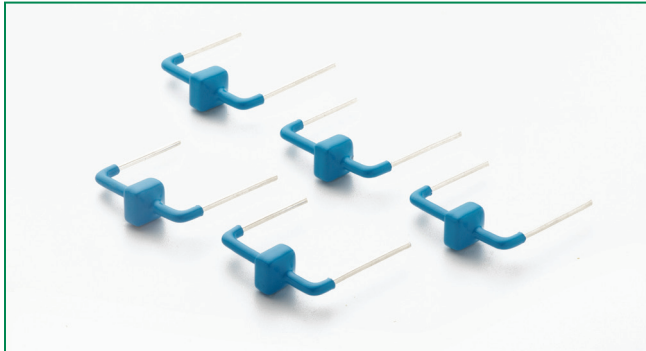


**AK3 Series**



**Description**

The AK3 series of high current transient suppressors have been specially designed for use in A.C. line protection and any demanding applications (AC or DC). They offer superior clamping characteristics over standard S.A.D. technologies by virtue of the Littelfuse Foldbak technology, which provides a clamping voltage lower than the avalanche voltage (but above the rated working voltage). Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

**Agency Approvals**

AGENCY	AGENCY FILE NUMBER
	E128662

**Maximum Ratings and Thermal Characteristics**  
(T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T <sub>STG</sub>	(-)55 to 150	°C
Operating Junction Temperature Range	T <sub>J</sub>	(-)55 to 125	°C
Current Rating <sup>1</sup>	I <sub>PP</sub>	3	kA

**Note:**

1. Rated I<sub>PP</sub> measured with 8 x 20µs pulse.

**Features**

- Halogen-Free
- RoHS compliant
- Foldbak technology for superior clamping factor
- Glass passivated junction
- Bi-directional
- Ultra compact: Less than one-tenth the size of traditional discrete solutions
- Very low clamping voltage
- Sharp breakdown voltage
- Low slope resistance

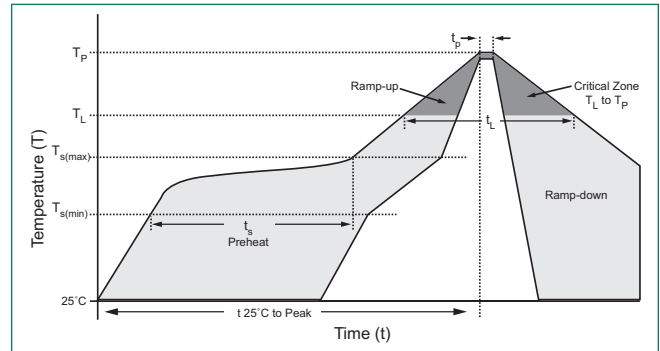
**Electrical Characteristics**

Part Numbers	Standoff Voltage (V <sub>SO</sub> ) Volts	Max. Reverse Leakage (I <sub>R</sub> ) @ V <sub>SO</sub> µA	Reverse Breakdown Voltage (V <sub>BR</sub> ) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max. Clamping Voltage V <sub>CL</sub> @ I <sub>PP</sub> Peak Pulse Current (I <sub>PP</sub> ) (Note 1)		Max. Temp Coefficient OF V <sub>BR</sub> (%/°C)	Max. Capacitance 0 Bias 10kHz (nF)	Agency Approval
			Min Volts	Max Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> Amps			
AK3 - 030C	30	20	32	37	10	90	3,000	0.1	11	X
AK3 - 058C	58	20	64	70	10	110	3,000	0.1	6	X
AK3 - 066C	66	20	72	80	10	120	3,000	0.1	6	X
AK3 - 076C	76	20	85	95	10	140	3,000	0.1	6	X
AK3 - 380C	380	20	401	443	10	520	3,000	0.1	2	X
AK3 - 430C	430	20	440	490	10	625	3,000	0.1	2	X

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

### 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 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - 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 <sup>+0/-5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes Max.
Do not exceed		280°C



### Flow/Wave Soldering (Solder Dipping)

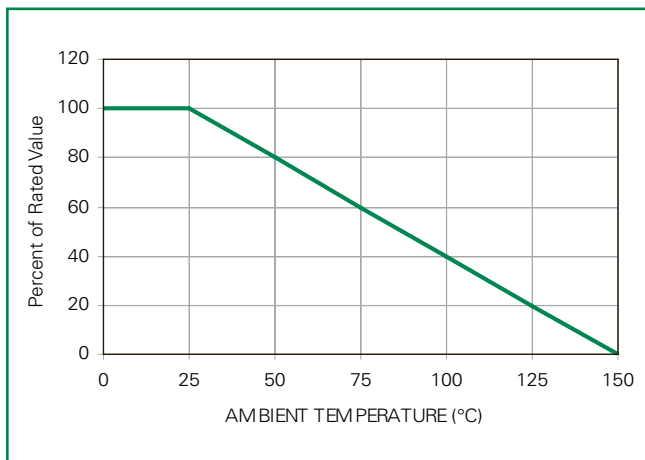
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

### Physical Specifications

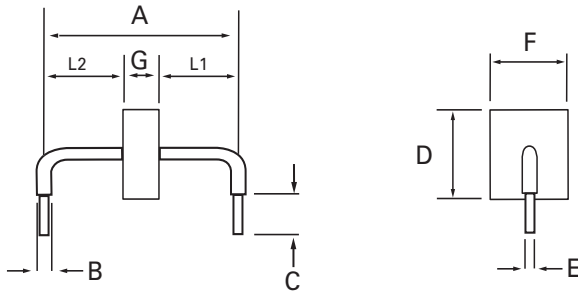
<b>Weight</b>	Contact manufacturer
<b>Case</b>	Epoxy encapsulated
<b>Terminal</b>	Silver plated leads, solderable per MIL-STD-202 Method 208

### Ratings and Characteristic Curves ( $T_a=25^\circ\text{C}$ unless otherwise noted)

#### Peak Power Derating

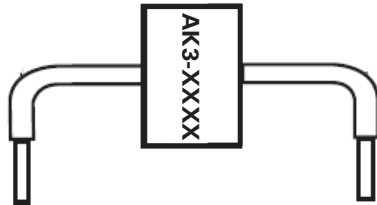


### Dimensions

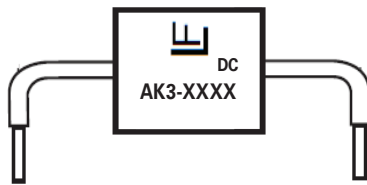


	Inches	Millimeters	
<b>A</b>	0.951 +/- 0.040	24.15 +/- 1.00	
<b>B</b>	0.094 +/- 0.024	2.40 +/- 0.60	
<b>C</b>	-030C/-058C -066C/-076C	0.236 +/- 0.039	6.00 +/- 1.00
	-380C/-430C	0.145 +/- 0.040	3.68 +/- 1.00
<b>D</b>	0.433 max.	11.0 max.	
<b>E</b>	0.050 +/- 0.002	1.27 +/- 0.05	
<b>F</b>	0.374 max.	9.50 max.	
<b>G</b>	-058C/-066C -076C	0.168 +/- 0.047	4.27 +/- 1.20
	-030C	0.130 +/- 0.047	3.30 +/- 1.20
	-380C	0.547 +/- 0.047	13.90 +/- 1.20
	-430C	0.583 +/- 0.047	14.80 +/- 1.20
<b>L1</b>	-058C/-066C -076C	0.391 +/- 0.047	9.94 +/- 1.20
	-030C	0.409 +/- 0.047	10.4 +/- 1.20
	-380C	0.202 +/- 0.047	5.13 +/- 1.20
	-430C	0.184 +/- 0.047	4.68 +/- 1.20
<b>L2</b>	= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)		

### Part Marking System



AK3-030C/-058C/-066C/-076C



AK3-380C/430C

### Part Numbering System

