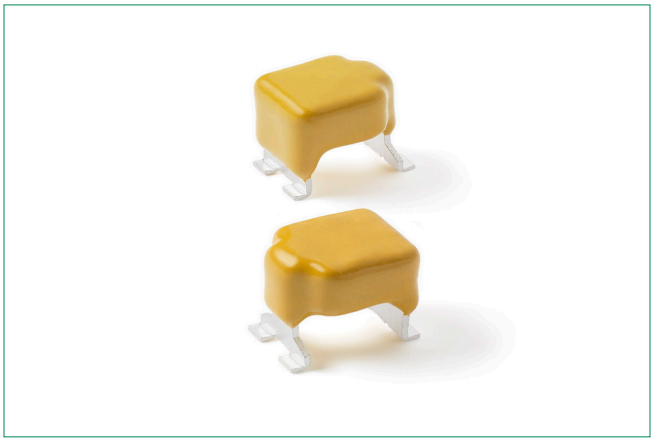
SMTAK3 Series
Surface Mount - 3kA



Web Resources

Download ECAD models, order samples, and find technical recources at www.littelfuse.com/smtak3

Agency Recognitions

Agency	Agency File Number
	E128662

Maximum Ratings and Thermal Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 125	°C
Current Rating[1]	I_{PP}	3	kA

Note:
1. Rated IPP measured with 8/20µs pulse.

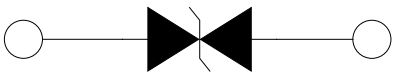
Description

The SMTAK3 series of high current transient suppressors have been specially designed for use in D.C. line protection and any demanding applications. They offer superior clamping characteristics over standard S.A.D. technologies by virtue of the Littelfuse Foldbak technology. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level.

Features & Benefits

- Recognized to UL 497B as an Isolated Loop Circuit Protector
- Both reflow and wave soldering capable
- Low dynamic resistance
- Foldbak technology for superior clamping factor
- IEC 61000-4-2 ESD 15kV(Air), 8kV (Contact)
- VBR @ TJ = VBR@25 °C x (1+αTx (TJ - 25)) (αT:Temperature
- UL recognized epoxy meeting flammability rating V-0
- Halogen-free and RoHS compliant
- Glass passivated junction
- Pb-free E4 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/ JEDECJ-STD609A.01)

Functional Diagram



Bi-directional

Electrical Characteristics (TA=25°C unless otherwise noted)

Part Numbers	Part Marking	Standoff Voltage (V_{SO}) Volts	Max. Reverse Leakage (I_R) @V_{SO} µA	Typical I_R @ 85°C (µA)	Reverse Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T	Max. Clamping Voltage V_{CL} @ I_{PP} Peak Pulse Current (I_{PP}) (Note 1)		Max. Temp Coefficient OF V_{BR}	Max. Capacitance 0 Bias 10kHz	Agency Approval
					Min	Max	(mA)	V_{CL} Volts	I_{PP} Amps	(%/°C)	(nF)	
SMTAK3-015C	S3-015C	15	10	15	16	19	10	28	3,000	0.1	9.0	X
SMTAK3-058C	S3-058C	58	10	15	64	70	10	110	3,000	0.1	6.0	X
SMTAK3-066C	S3-066C	66	10	15	72	80	10	120	3,000	0.1	6.0	X
SMTAK3-076C	S3-076C	76	10	15	85	95	10	140	3,000	0.1	6.0	X

Note:
1. Using 8/20µs wave shape as defined in IEC 61000-4-5.

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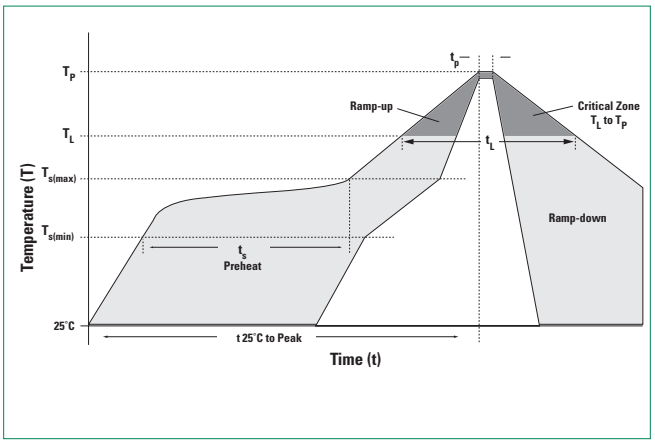
Soldering Parameters

Reflow Condition		Lead–free assembly
Pre Heat	**- Temperature Min ($T_{s(min)}$)**	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_A) to peak		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	**- Temperature (T_L) (Liquidus)**	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_p)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds max
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C



Flow/Wave Soldering (Solder Dipping)

Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

Physical Specifications

Weight	Contact manufacturer
Case	Compound encapsulated
Terminal	Silver plated leads, solderable per MIL-STD-202 Method 208

Wave Solder Profile

Figure 1 - Non Lead-free Profile

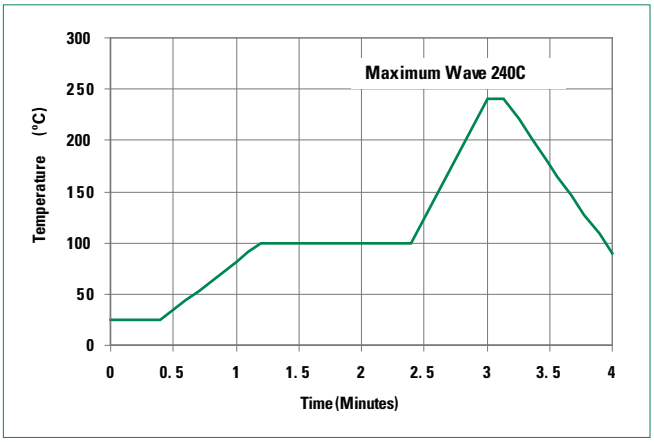
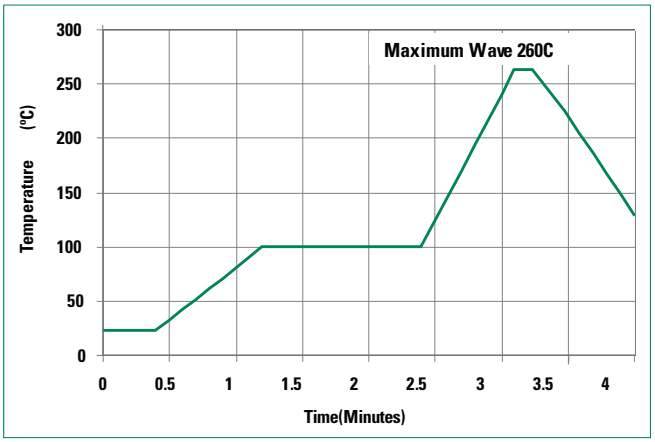


Figure 2 - Lead-free Profile



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Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

Figure 3 - Peak Power Derating

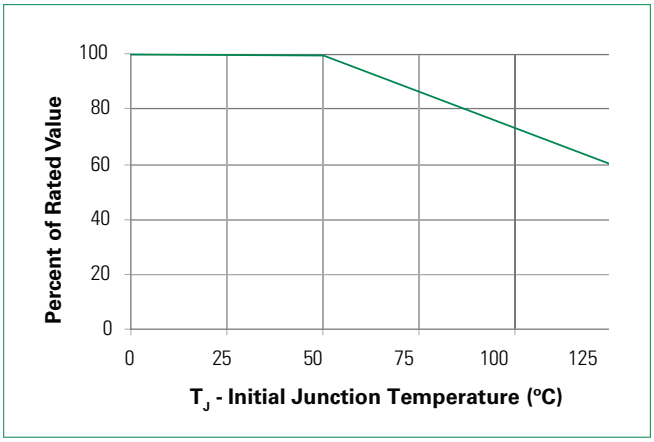


Figure 4 - Typical Peak Pulse Power Rating Curve

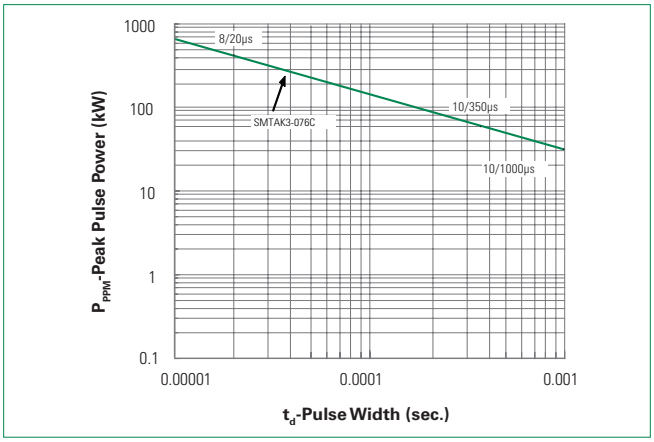


Figure 5 - Typical V_{BR} Vs Junction Temperature

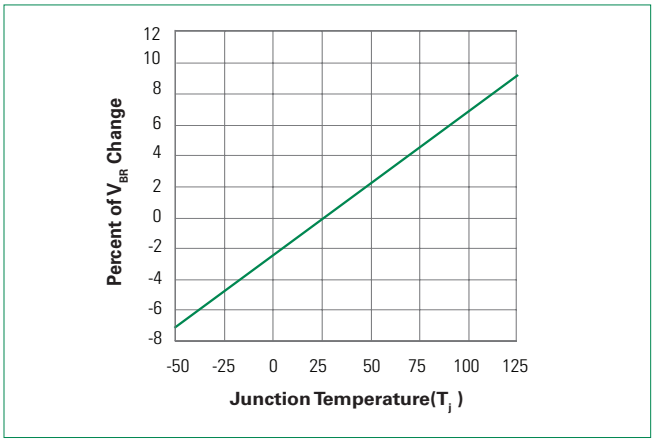
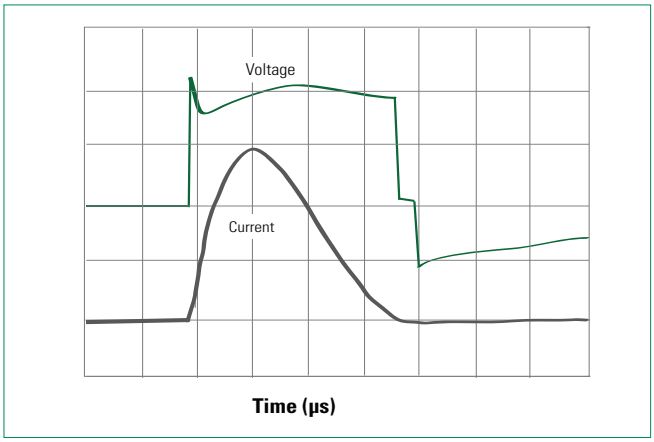
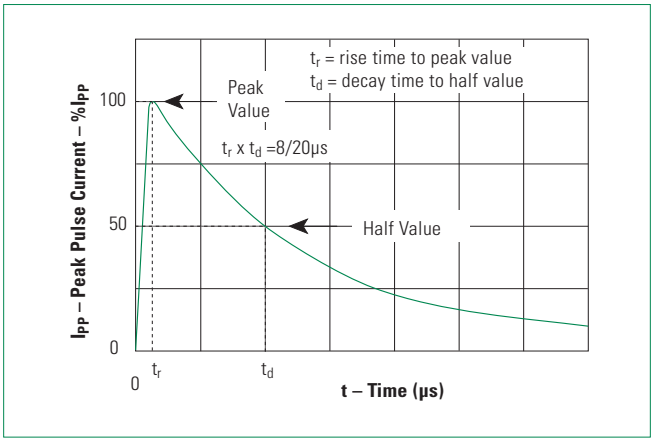


Figure 6 -Surge Response (8/20 Surge current waveform)



Note:
The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

Figure 7 - Pulse Waveform



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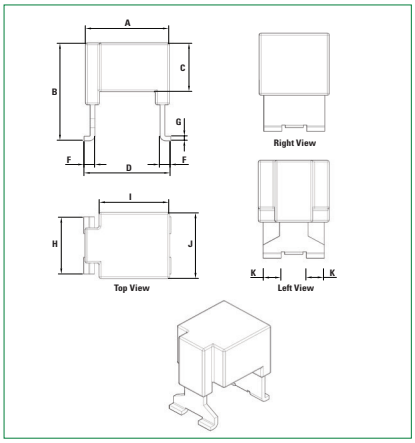


Dimensions

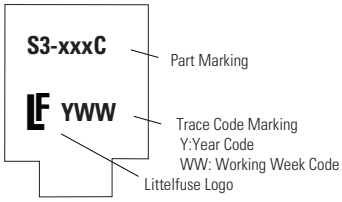
Dimensions	Inches	Millimeters
A	0.354 +0.059/- 0.020	9.0 +1.5/- 0.5
B	0.437 +/- 0.059	11.1 +/- 1.5
C	0.279 REF	7.1 REF
D	0.366 +/- 0.020	9.3 +/- 0.5
F	0.045 +/- 0.012	1.15 +/- 0.3
G	0.020 +/- 0.008	9.3 +/- 0.5
H	0.256 +/- 0.020	6.5 +/- 0.5
I	0.319 REF	8.1 REF
J	0.295 +0.059/- 0.020	7.5 +1.5/-0.5
K	0.075 +/-0.020	1.9+/-0.5

Part Numbering System

SMTAK3 -XXXX

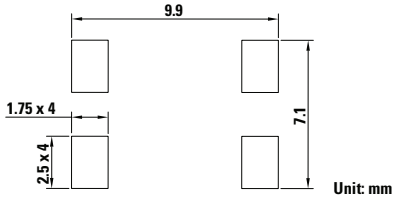
Series Type — **Stand Off Voltage**

Part Marking System

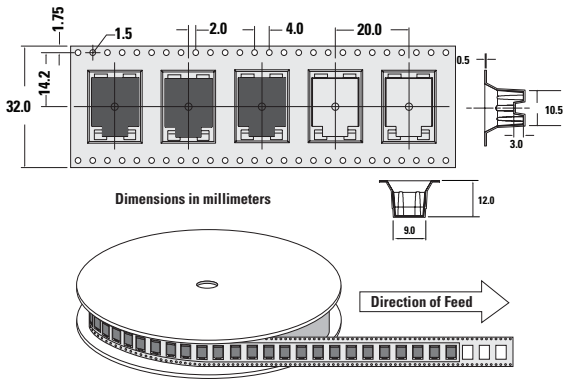


Soldering Pattern

Recommended Soldering Pattern



Tape and Reel Specification



Packing Options

Part Number	Component Package	Packing Mode	Quantity
SMTAK3-xxxC	SMTAK Package	Tape & Reel – 32mm/13" tape	200
SMTAK3-xxxC-B	SMTAK Package	Bulk	100

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