



AK3 Series 3000A Transient Voltage Suppressor

Rev.2

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.



Bi-directional
Symbol

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: 260°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	$^{\circ}\text{C}$
Operating storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

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

Part Number	V_R	$V_{BR}@I_T$		I_T	$I_R@V_R$	$V_C@I_{PP}$	$I_{PP}^{①}$
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:8/20 μs 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)

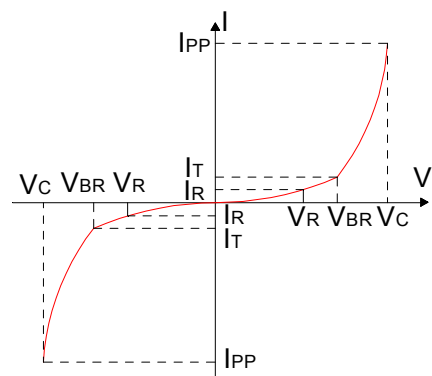


FIG.2: Typical V_{BR} Vs Junction Temperature

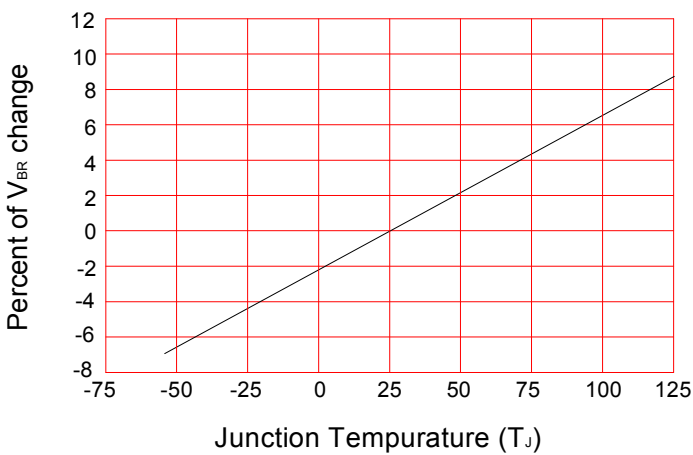


FIG.3: Pulse waveform

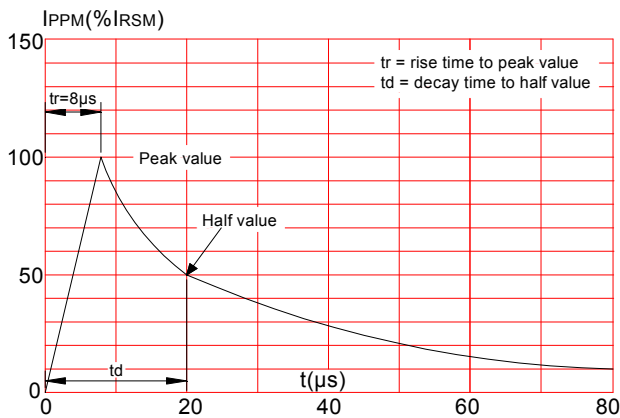
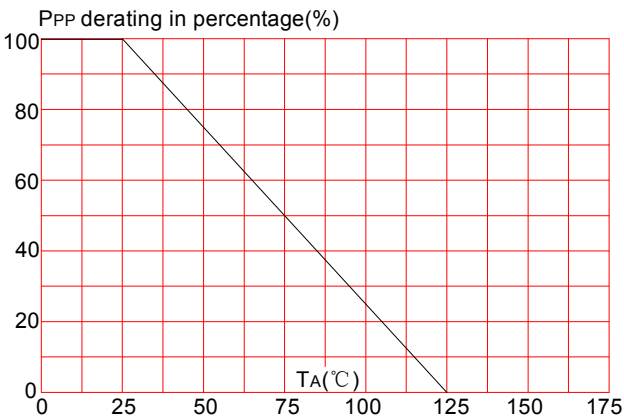
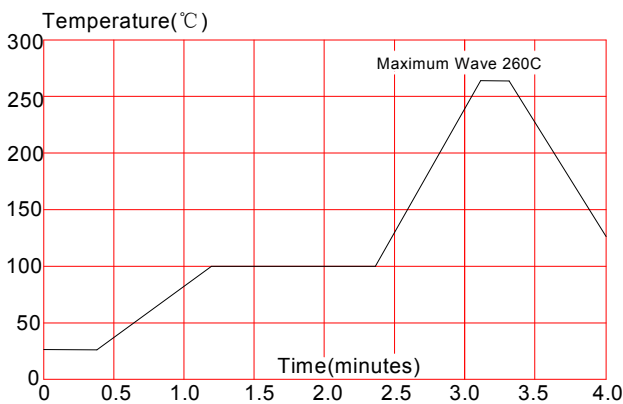


FIG.4: Pulse derating curve



SOLDERING PARAMETERS

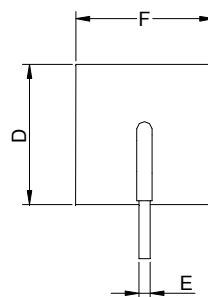
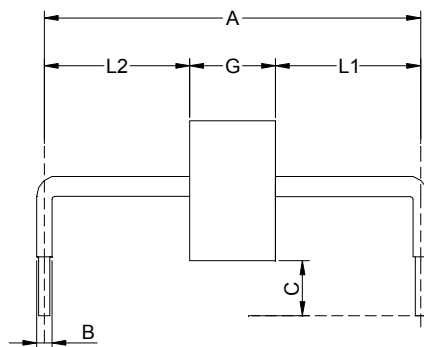
FIG.5: Lead-free profile



Tab1: Flow/Wave soldering

Peak temperature	265℃
Dipping time	10 seconds
Soldering	1 times

PACKAGE MECHANICAL DATA

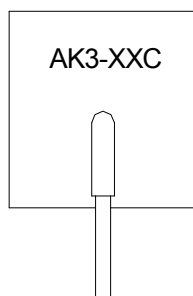


Size A			
Symbol		Inches	Millimeter
A		0.951±0.040	24.15±1.00
B		0.094±0.024	2.40±0.60
C		0.236±0.040	6.00±1.00
D		0.56max	14.0max
E		0.050±0.002	1.27±0.05
F		0.56max	14.0max
G	015C to 025C	0.16max	4.0max
	030C to 042C	0.20max	5.0max
	058C to 076C	0.24max	6.0max
	100C to 133C	0.32max	8.0max
	170C to 190C	0.39max	10.0max
	240C to 300C	0.55max	14.0max
	380C to 430C	0.70max	17.0max
L ₁ /L ₂	L ₁ =L ₂ tolerance±0.047inch(±1.20 mm)		

Size B			
Symbol		Inches	Millimeter
A		0.630±0.020	16.00±0.50
B		0.094±0.024	2.40±0.60
C		0.236±0.040	6.00±1.00
D		0.56max	14.0max
E		0.050±0.002	1.27±0.05
F		0.56max	14.0max
G	015C to 025C	0.16max	4.0max
	030C to 042C	0.20max	5.0max
	058C to 076C	0.24max	6.0max
	100C to 133C	0.32max	8.0max
	170C to 190C	None	None
	240C to 300C	None	None
	380C to 430C	None	None
L ₁ /L ₂	L ₁ =L ₂ tolerance±0.047inch(±1.20 mm)		

Part Number	Case Type	Quantity	Packing Option
AK3-XXC	AKS	84pcs	Box

MARKING & ORDERING INFORMATION



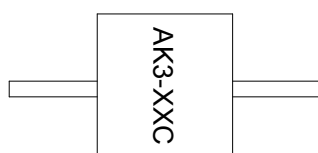
AK	3	-	XX	C
(1)	(2)		(3)	(4)

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

Apply to P/N listed below:

AK3-015C; AK3-020C;
 AK3-025C; AK3-030C;
 AK3-042C; AK3-058C;
 AK3-066C; AK3-076C;
 AK3-100C; AK3-133C;

Type 1 - Side View



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

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

Apply to P/N listed below:

AK3-170C
 AK3-190C
 AK3-240C
 AK3-275C
 AK3-300C
 AK3-380C
 AK3-430C

Type 2 - Top View

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