

## Lightning Surge Protection

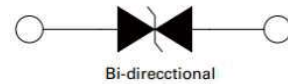
Working Voltage: 58V to 76V

## Surface Mount Transient Voltage Suppressors

### Features

- Glass passivated chip
- 6,000A Peak Pulse power capability at 8/20us waveform
- Low leakage
- Bidirectional unit
- Excellent clamping capability
- Very fast response time
- Repetitive rate (duty cycle):0.01 %
- Meet MSL level1, per J-STD-020, LF maximum peak of 245°C
- Ideal for automatic pick and place assembly and reflow process to reduce the manufacturing cost and increase the soldering quality as compared to axial leaded packages.
- Sharp breakdown voltage.

SMTO-218



### Mechanical Data

- **Case:** SMTO-218 package. Molded plastic over glass passivated junction.
- **Epoxy:** UL 94V-0 rate flame retardant
- **Terminal:** Matte Tin-plated leads, solderable per MIL-STD-202, Method 208.
- **Mounting position:** Any

### Maximum Ratings( $T_A=25^\circ\text{C}$ unless otherwise noted)

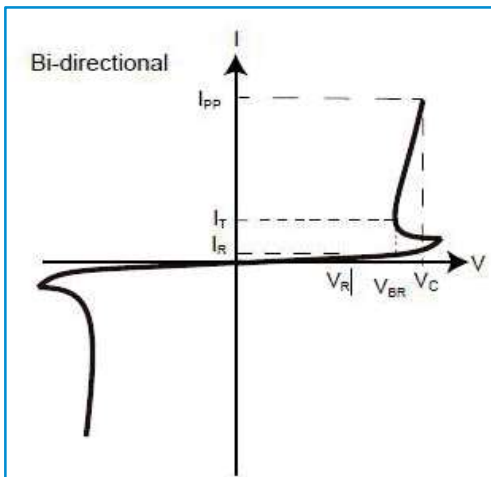
Parameter	Symbol	Value	Unit
Peak pulse current with a 8/20us waveform	$I_{pp}$	6	kA
Operating junction temperature range	$T_J, T_{STG}$	-55 to +125	°C
Storage temperature range	$T_J, T_{STG}$	-55 to +150	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	10	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	50	°C/W



Electrical Characteristics( $T_A=25^\circ\text{C}$  unless otherwise noted)

Part Numbers	Breakdown Voltage $V_{BR}$ @ $I_T$			Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ (uA)	Maximum Clamping Voltage $V_C$ @IPP (V)	Maximum Temp Coefficient of $V_{BR}$ (%/°C)
	Min (V)	Max (V)	$I_T$ (mA)				
SMAK6-058C	64	70	10	58	10	110	0.1
SMAK6-066C	72	80	10	66	10	120	0.1
SMAK6-076C	85	95	10	76	10	140	0.1

I-V Curve Characteristics



$V_R$ , Standard-Off Voltage:

Maximum voltage that can be applied to the TVS without operation.

$V_{BR}$ , Breakdown Voltage:

Maximum voltage that flows through the TVS at a specified test current ( $I_T$ ).

$V_C$ , Clamping Voltage:

Peak voltage measured across the TVS at a specified  $I_{ppm}$  (peak impulse current).

$I_R$ , Reverse Leakage Current:

Current measured at  $V_R$ .



Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

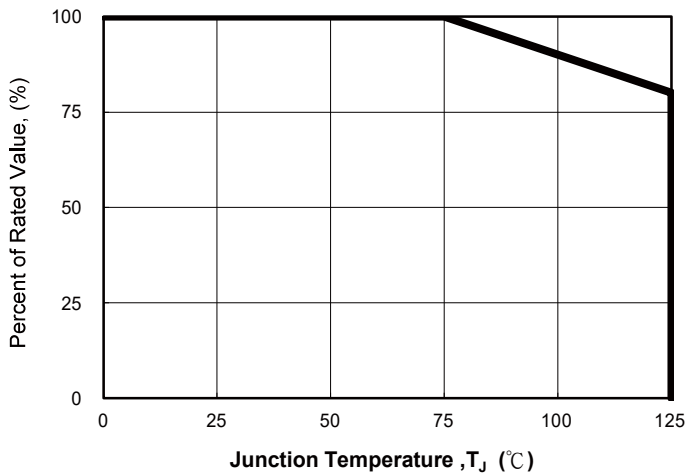


Fig. 1 - Pulse Derating Curve

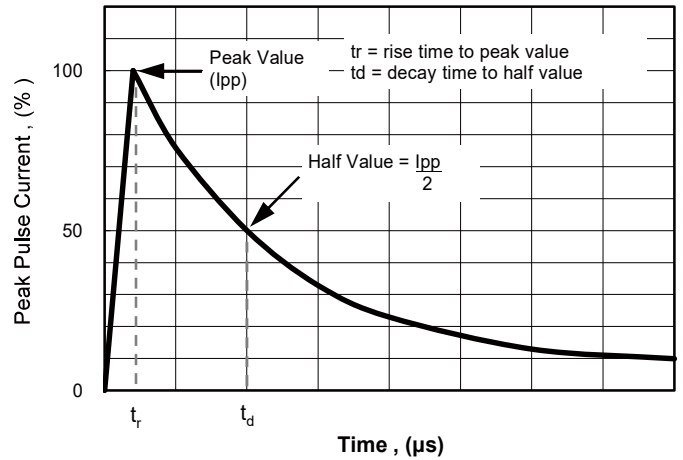


Fig. 2 - Pulse Waveform

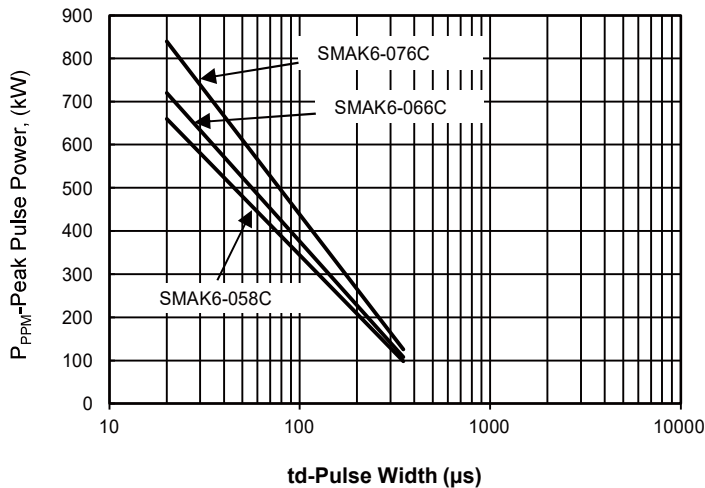
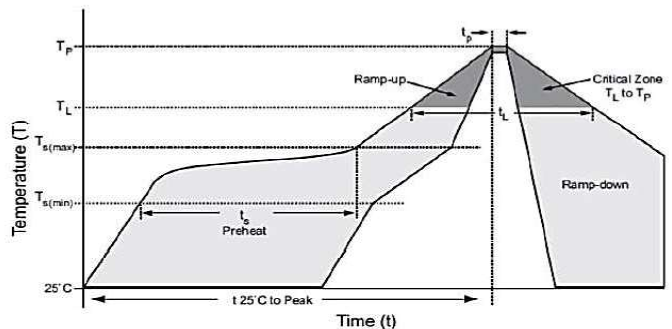


Fig. 3 - Typical Peak Pulse Power Rating Curve

Soldering Parameters

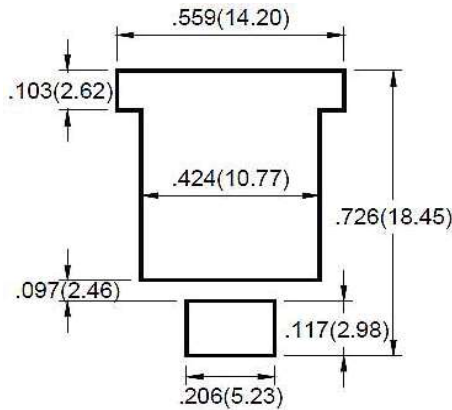
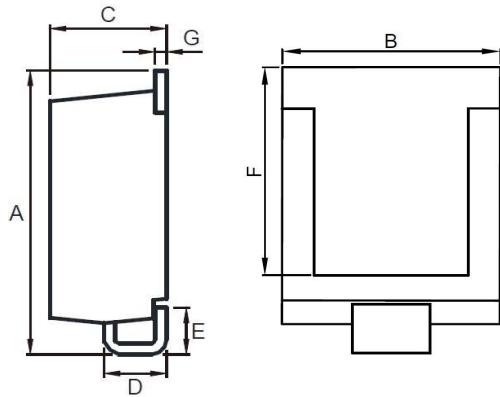
IR-Reflow Condition			
Pre Heat	Temp. min	150	°C
	Temp. max	200	°C
	Time(min to max)	60-120	sec
Ramp up rate (150-200°C)		<3	°C/sec
Reflow	Liquidus Temp.	>217	°C
	Peak Temp.	245	°C
	Time(Liq. to Peak)	60-150	sec
Ramp up rate (220-200°C)		<3	°C/sec
Time within 5°C of actual peak temp.		20-40	sec
Ramp down Rate		<6	°C/sec
Time(25°C to Peak temp.)		<8	min

Note : Do not exceed 245°C



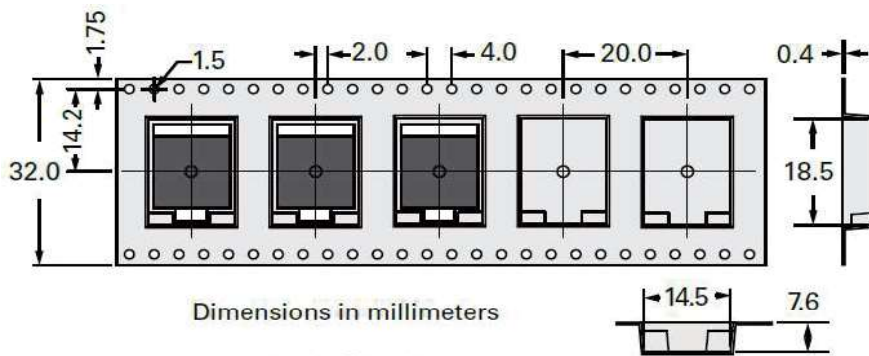


Dimensions

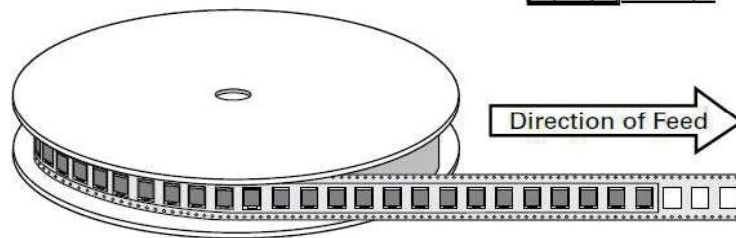


Dimensions in inches and (millimeters)

Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.701	0.737	17.80	18.72
B	0.529	0.594	13.43	15.29
C	0.268	0.291	6.80	7.40
D	0.138	0.167	3.51	4.25
E	0.087	0.129	2.20	3.27
F	0.500	0.533	12.70	13.55
G	0.023	0.039	0.60	1.00



Dimensions in millimeters



Part No.	Package Type	Reel Size	Qty
SMAK6 Series	SMTO-218	13"	0.4 Kpcs