

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. 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 Storage Temperature Range	T _{STG}	(-)55 to 150	°C
Operating Junction Temperature Range	T _J	(-)55 to 125	°C
Current Rating ¹	I _{PP}	6	kA

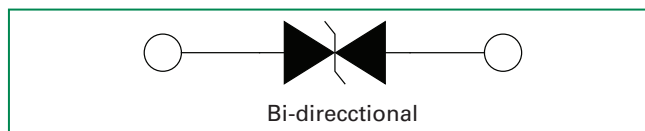
Note:

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

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

Functional Diagram



Electrical Characteristics (T_A=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}) @ 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 - 030C	6 - 030C	30	10	15	32	37	10	90	6,000	0.1	11.0	X
AK6 - 058C	6 - 058C	58	10	15	64	70	10	110	6,000	0.1	8.0	X
AK6 - 066C	6 - 066C	66	10	15	72	80	10	120	6,000	0.1	6.0	X
AK6 - 076C	6 - 076C	76	10	15	85	95	10	140	6,000	0.1	6.5	X
AK6 - 170C	6 - 170C	170	10	15	180	220	10	260	6,000	0.1	2.8	X
AK6 - 190C	6 - 190C	190	10	15	200	245	10	290	6,000	0.1	2.5	X
AK6 - 240C	6 - 240C	240	10	15	250	285	10	340	6,000	0.1	2.0	X
AK6 - 380C	6 - 380C	380	10	15	401	443	10	520	6,000	0.1	1.4	X
AK6 - 430C	6 - 430C	430	10	15	440	490	10	625	6,000	0.1	1.0	X

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

Physical Specifications

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

Flow/Wave Soldering (Solder Dipping)

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

Wave Solder Profile

Figure 1 - Non Lead-free Profile

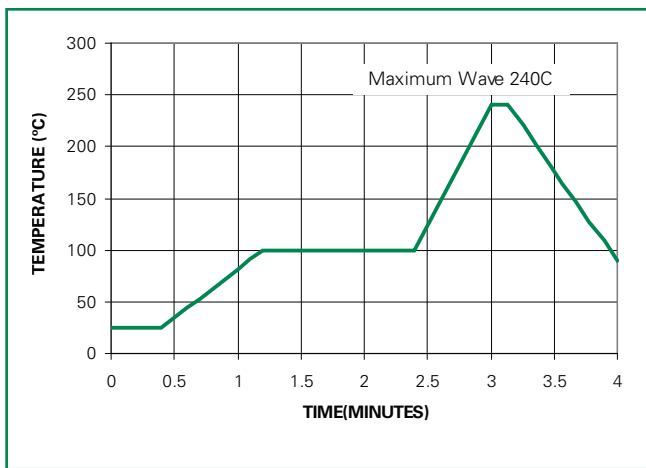
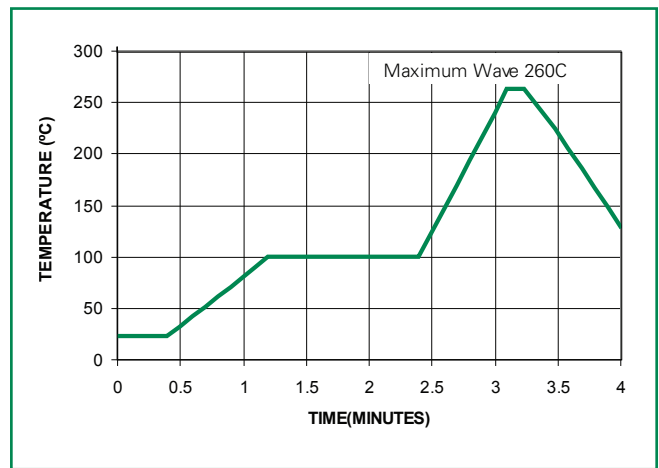


Figure 2 - Lead-free Profile



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

Figure 3 - Peak Power Derating

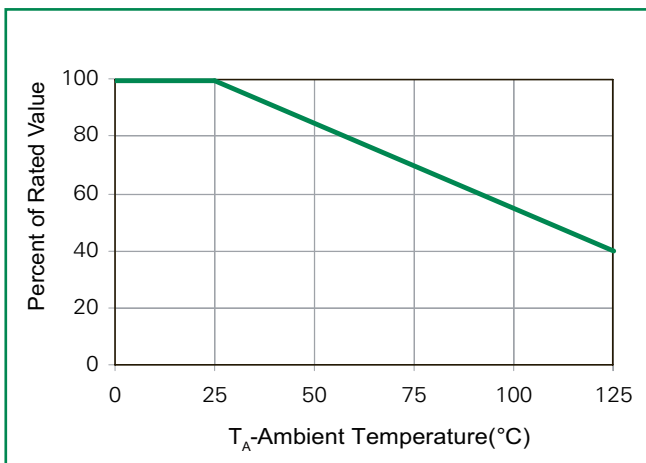
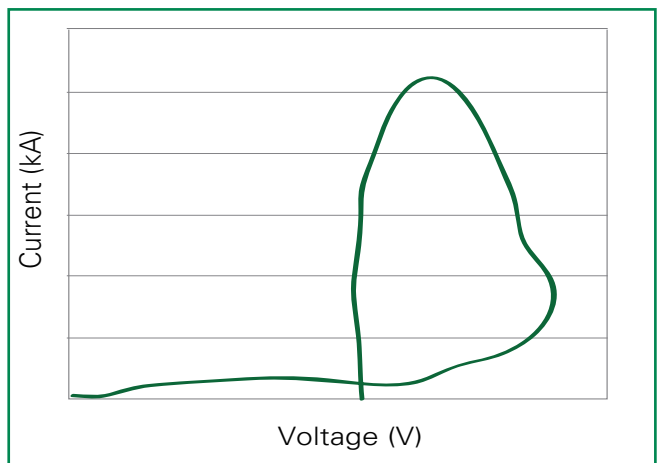


Figure 4 - Surge Response



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

Figure 5 - Typical Peak Pulse Power Rating Curve

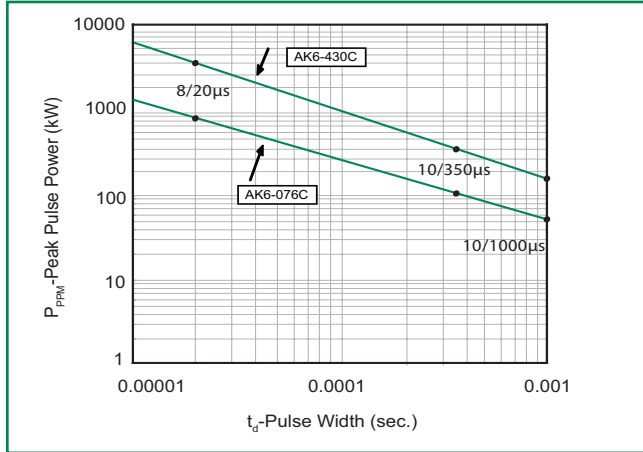


Figure 6 - Typical V_{BR} Vs Junction Temperature

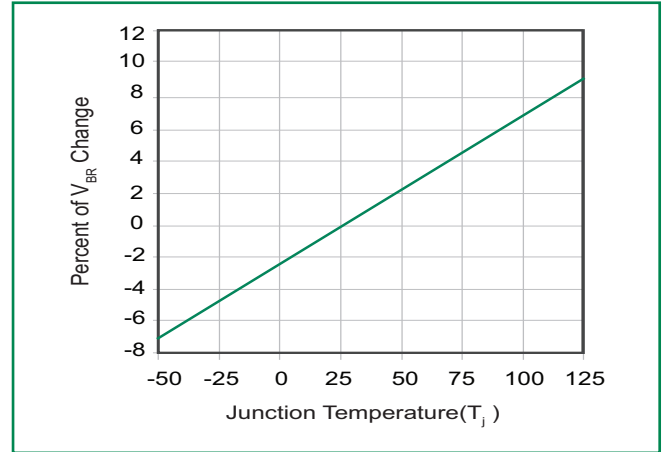


Figure 7 - Surge Response (8/20 Surge current waveform)

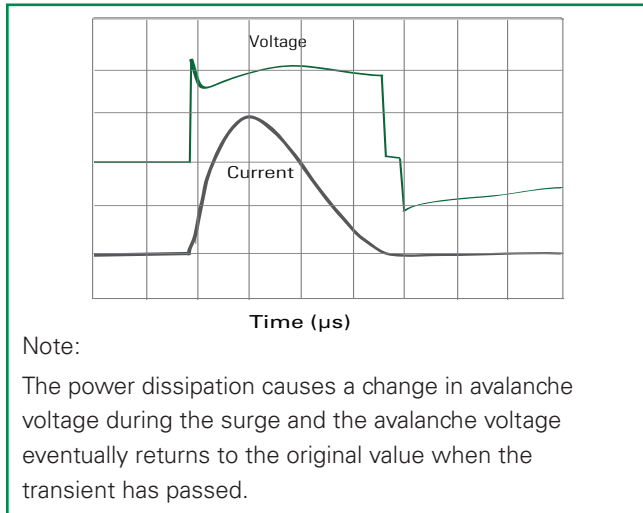
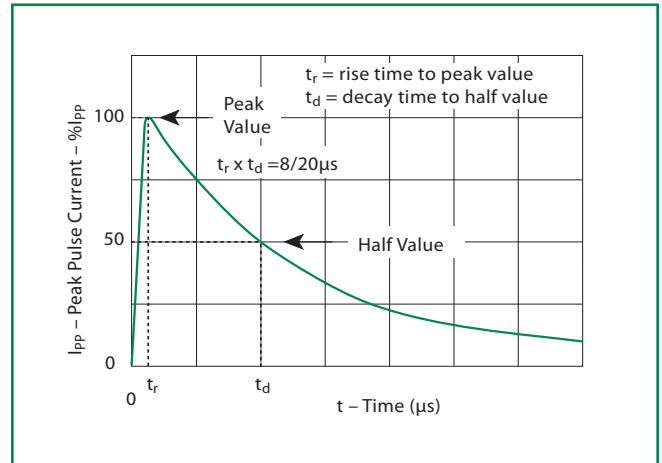
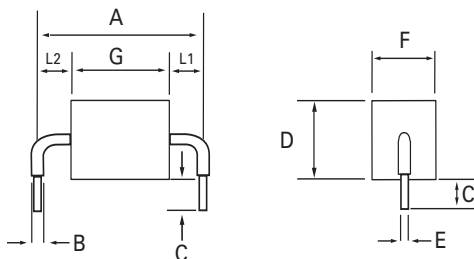


Figure 8 - Pulse Waveform

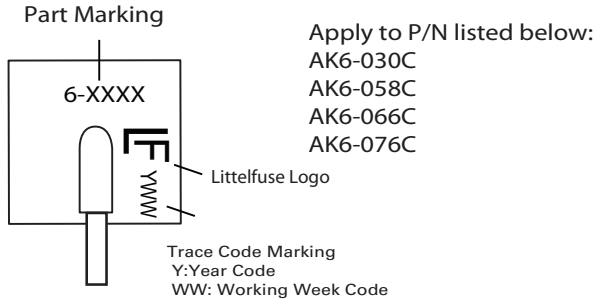


Dimensions

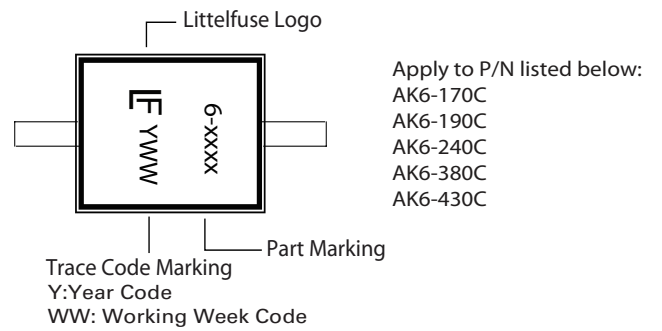


Dimensions	Inches	Millimeters
A	0.950 +/- 0.040	24.15 +/- 1.00
B	0.095 +/- 0.024	2.4 +/- 0.60
C	0.236 +/- 0.040	6.00 +/- 1.00
D	0.570 max.	14.48 max.
E	0.050 +/- 0.002	1.270 +/- 0.05
F	0.500 max.	12.70 max.
G - 030C	0.161 +/- 0.040	4.10 +/- 1.00
G - 058C/066C 076C	0.189 +/- 0.040	4.8 +/- 1.00
G - 170C/190C	0.320 +/- 0.040	8.13 +/- 1.00
G - 240C	0.370 +/- 0.040	9.4 +/- 1.00
G - 380C/430C	0.543 +/- 0.040	13.8 +/- 1.00
L1/L2	L1= L2 tolerance +/- 0.04 inch (1.0 mm)	

Part Marking System

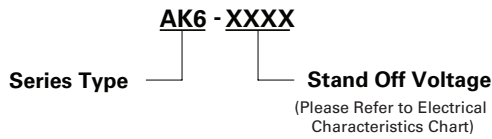


Type 1 - Side View



Type 2 - Top View

Part Numbering System



Packing Options

Part Number	Component Package	Quantity	Packaging Option
AK6-XXXX	AK Package	56pcs/Box	Bulk
AK6-XXXX-12	AK Package	12pcs/Box	Bulk