



**Description**

The AK10 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 Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	(-55 to 150	°C
Current Rating <sup>1</sup>	I <sub>PP</sub>	10	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: 12 times less volume than traditional discrete solutions
- Very Low Clamping Voltage
- Sharp Breakdown Voltage
- Low Slope Resistance

**Electrical Characteristics**

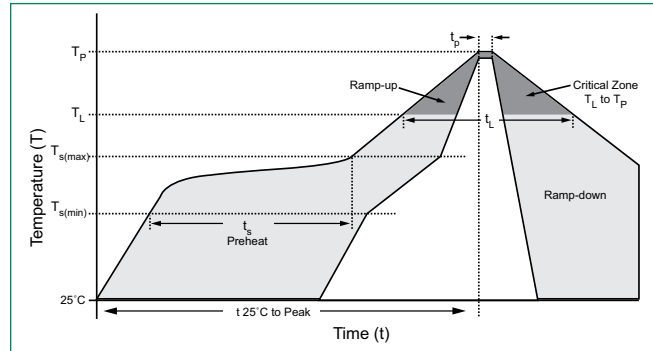
Part Numbers	Standoff Voltage (V <sub>SO</sub> ) Volts	Max. Reverse Leakage (I <sub>R</sub> ) @ V <sub>SO</sub> µA	Reverse Breakdown Voltage (V <sub>BR</sub> ) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max. Clamping Voltage V <sub>CL</sub> @ Peak Pulse Current (I <sub>PP</sub> ) (Note 1)		Max. 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			
AK10 - 058C	58	20	64	70	10	110	10,000	0.1	6.5	X
AK10 - 076C	76	20	85	95	10	140	10,000	0.1	6.5	X
AK10 - 170C	170	20	180	220	10	260	10,000	0.1	2.8	X
AK10 - 190C	190	20	200	245	10	290	10,000	0.1	2.5	X
AK10 - 240C	240	20	250	285	10	340	10,000	0.1	2.2	X
AK10 - 380C	380	20	401	443	10	520	10,000	0.1	2.0	X
AK10 - 430C	430	20	440	490	10	625	10,000	0.1	1.4	X

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

**AK10 Series**

### 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)

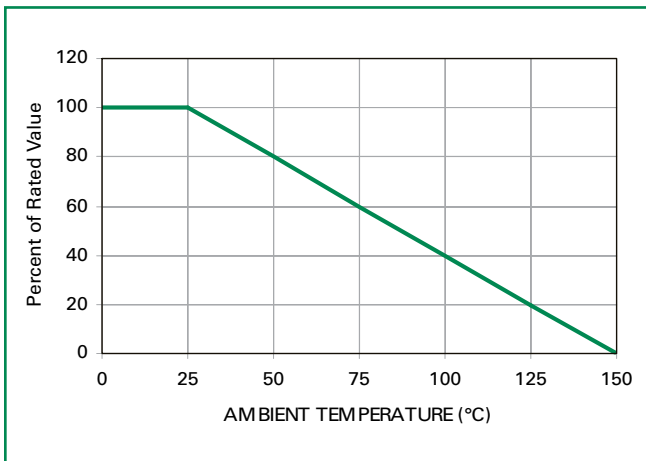
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

### Physical Specifications

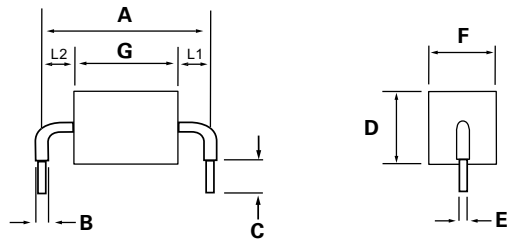
<b>Weight</b>	Contact manufacturer
<b>Case</b>	Epoxy encapsulated
<b>Terminal</b>	Silver plated leads, solderable per MIL-STD-202 Method 208

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

#### Peak Power Derating

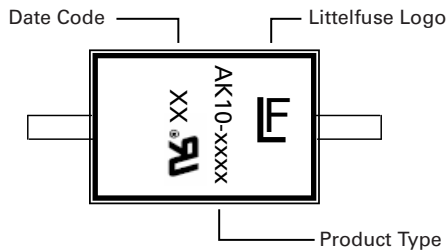


**Dimensions**



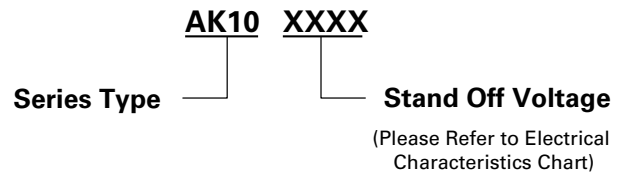
Dimensions	Inches	Millimeters
A	0.950	24.15
B	0.095	2.4
C - 058C/076C	0.236	6.00
C	0.145	3.68
D	0.570 max.	14.48 max.
E	0.050	1.270
F	0.500 max.	12.70 max.
G - 058C/076C	0.200	5.08
G - 170C/190C	0.362	9.2
G - 240C	0.420	10.67
G - 380C/430C	0.650	16.50
L1	0.310	7.87
L1 - 380C/430C	0.177	4.5
L2= A - (G+L1) tolerance +/- 0.04 inch (1.0 mm)		

**Part Marking System**



**Note:** UL mark does not appear on -058C and -076C.

**Part Numbering System**



**AK10 Series**