

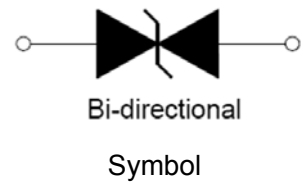


AK10 Series 10000A Transient Voltage Suppressor

Rev.2.5

DESCRIPTION:

The AK10 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 (T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak current rating per 8/20µs IEC 61000-4-5	I _{PP}	10	kA
Operating junction temperature range	T _J	-55 to +125	°C
Storage temperature range	T _{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number	V _R	V _{BR@I_T}		I _T	I _{R@V_R}	V _{C@I_{PP}}	I _{PP} ^①
		Min(V)	Max(V)				
AK10-015C	15	16	19	10	10	28	10000
☆AK10-020C	20	22	24	10	10	50	10000
☆AK10-025C	25	28	30	10	10	60	10000
AK10-030C	30	32	37	10	10	90	10000
☆AK10-042C	42	47	51	10	10	105	10000
☆AK10-058C	58	64	70	10	10	110	10000
☆AK10-066C	66	72	80	10	10	120	10000
☆AK10-076C	76	85	95	10	10	140	10000
☆AK10-100C	100	110	122	10	10	165	10000
☆AK10-133C	133	147	162	10	10	220	10000
☆AK10-170C	170	180	220	10	10	260	10000
☆AK10-190C	190	200	245	10	10	290	10000
☆AK10-200C	200	222	262	10	10	330	10000
☆AK10-240C	240	250	285	10	10	340	10000
☆AK10-275C	275	300	335	10	10	435	10000
☆AK10-300C	300	330	366	10	10	470	10000
☆AK10-380C	380	401	443	10	10	520	10000
☆AK10-430C	430	440	490	10	10	625	10000

① Surge waveform: 8/20μs

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)

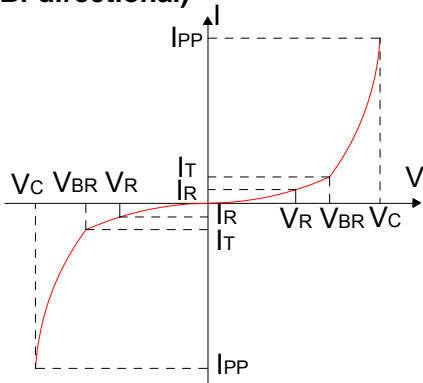


FIG.2:V- I curve characteristics (Bi-directional with negative resistance)

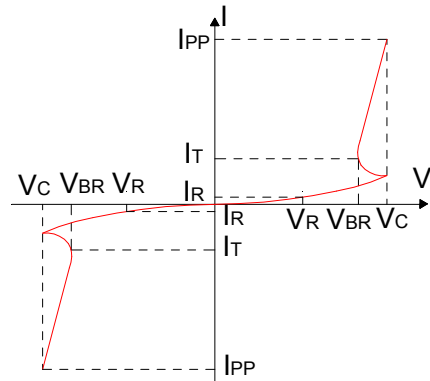


FIG.3: Typical V_{BR} vs junction temperature

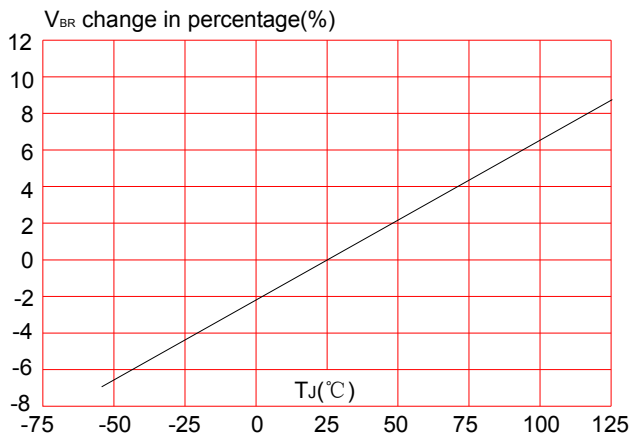


FIG.4: Pulse waveform

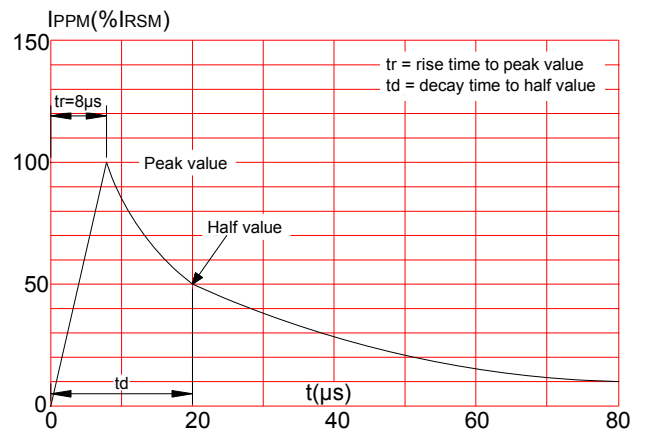
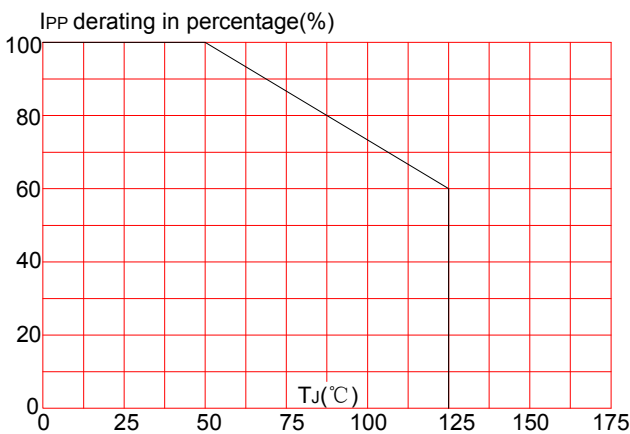
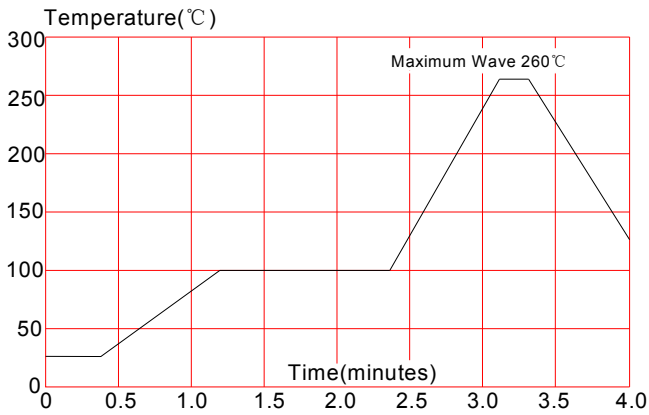


FIG.5: Pulse derating curve



SOLDERING PARAMETERS

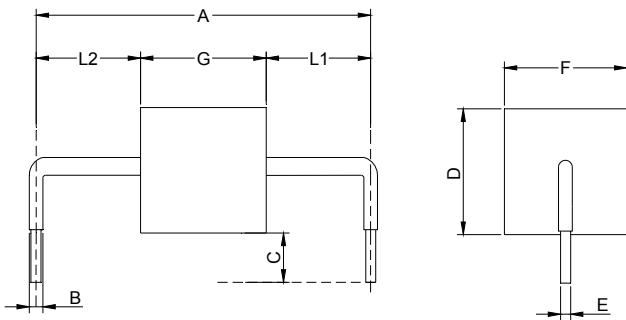
FIG.6: Lead-free profile



Tab1: Flow/Wave soldering

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

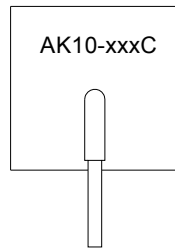
PACKAGE MECHANICAL DATA



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	0.157±0.047	4.00±1.20
	030C to 042C	0.189±0.047	4.80±1.20
	058C to 076C	0.217±0.047	5.50±1.20
	100C	0.283±0.047	7.20±1.20
	133C	0.319±0.047	8.10±1.20
	170C to 190C	0.374±0.047	9.50±1.20
	200C	0.417±0.047	10.60±1.20
	240C	0.457±0.047	11.60±1.20
	275C to 300C	0.563±0.047	14.30±1.20
380C to 430C	0.610±0.047	15.50±1.20	
L ₁ /L ₂	L ₁ =L ₂ tolerance±0.047inch(±1.20 mm)		

PART No.	PER BOX (PCS)	PER CARTON (PCS)	DESCRIPTION
AK10-xxxC	56	1,400	Box

MARKING & ORDERING INFORMATION

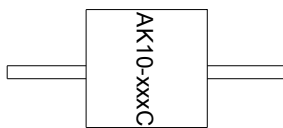


AK 10 - xxx C
 (1) (2) (3) (4)

- (1) AK series
- (2) $I_{PP}=10kA$
- (3) Reverse stand-off voltage
- (4) Bi-directional

Apply to P/N listed below:
 AK10-015C; AK10-020C;
 AK10-025C; AK10-030C;
 AK10-042C; AK10-058C;
 AK10-066C; AK10-076C;
 AK10-100C; AK10-133C;

Type 1 - Side View



AK 10 - xxx C
 (1) (2) (3) (4)

- (1) AK series
- (2) $I_{PP}=10kA$
- (3) Reverse stand-off voltage
- (4) Bi-directional

Apply to P/N listed below:
 AK10-170C
 AK10-190C
 AK10-200C
 AK10-240C
 AK10-275C
 AK10-300C
 AK10-380C
 AK10-430C

Type 2 - Top View

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