

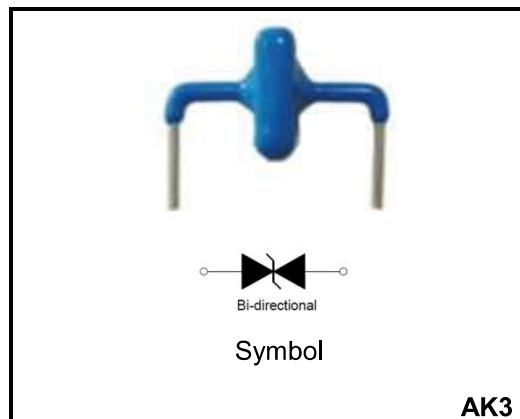
AK3 Series 3000A Transient Voltage Suppressor

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

Parameter	Symbol	Value	Unit
Peak current rating per 8/20 μs 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℃)

Part Number	VR	VBR@IT		IT	IR@VR	VC@IPP	IPP①
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

Figure 1 - Non Lead-free Profile

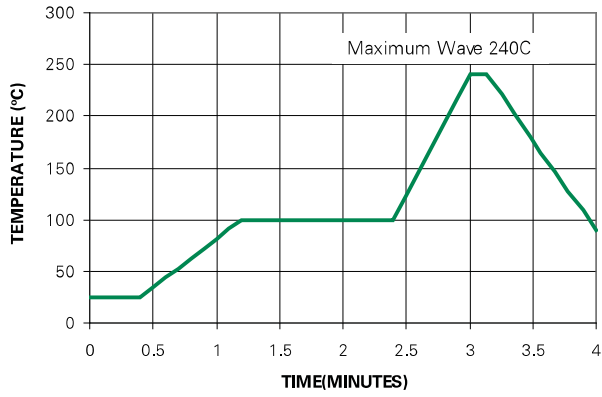


Figure 2 - Lead-free Profile

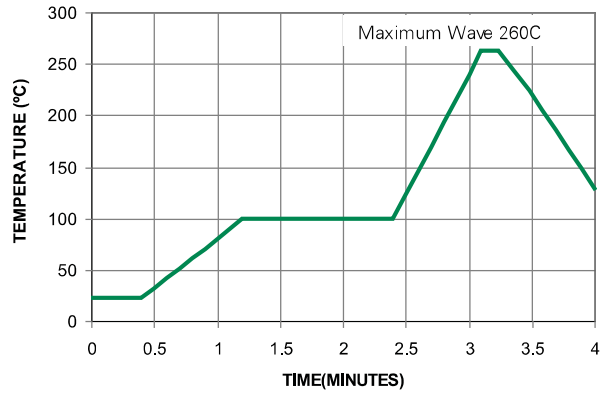


Figure 3 - Peak Power Derating

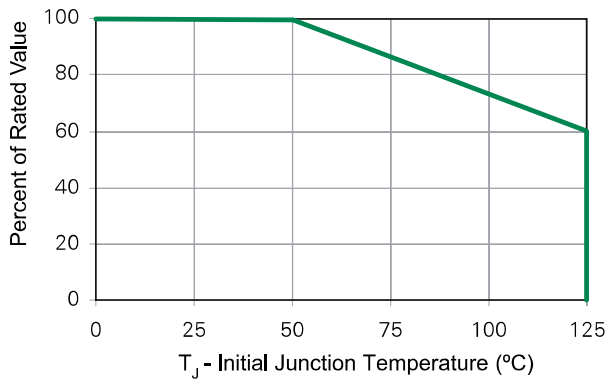
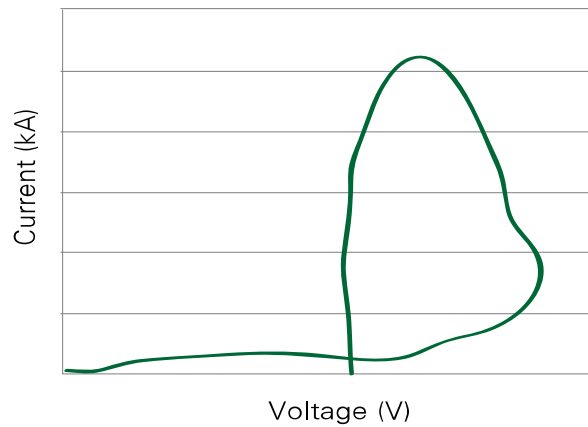


Figure 4 - Surge Response



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

Figure 5 - Typical Peak Pulse Power Rating Curve

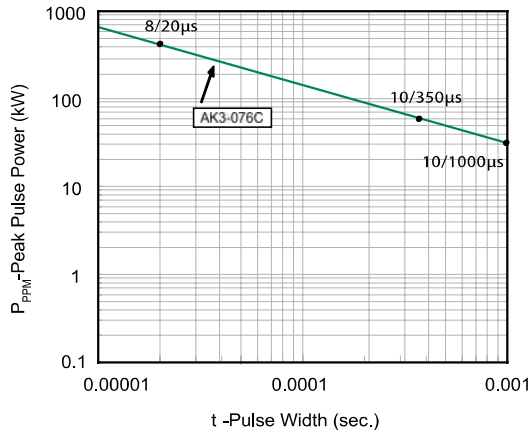


Figure 6 - Typical VBR Vs Junction Temperature

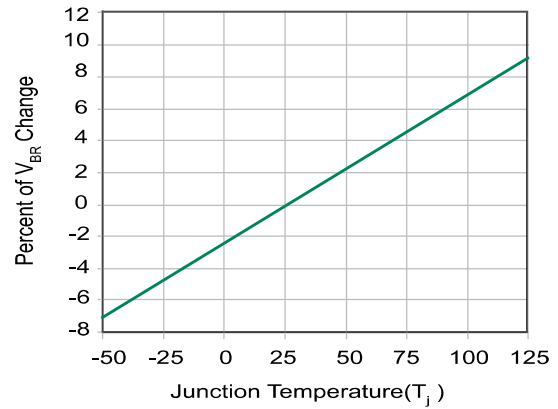
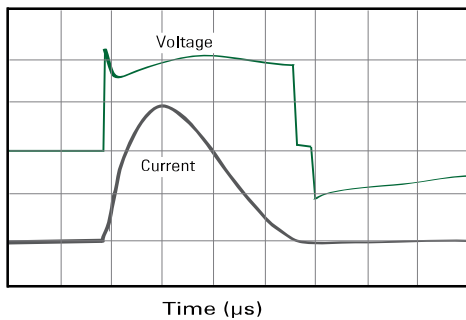


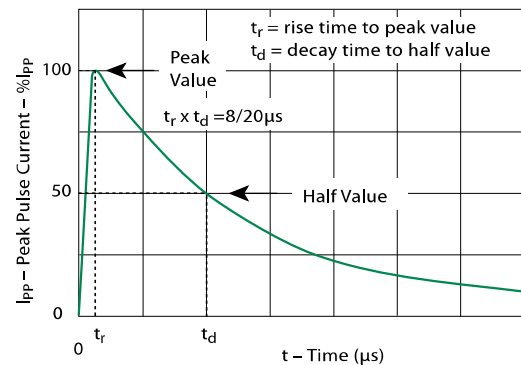
Figure 7 - Surge Response (8/20 Surge current waveform)



Note:

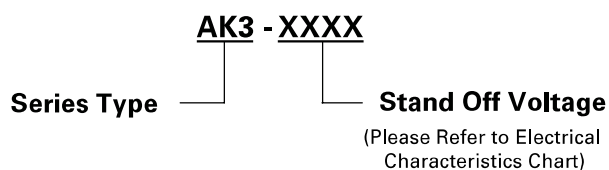
The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

Figure 8 - Pulse Waveform



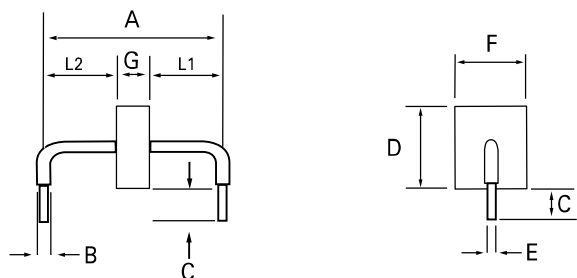
Part Numbering System

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
	-430C	0.583 +/- 0.047	14.80 +/- 1.20
L1	-208C	0.296 +/- 0.047	7.52 +/- 1.20
		L1= L2 tolerance +/- 0.047 inch (+/- 1.20 mm)	
L2	-208C	= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)	
		= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)	