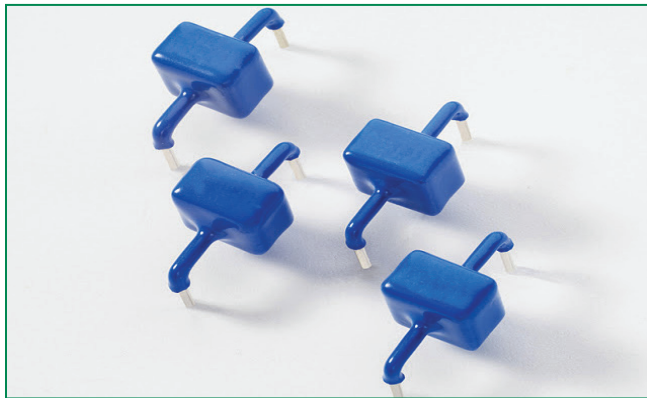


## AK10 Series



### 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. 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

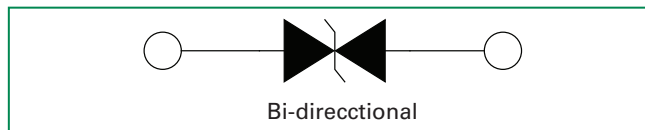
### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

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>	10	kA

**Note:**

1. Rated I<sub>pp</sub> measured with 8/20μS pulse.

### Functional Diagram



### Features

- Very low clamping voltage
- Ultra compact: less than one-tenth the size of traditional discrete solutions
- Sharp breakdown voltage
- Low slope resistance
- Bi-directional
- Foldbak technology for superior clamping factor
- Symmetric in leads width for easier soldering during assembly.
- IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2 (IEC801-2)
- EFT protection of data lines in accordance with IEC 61000-4-4 (IEC801-4)
- Halogen-free
- RoHS compliant
- Glass passivated junction
- 2nd level interconnect is Pb-free per IPC/JEDEC J-STD-609A.01

### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Numbers	Part Marking	Standoff Voltage (V <sub>SO</sub> ) Volts	Max. Reverse Leakage (I <sub>R</sub> ) @ V <sub>SO</sub> μA	Typical I <sub>R</sub> @ 85°C (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 - 030C	10 - 030C	30	10	15	32	37	10	58	10,000	0.1	11.0	X
AK10 - 058C	10 - 058C	58	10	15	64	70	10	110	10,000	0.1	6.5	X
AK10 - 066C	10 - 066C	66	10	15	72	80	10	120	10,000	0.1	6.5	X
AK10 - 076C	10 - 076C	76	10	15	85	95	10	140	10,000	0.1	6.5	X
AK10 - 170C	10 - 170C	170	10	15	180	220	10	260	10,000	0.1	2.8	X
AK10 - 190C	10 - 190C	190	10	15	200	245	10	290	10,000	0.1	2.5	X
AK10 - 240C	10 - 240C	240	10	15	250	285	10	340	10,000	0.1	2.2	X
AK10 - 380C	10 - 380C	380	10	15	401	443	10	520	10,000	0.1	2.0	X
AK10 - 430C	10 - 430C	430	10	15	440	490	10	625	10,000	0.1	1.4	X
AK10 - 530C	10 - 530C	530	10	15	560	619	10	750	10,000	0.1	1.0	

Note: Using 8/20μS wave shaped defined in IEC 61000-4-5.

**Physical Specifications**

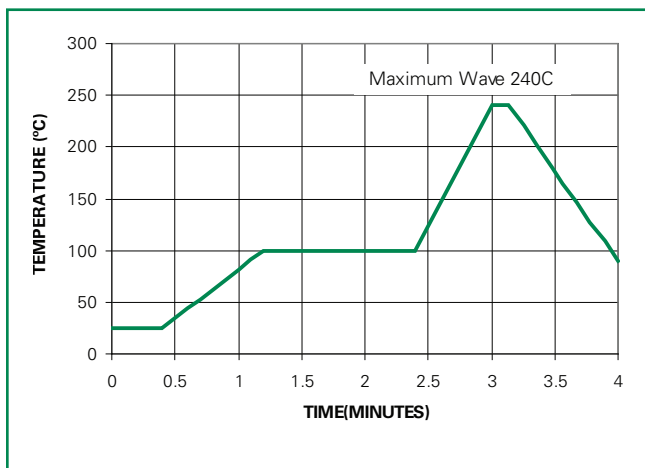
<b>Weight</b>	Contact manufacturer
<b>Case</b>	Epoxy encapsulated
<b>Terminal</b>	Silver plated leads, solderable per MIL-STD-750 Method 2026

**Flow/Wave Soldering (Solder Dipping)**

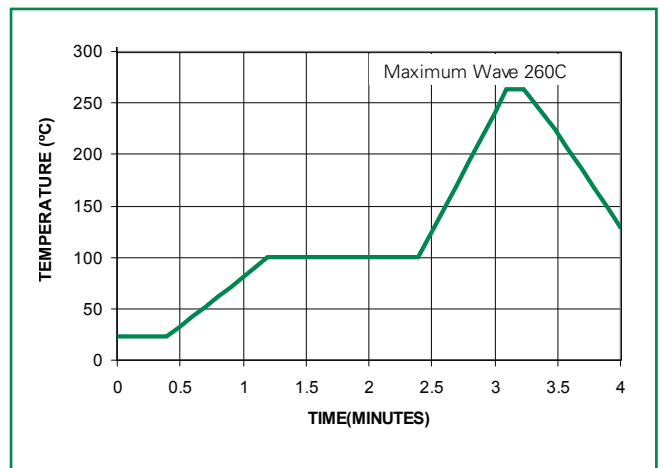
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

**Wave Solder Profile**

**Figure 1 - Non Lead-free Profile**

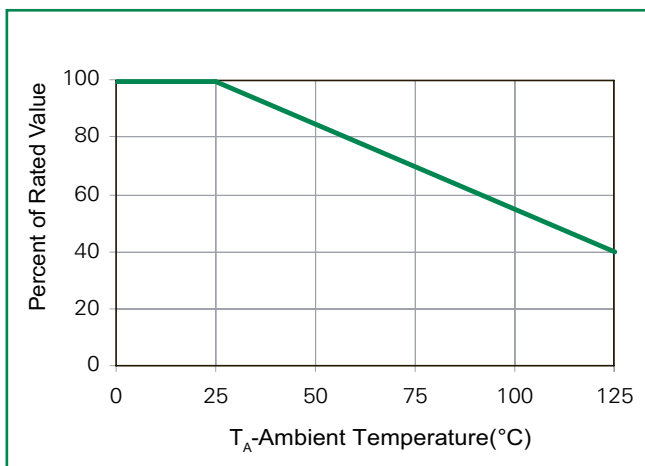


**Figure 2 - Lead-free Profile**

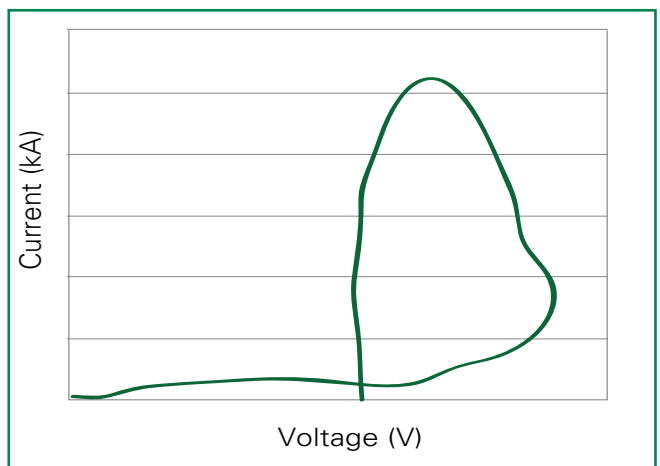


**Ratings and Characteristic Curves (T<sub>A</sub>=25°C unless otherwise noted)**

**Figure 3 - Peak Power Derating**



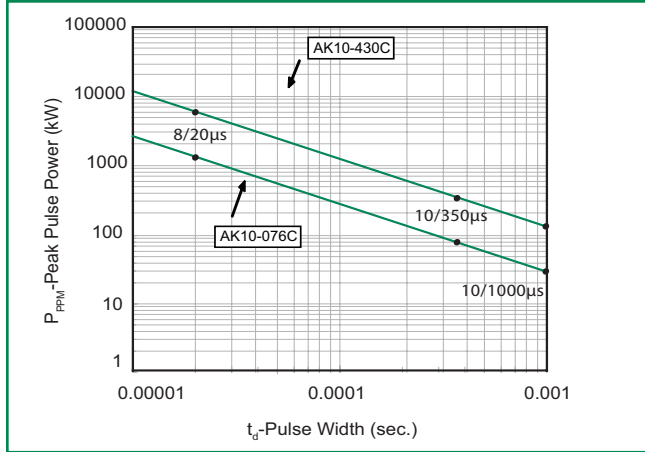
**Figure 4 - Surge Response**



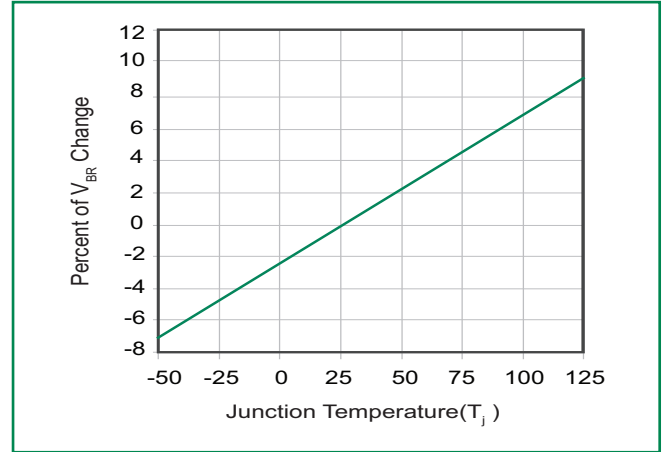
continues on next page.

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

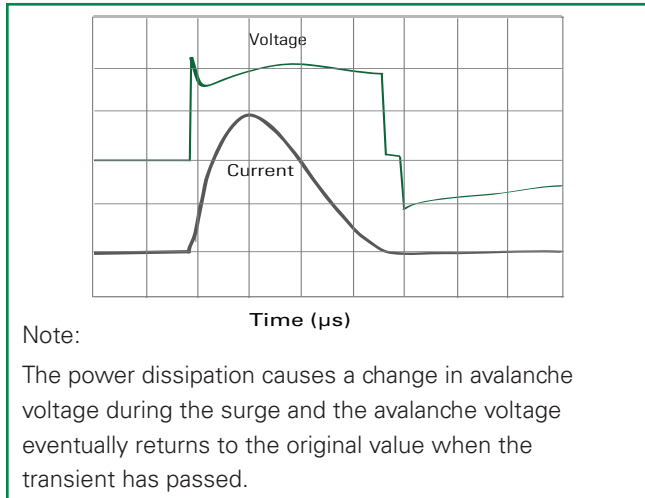
**Figure 5 - Typical Peak Pulse Power Rating Curve**



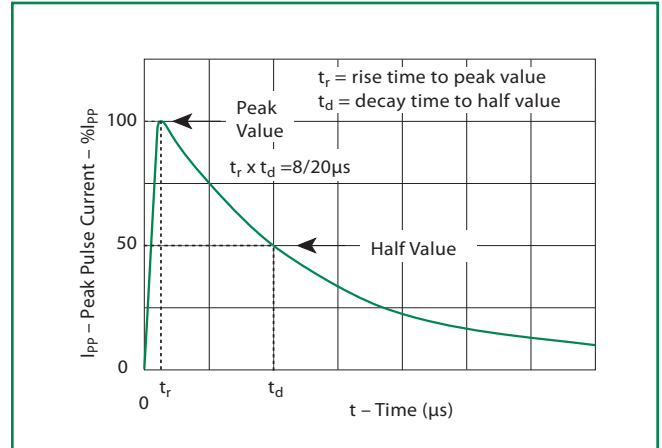
**Figure 6 - Typical  $V_{BR}$  Vs Junction Temperature**



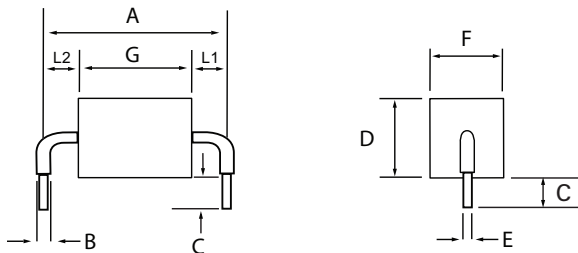
**Figure 7 - Surge Response (8/20 Surge current waveform)**



**Figure 8 - Pulse Waveform**

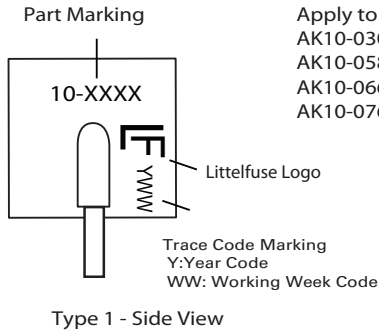


**Dimensions**

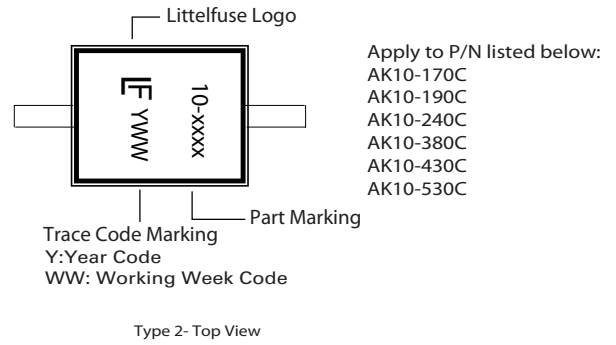


Dimensions	Inches	Millimeters
A	0.950 +/- 0.04	24.15 +/- 1.00
A - 530C	1.370 +/- 0.08	34.70 +/- 2.00
B	0.095 +/- 0.024	2.4 +/- 0.60
C	0.236 +/- 0.04	6.00 +/- 1.00
D	0.570 max.	14.48 max.
E	0.050 +/- 0.002	1.270 +/- 0.05
F	0.500 max.	12.70 max.
G - 030C	0.167 +/- 0.04	4.23 +/- 1.00
G - 058C/066C/076C	0.200 +/- 0.04	5.08 +/- 1.00
G - 170C/190C	0.362 +/- 0.04	9.2 +/- 1.00
G - 240C	0.420 +/- 0.04	10.67 +/- 1.00
G - 380C/430C	0.650 +/- 0.04	16.50 +/- 1.00
G - 530C	1.060 +/- 0.06	27.00 +/- 1.50
L1/L2	L1= L2 tolerance +/- 0.04 inch (1.0 mm)	

**Part Marking System**

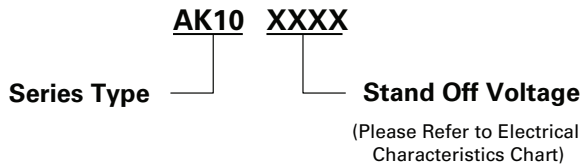


Apply to P/N listed below:  
AK10-030C  
AK10-058C  
AK10-066C  
AK10-076C



Apply to P/N listed below:  
AK10-170C  
AK10-190C  
AK10-240C  
AK10-380C  
AK10-430C  
AK10-530C

**Part Numbering System**



**Packing Options**

Part Number	Component Package	Quantity	Packaging Option
AK10XXXX	AK Package	56pcs/Box	Bulk
AK10-XXXX-12	AK Package	12pcs/Box	Bulk