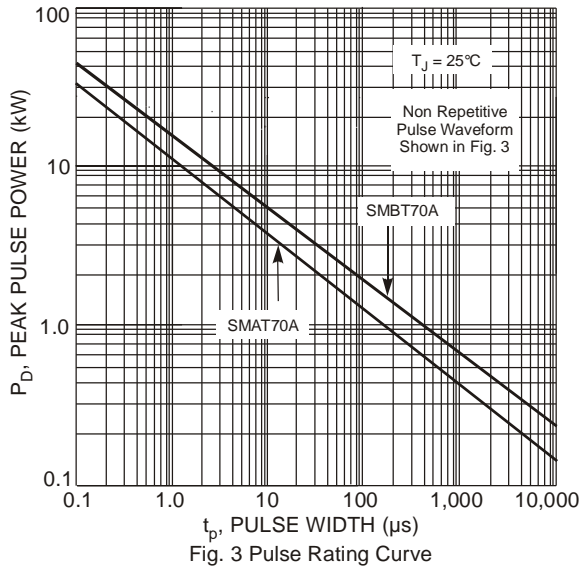


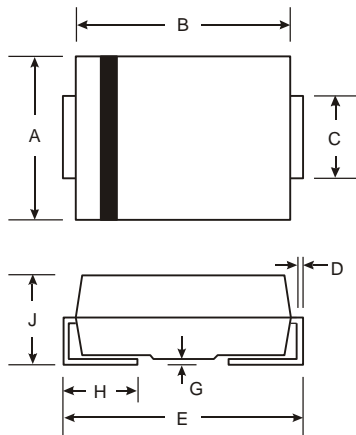
Fig. 2 Pulse Waveform



**Package Outline Dimensions**

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

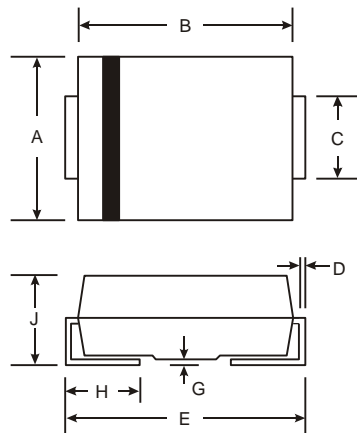
(1) SMA



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30

All Dimensions in mm

(2) SMB



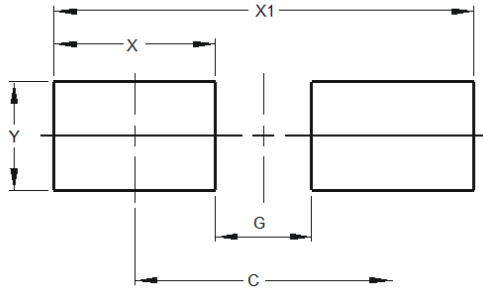
SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50

All Dimensions in mm

**Suggested Pad Layout**

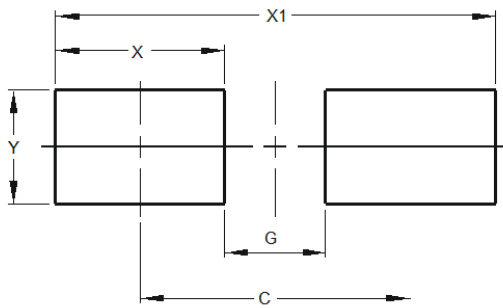
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

**(1) SMA**



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

**(2) SMB**



Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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