AK1 Series 1000A Transient Voltage Suppressor

Rev.2.4

DESCRIPTION

RoHS

The AK1 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 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.

Bi-directional

Symbol

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 wave soldering: 265℃/10s at terminals.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

ABSOLUTE MAXIMUM RATINGS(T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak current rating per 8/20μs IEC 61000-4-5	I_{PP}	1	kA
Operating junction temperature range	T_J	-55 to +125	℃
Storage temperature range	T_{STG}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS(T_A=25℃)

Part Number	V_R	V_{BR}@I_T		I_T	I_R@V_R	V_C@I_{PP}	I_{PP}①
Bi-Polar	V	Min(V)	Max(V)	mA	Max(μA)	Max(V)	A
AK1-076C	76	85	95	10	10	140	1000
AK1-380C	380	401	443	10	10	520	1000
AK1-430C	430	440	490	10	10	625	1000

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

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25℃, unless otherwise noted)

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

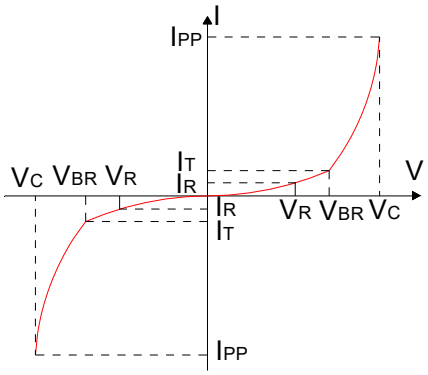


FIG.2: Typical V_{BR} vs junction temperature

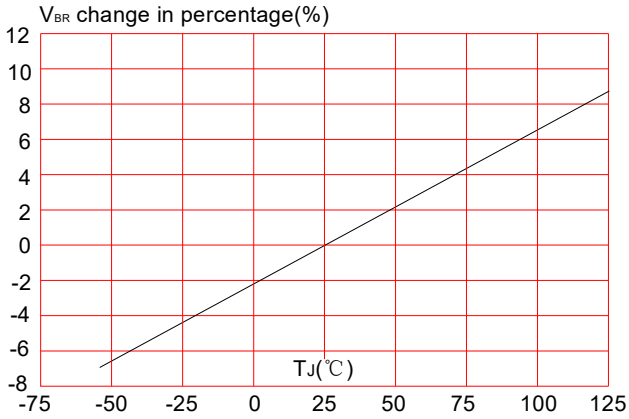


FIG.3: Pulse waveform

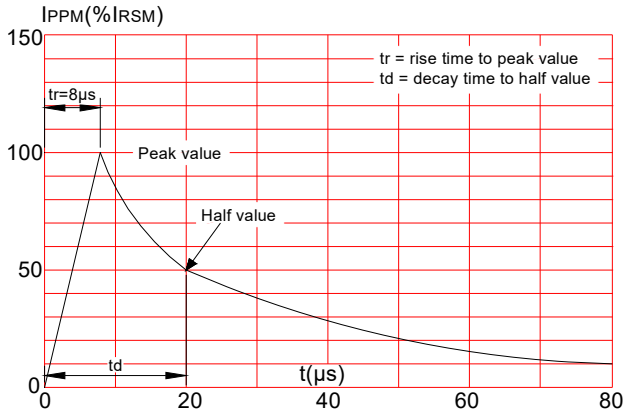
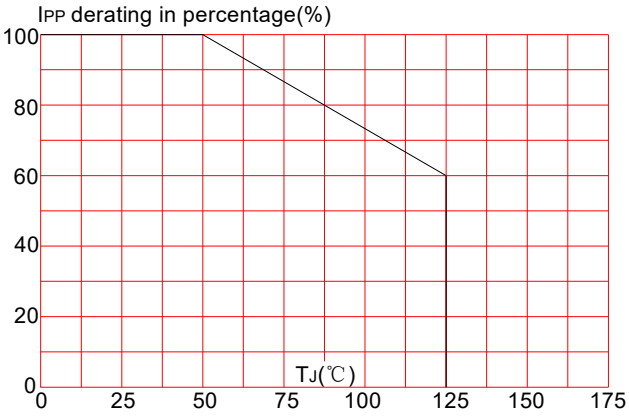
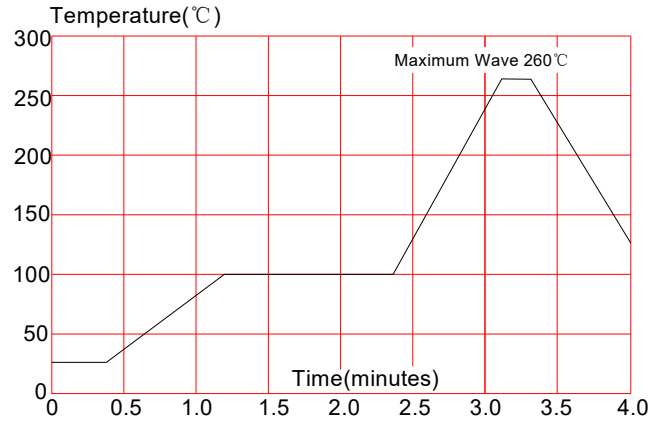


FIG.4: Pulse derating curve



SOLDERING PARAMETERS

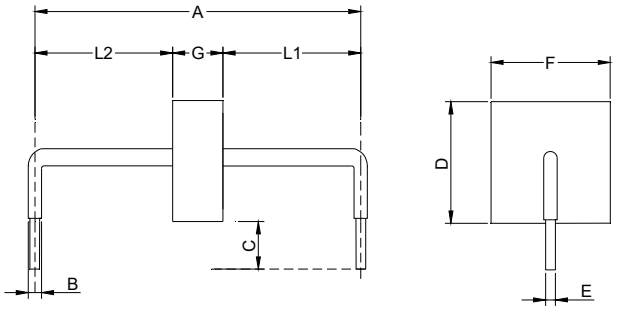
FIG.5: Lead-free profile



Tab1: Flow/Wave soldering

Peak temperature	**265℃**
Dipping time	**10 seconds**
Soldering	**1 time**

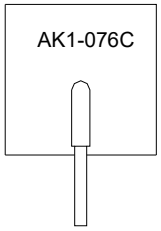
PACKAGE MECHANICAL DATA



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	076C	0.169±0.047	4.30±1.20
	380C to 430C	0.287±0.047	7.30±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
AK1-xxxC	56	560	Box

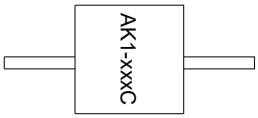
MARKING & ORDERING INFORMATION



AK 1 - 076 C
(1) (2) (3) (4)

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

Type 1 - Side View



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

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

Apply to P/N listed below:
AK1-380C
AK1-430C

Type 2 - Top View