

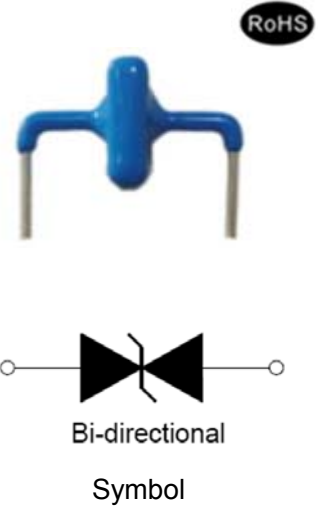


## AK6 Series 6000A Transient Voltage Suppressor

Rev.2.3

### DESCRIPTION:

The AK6 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.
- ✧ Snapback technology for superior clamping factor.
- ✧ High temperature soldering: 265°C/10s at terminals.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

### ABSOLUTE MAXIMUM RATINGS<sub>(T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)</sub>

Parameter	Symbol	Value	Unit
Peak current rating per 8/20μs IEC 61000-4-5	I <sub>PP</sub>	6	kA
Operating junction temperature range	T <sub>J</sub>	-55 to +125	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

Part Number	$V_R$	$V_{BR}@I_T$		$I_T$	$I_R@V_R$	$V_C@I_{PP}$	$I_{PP}^{\text{①}}$
		Min(V)	Max(V)				
AK6-015C	15	16	19	10	10	28	6000
☆AK6-020C	20	22	24	10	10	50	6000
☆AK6-025C	25	28	30	10	10	60	6000
AK6-030C	30	32	37	10	10	90	6000
☆AK6-042C	42	47	51	10	10	105	6000
☆AK6-058C	58	64	70	10	10	110	6000
☆AK6-066C	66	72	80	10	10	120	6000
☆AK6-076C	76	85	95	10	10	140	6000
☆AK6-100C	100	110	122	10	10	165	6000
☆AK6-133C	133	147	162	10	10	220	6000
☆AK6-170C	170	180	220	10	10	260	6000
☆AK6-190C	190	200	245	10	10	290	6000
☆AK6-240C	240	250	285	10	10	340	6000
☆AK6-275C	275	300	335	10	10	435	6000
☆AK6-300C	300	330	366	10	10	470	6000
☆AK6-380C	380	401	443	10	10	520	6000
☆AK6-430C	430	440	490	10	10	625	6000

① Surge waveform: 8/20 $\mu\text{s}$

$V_R$ : Stand-off voltage -- Maximum voltage that can be applied

$V_{BR}$ : Breakdown voltage

$V_C$ : Clamping voltage -- Peak voltage measured across the suppressor at a specified  $I_{PP}$

$I_R$ : Reverse leakage current

☆: Products with negative resistance

RATINGS AND V-I CHARACTERISTICS CURVES ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

FIG.1: V- I curve characteristics (Bi-directional)

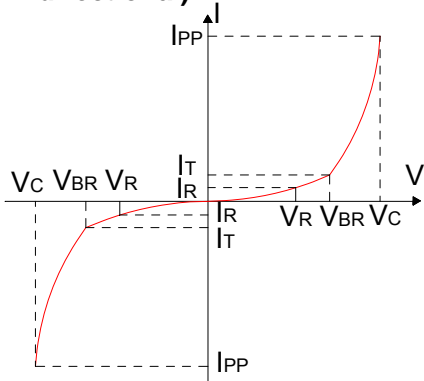


FIG.2: V- I curve characteristics (Bi-directional with negative resistance)

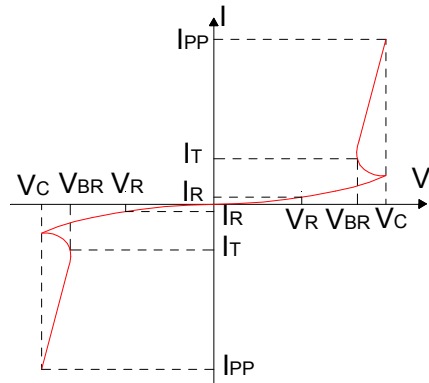


FIG.3: Typical  $V_{BR}$  vs junction temperature

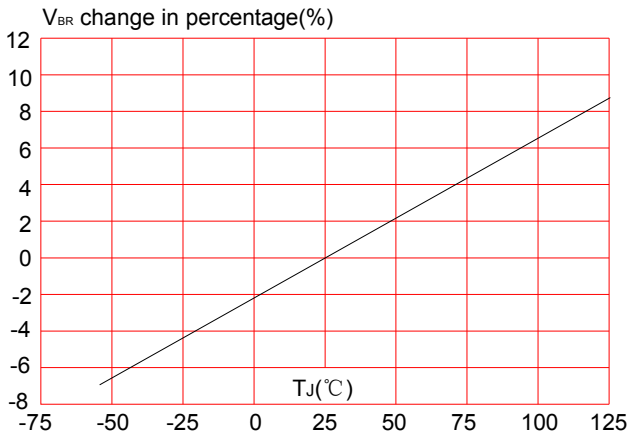


FIG.4: Pulse waveform

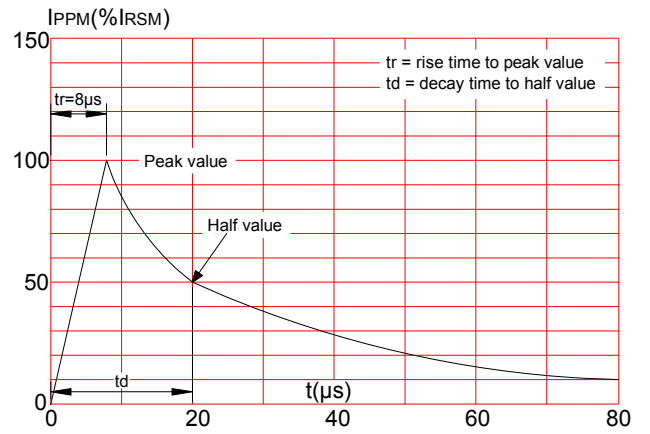
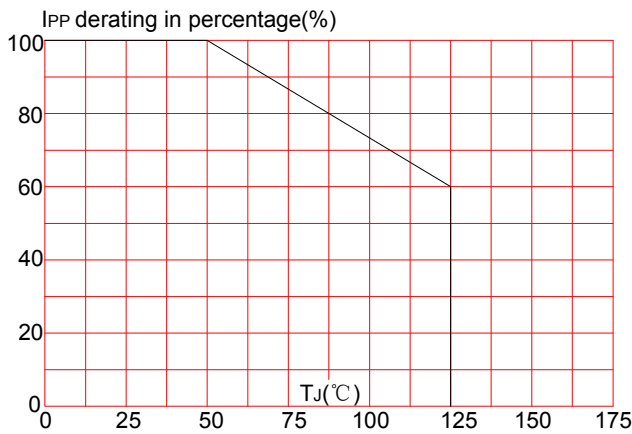
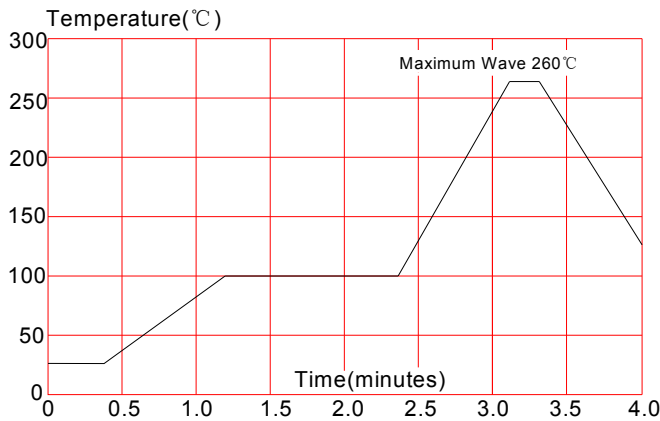


FIG.5: Pulse derating curve



SOLDERING PARAMETERS

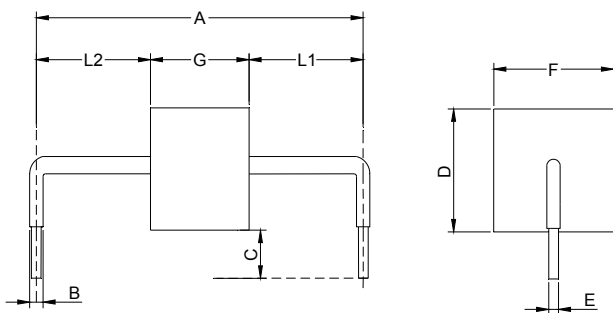
FIG.6: Lead-free profile



Tab1: Flow/Wave soldering

Peak temperature	265°C
Dipping time	10 seconds
Soldering	1 time

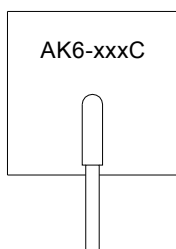
PACKAGE MECHANICAL DATA



Symbol	Dimensions		
	Inches	Millimeters	
A	0.951±0.039	24.15±1.00	
B	0.094±0.024	2.40±0.60	
C	0.236±0.039	6.00±1.00	
D	0.570max	14.48max	
E	0.050±0.002	1.27±0.05	
F	0.500max	12.70max	
G	015C to 025C	0.169±0.047	4.30±1.20
	030C to 042C	0.197±0.047	5.00±1.20
	058C to 076C	0.228±0.047	5.80±1.20
	100C	0.260±0.047	6.60±1.20
	133C	0.287±0.047	7.30±1.20
	170C to 190C	0.346±0.047	8.80±1.20
	240C	0.406±0.047	10.30±1.20
	275C to 300C	0.496±0.047	12.60±1.20
380C to 430C	0.559±0.047	14.20±1.20	
L1/L2	L1=L2 tolerance±0.047inch(±1.20 mm)		

PART No.	PER BOX (PCS)	PER CARTON (PCS)	DESCRIPTION
AK6-xxxC	56	1,400	Box

**MARKING & ORDERING INFORMATION**



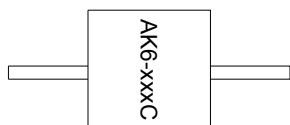
AK 6 - xxx C  
 (1) (2) (3) (4)

- (1) AK series
- (2) I<sub>PP</sub>=6kA
- (3) Reverse stand-off voltage
- (4) Bi-directional

Apply to P/N listed below:

- AK6-015C; AK6-020C;
- AK6-025C; AK6-030C;
- AK6-042C; AK6-058C;
- AK6-066C; AK6-076C;
- AK6-100C; AK6-133C;

Type 1 - Side View



AK 6 - xxx C  
 (1) (2) (3) (4)

- (1) AK series
- (2) I<sub>PP</sub>=6kA
- (3) Reverse stand-off voltage
- (4) Bi-directional

Apply to P/N listed below:

- AK6-170C
- AK6-190C
- AK6-240C
- AK6-275C
- AK6-300C
- AK6-380C
- AK6-430C

Type 2 - Top View

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