

AK10E

10,000 A Transient voltage suppressor



Product features

- Low slope resistance
- Very low clamping voltage
- Sharp breakdown voltage
- Glass passivated junction
- Snapback technology for superior clamping factor
- High temperature wave soldering: +265 °C /10 s at terminal
- UL 1449 recognized.
File No. : E340782 Guide VZCA2

Applications

- Consumer electronics
- Telecommunications
- Computing and servers
- Appliances
- Industrial automation
- Vac line protection

Environmental compliance and general specifications



Ordering part number

AK10E- 076 C

Family name ————

V_R voltage ————

("." indicates decimal point) ————

Bi-/Uni-Directional (C=Bi) ————

PIN configuration

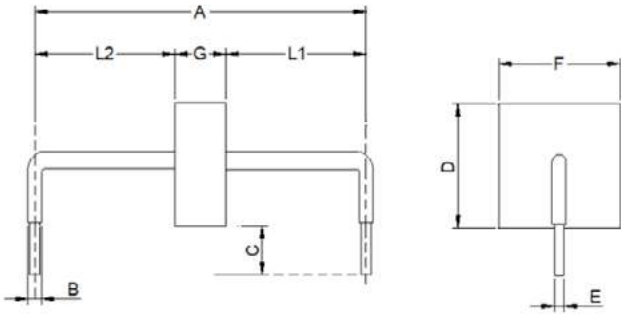


Absolute maximum ratings

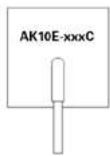
(+25 °C, RH=45%-75%, unless otherwise noted)

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_{STJ}	-55 to +150	°C

Mechanical parameters- mm

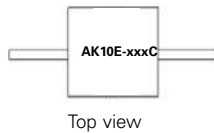


Part marking



Side view

Part number:
AK10E-015C; AK10E-020C
AK10E-025C; AK10E-030C
AK10E-042C; AK10E-058C
AK10E-066C; AK10E-076C
AK10E-100C; AK10E-133C



Top view

Part number:
AK10E-170C
AK10E-190C
AK10E-200C
AK10E-240C
AK10E-275C
AK10E-300C
AK10E-380C
AK10E-430C

Dimension	Inches	Millimeters
A	0.951 ± 0.039	24.15 ± 1.00
B	0.094 ± 0.02	2.40 ± 0.60
C	0.236 ± 0.039	6.00 ± 1.00
D	0.570 max	14.48 max
E	0.050 ± 0.002	1.27 ± 0.05
F	0.500 max	12.70 max
	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
G	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	L1=L2 tolerance ± 0.047inch (±1.20 mm)	

Electrical characteristics (+25 °C)

Part number	V_R (V)	$V_{BR}@I_T$ min (V)	max (V)	I_T (mA)	$I_R@V_R$ (µA)	$V_C@I_{PP}$ (V)	I_{PP} (A)	UL recognized
AK10E-015C	15	16	19	10	10	28	10000	
*AK10E-020C	20	22	24	10	10	50	10000	
*AK10E-025C	25	28	30	10	10	60	10000	
AK10E-030C	30	32	37	10	10	90	10000	
*AK10E-042C	42	47	51	10	10	105	10000	
*AK10E-058C	58	64	70	10	10	110	10000	X
*AK10E-066C	66	72	80	10	10	120	10000	X
*AK10E-076C	76	85	95	10	10	140	10000	X
*AK10E-100C	100	110	122	10	10	165	10000	
*AK10E-133C	133	147	162	10	10	220	10000	
*AK10E-170C	170	180	220	10	10	260	10000	X
*AK10E-190C	190	200	245	10	10	290	10000	
*AK10E-200C	200	222	262	10	10	330	10000	
*AK10E-240C	240	250	285	10	10	340	10000	
*AK10E-275C	275	300	335	10	10	435	10000	
*AK10E-300C	300	330	366	10	10	470	10000	
*AK10E-380C	380	401	443	10	10	520	10000	X
*AK10E-430C	430	440	490	10	10	625	10000	X

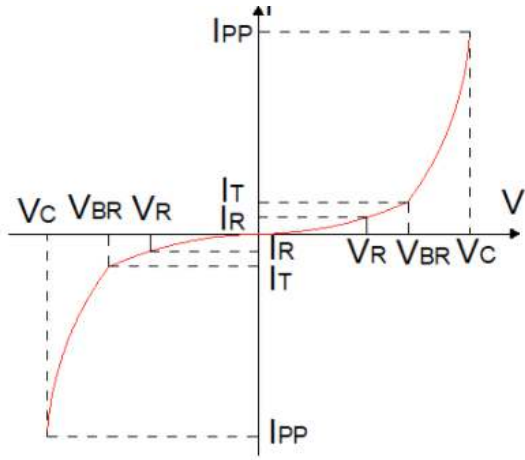
* Products with negative resistance

Packaging information (mm)

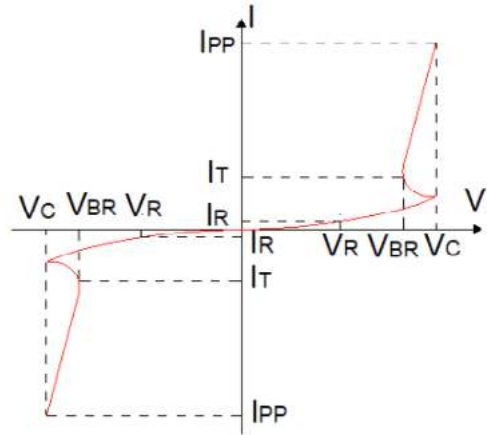
Bulk packaged 56 parts per box

Ratings and V-I characteristic curves (+25 °C unless otherwise noted)

V- I curve characteristics (Bi-directional)



V- I curve characteristics (Bi-directional with negative resistance)



Surge waveform: 8/20 μ s

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

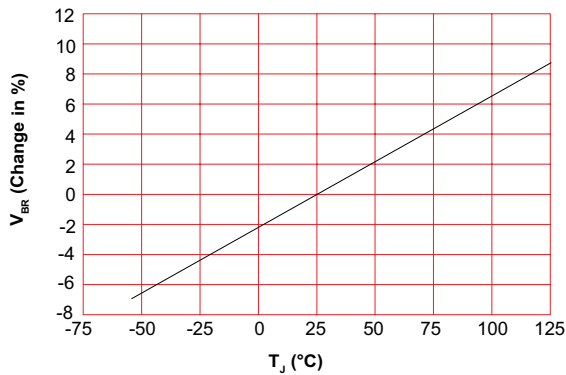
V_{BR} : Breakdown voltage -

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

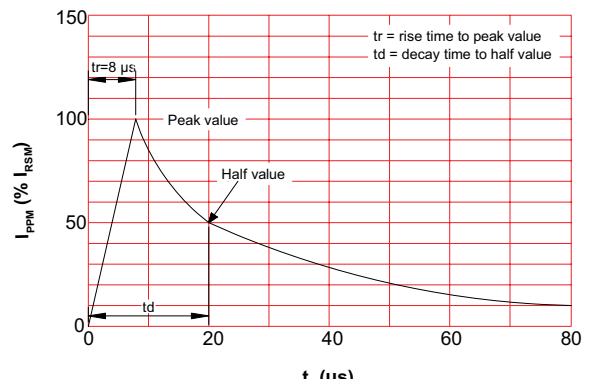
I_R : Reverse leakage current

I_T : Test current

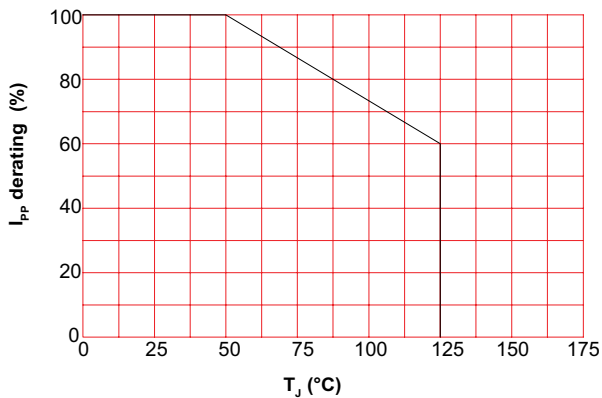
Typical V_{BR} vs junction temperature



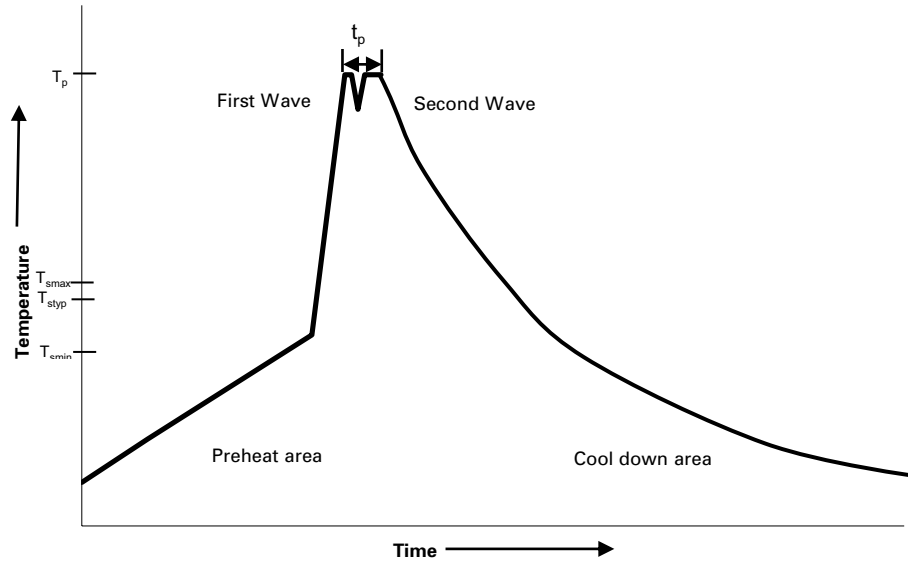
Pulse waveform



Pulse derating curve



Wave solder profile



Reference EN 61760-1:2006

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat		
• Temperature min. (T_{smin})	100 °C	100 °C
• Temperature typ. (T_{styp})	120 °C	120 °C
• Temperature max. (T_{smax})	130 °C	130 °C
• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	70 seconds
Δ preheat to max Temperature	150 °C max.	150 °C max.
Peak temperature (T_p)*	235 °C – 260 °C	250 °C – 265 °C
Time at peak temperature (t_p)	10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C	4 minutes	4 minutes

Manual solder

+350 °C (4-5 seconds by soldering iron), generally manual/hand soldering is not recommended.

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Printed in USA
Publication No. 11210 BU-MC20188
November 2020

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