

HF **AK6 Series**



Description

The AK6 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_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	T _J , T _{STG}	(-)55 to 150	°C
Current Rating ¹	I _{PP}	6	kA

Note:

1. Rated I_{PP} measured with 8 x 20µS pulse.

Features

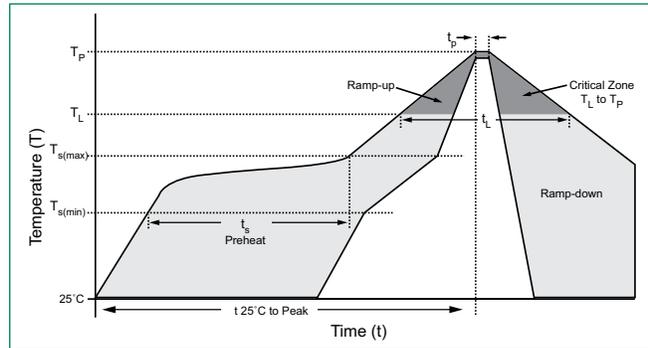
- Halogen-Free
- RoHS compliant
- Foldbak™ technology for superior clamping factor
- Glass Passivated Junction for reliability
- Bi-directional
- Ultra compact: 12 times less volume than traditional discrete solutions
- Very Low Clamping Voltage
- Sharp Breakdown Voltage
- Low Slope Resistance

Electrical Characteristics

Part Numbers	Standoff Voltage (V _{SO}) Volts	Max. Reverse Leakage (I _R) @ V _{SO} µA	Reverse Breakdown Voltage (V _{BR}) @ I _T		Test Current I _T (mA)	Max. Clamping Voltage V _{CL} @ I _{PP} Peak Pulse Current (I _{PP}) (Note 1)		Max. Temp Coefficient OF V _{BR} (%/°C)	Max. Capacitance 0 Bias 10kHz (nF)	Agency Approval
			Min Volts	Max Volts		V _{CL} Volts	I _{PP} Amps			
AK6 - 058C	58	20	64	70	10	110	6,000	0.1	8	X
AK6 - 076C	76	20	85	95	10	140	6,000	0.1	6.5	X
AK6 - 170C	170	20	180	220	10	260	6,000	0.1	2.8	X
AK6 - 190C	190	20	200	245	10	290	6,000	0.1	2.5	X
AK6 - 240C	240	20	250	285	10	340	6,000	0.1	2.0	X
AK6 - 380C	380	20	401	443	10	520	6,000	0.1	1.4	X
AK6 - 430C	430	20	440	490	10	625	6,000	0.1	1.0	X

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 ^{+0/-5} °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)

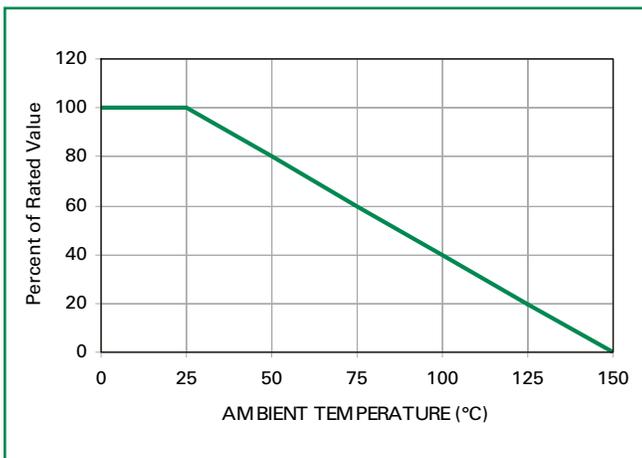
Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

Physical Specifications

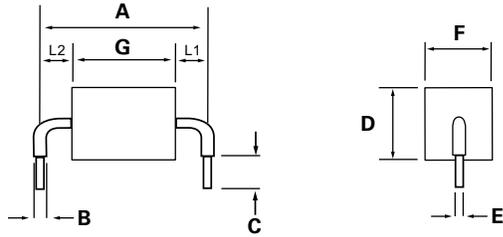
Weight	Contact manufacturer
Case	Epoxy encapsulated
Terminal	Silver plated leads, solderable per MIL-STD-202 Method 208

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

Peak Power Derating



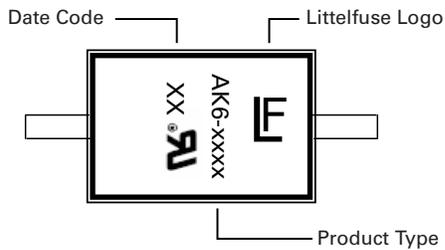
Dimensions



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	0.320	8.13
G - 240C	0.370	9.4
G - 380C/430C	0.543	13.8
L1	0.310	7.87
L1 - 380C/430C	0.150	3.81

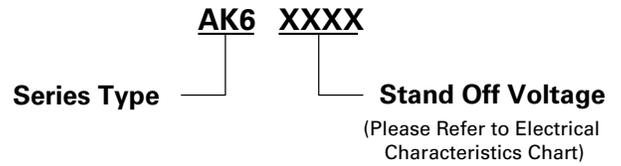
L2= A - (G+L1) tolerance +/- 0.04 inch (1.0 mm)

Part Marking System



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

Part Numbering System



Mouser Electronics

Authorized Distributor

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[Littelfuse:](#)

[AK6-076C](#) [AK6-240C](#) [AK6-430C](#) [AK6-380C](#) [AK6-190C](#) [AK6-170C](#) [AK6-058C](#) [AK6-030C](#)