

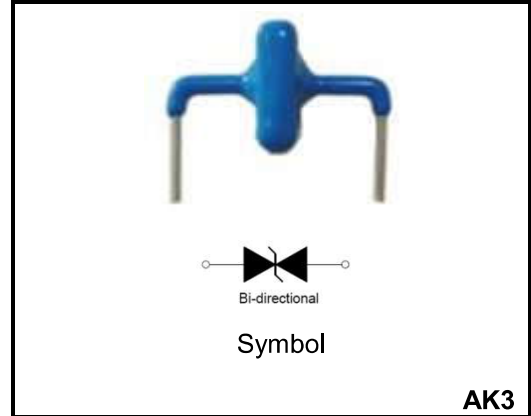
AK3 Series 3000A Transient Voltage Suppressor

DESCRIPTION

The AK3 series of high current bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer bi-directional port protection from 15 volts to 430 volts. They provide a clamping voltage lower than the avalanche 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.

FEATURES

- ◆ Halogen-free.
- ◆ Bi-directional.
- ◆ RoHS compliant.
- ◆ Low slope resistance.
- ◆ Very low clamping voltage.
- ◆ Sharp breakdown voltage.
- ◆ Glass passivated junction.
- ◆ Foldback technology for superior clamping factor.
- ◆ High temperature wave soldering: 265°C/10s at terminals.



ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak current rating per 8/20 μ s IEC 61000-4-5	I _{PP}	3	kA
Operating temperature range	T _J	-55 to +125	°C
Storage temperature range	T _{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS(TA=25°C)

Part Number	VR	VBR@IT		IT	IR@VR	VC@IPP	IPP①
		Min(V)	Max(V)				
Bi-Polar	V	Min(V)	Max(V)	mA	μA	V	A
AK3-015C	15	16	19	10	10	28	3000
☆AK3-020C	20	22	24	10	10	50	3000
☆AK3-025C	25	28	30	10	10	60	3000
AK3-030C	30	32	37	10	10	80	3000
☆AK3-042C	42	47	51	10	10	105	3000
☆AK3-058C	58	64	70	10	10	110	3000
☆AK3-066C	66	72	80	10	10	120	3000
☆AK3-076C	76	85	95	10	10	140	3000
☆AK3-100C	100	110	122	10	10	165	3000
☆AK3-133C	133	147	162	10	10	220	3000
☆AK3-150C	150	158	194	10	10	230	3000
☆AK3-170C	170	179	220	10	10	260	3000
☆AK3-190C	190	200	245	10	10	290	3000
☆AK3-208C	208	223	246	10	10	305	3000
☆AK3-240C	240	250	285	10	10	340	3000
☆AK3-275C	275	300	335	10	10	435	3000
☆AK3-300C	300	330	366	10	10	470	3000
☆AK3-380C	380	401	443	10	10	520	3000
☆AK3-430C	430	440	490	10	10	625	3000

① Surge waveform:8/20μs

VR: Stand-off voltage -- Maximum voltage that can be applied

VBR: Breakdown voltage

VC: Clamping voltage -- Peak voltage measured across the suppressor at a specified IPP

IR: Reverse leakage current

☆:Products with negative resistance

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

Figure 1 - Non Lead-free Profile

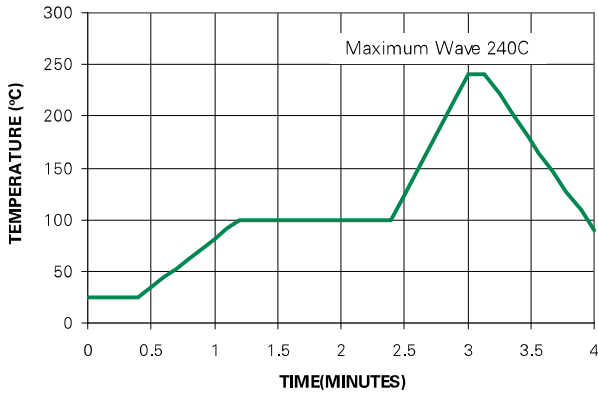


Figure 2 - Lead-free Profile

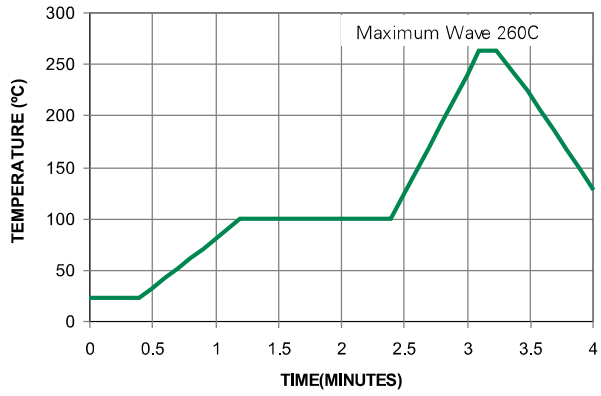


Figure 3 - Peak Power Derating

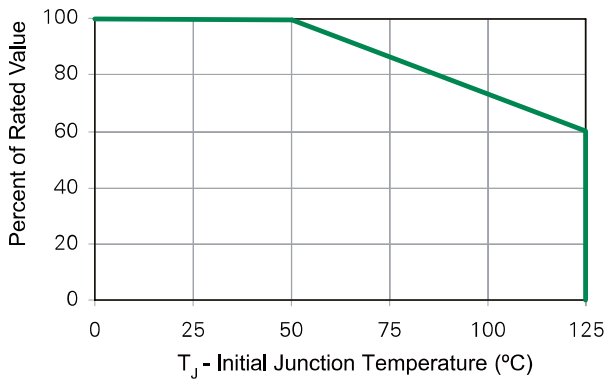
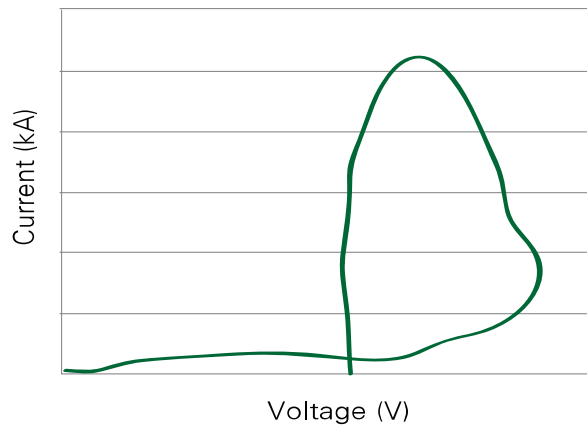


Figure 4 - Surge Response



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

Figure 5 - Typical Peak Pulse Power Rating Curve

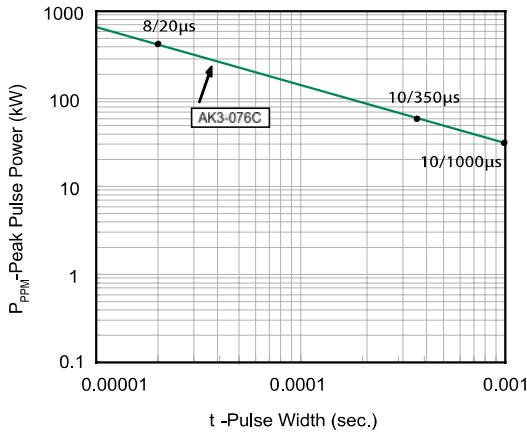


Figure 6 - Typical VBR Vs Junction Temperature

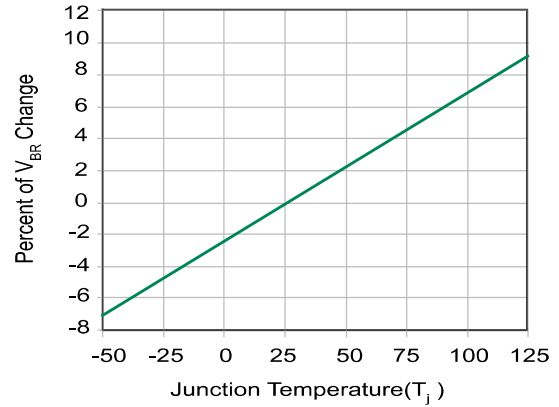


Figure 7 - Surge Response (8/20 Surge current waveform)

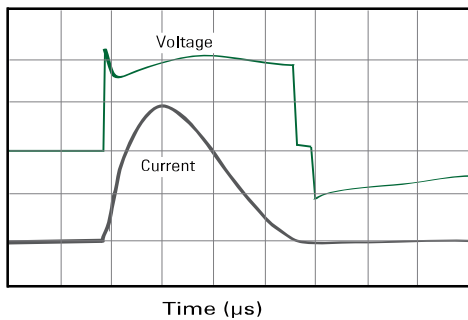
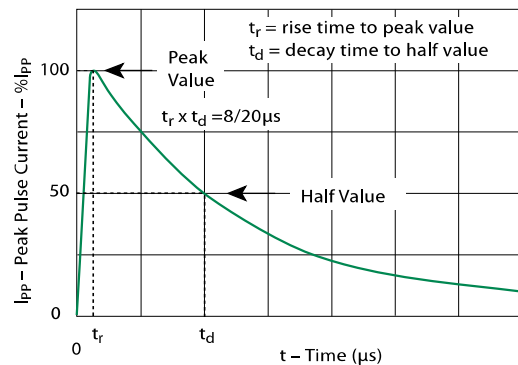


Figure 8 - Pulse Waveform

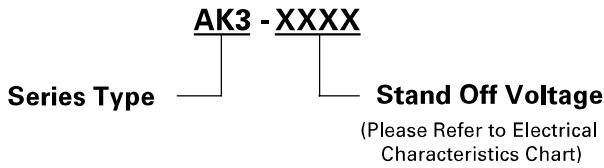


Note:

The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

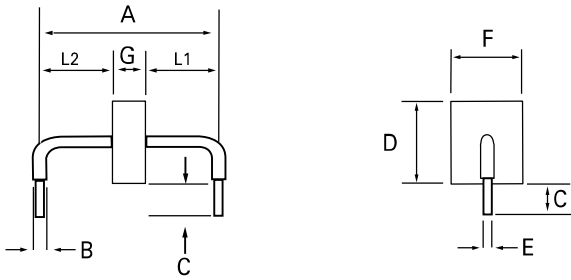
Part Numbering System

Packing Options



Part Number	Component Package	Quantity	Packaging Option
AK3-XXXX	AK Package	56pcs/Box	Bulk
AK3-XXXX-12	AK Package	12pcs/Box	Bulk

Dimensions



Dimensions	Inches	Millimeters	
A	0.951 +/- 0.040	24.15 +/- 1.00	
B	0.094 +/- 0.024	2.40 +/- 0.60	
C	0.236 +/- 0.039	6.00 +/- 1.00	
	-208C	0.145 +/- 0.040	3.68 +/- 1.00
D	0.433 max	11.0 max.	
E	0.050 +/- 0.002	1.27 +/- 0.05	
F	0.374 max.	9.50 max.	
G	-015C	0.093 +/- 0.039	2.36 +/- 1.00
	-030C/-066C	0.130 +/- 0.047	3.30 +/- 1.20
	-058C/-076C	0.168 +/- 0.047	4.27 +/- 1.20
	-150C	0.383 +/- 0.047	9.72 +/- 1.20
	-170C	0.420 +/- 0.047	10.67 +/- 1.20
	-208C	0.358 +/- 0.047	9.10 +/- 1.20
	-380C	0.547 +/- 0.047	13.90 +/- 1.20
L1	-430C	0.583 +/- 0.047	14.80 +/- 1.20
	-208C	0.296 +/- 0.047	7.52 +/- 1.20
L2	L1= L2 tolerance +/- 0.047 inch (+/- 1.20 mm)		
	-208C	= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)	
	= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)		

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