

AK1E

1000 A Transient voltage suppressor



Product features

- Bi-directional
- 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

Applications

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

Environmental compliance and general specifications



Ordering part number

AK1E- 076 C

Family name ————

V_R voltage ————

("-" indicates decimal point) ————

Bi-/Uni-Directional (C=Bi) ————

PIN configuration

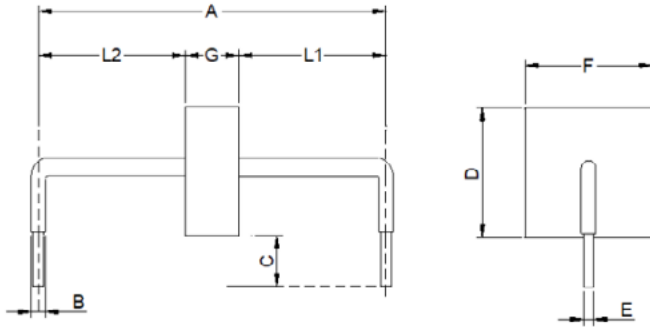


Absolute maximum ratings

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

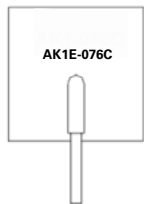
Parameter	Symbol	Value	Unit
Peak current rating per 8/20μs IEC 61000-4-5	I_{PP}	1	kA
Operating junction temperature range	T_J	-55 to +125	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Mechanical parameters- mm



	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	0.570 max	14.48 max
E	0.050 ± 0.002	1.27 ± 0.05
F	0.500 max	12.70 max
G	076C	0.169 ± 0.047
	380C to 430C	0.287 ± 0.047
L_1/L_2	$L1=L2$ tolerance ± 0.047 inch (± 1.20 mm)	

Part marking



Side view

Part number:
AK1E-076C



Top view

Part number:
AK1E-380C
AK1E-430C

Packaging information (mm)

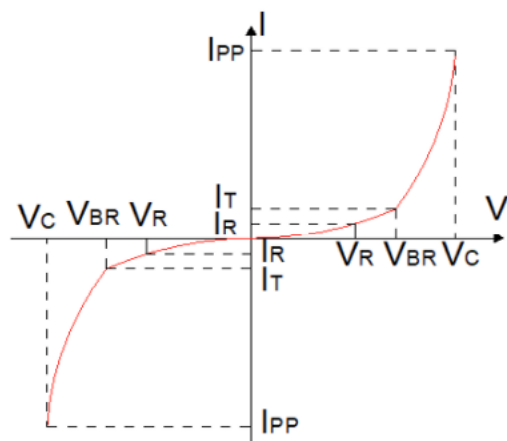
Bulk: 56 parts per box

Electrical characteristics (+25 °C)

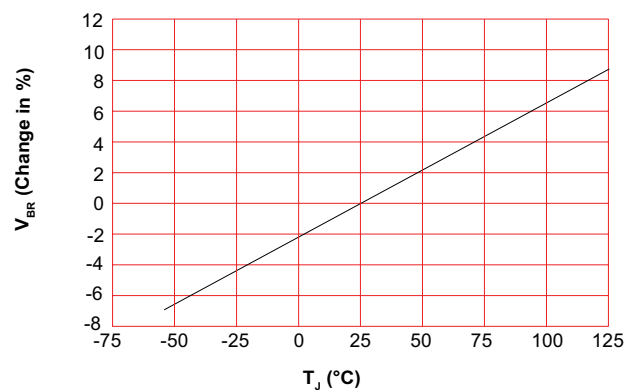
Part number	V_R (V)	$V_{BR} @ I_T$ min (V)	max (V)	I_T (mA)	$I_R @ V_R$ (μA)	$V_C @ I_{PP}$ (V)	I_{PP} (A)
AK1E-076C	76	85	95	10	10	140	1000
AK1E-380C	380	401	443	10	10	520	1000
AK1E-430C	430	440	490	10	10	625	1000

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

V- I curve characteristics (Bi-directional)



Typical V_{BR} vs junction temperature



Surge waveform: 8/20 μ s

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

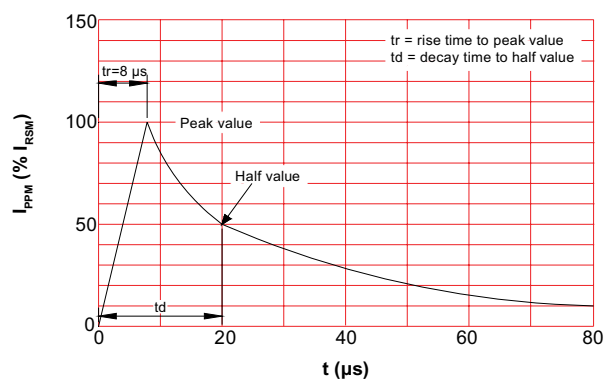
V_{BR} : Breakdown voltage

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

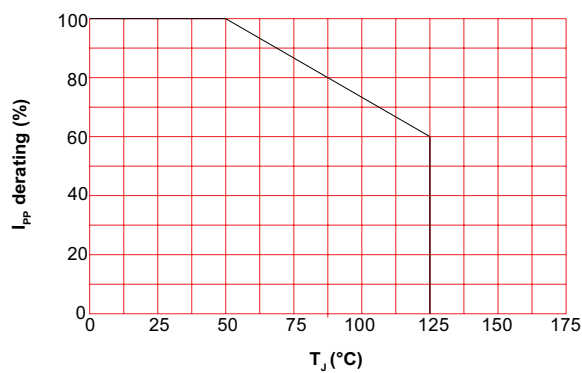
I_R : Reverse leakage current

I_T : Test current

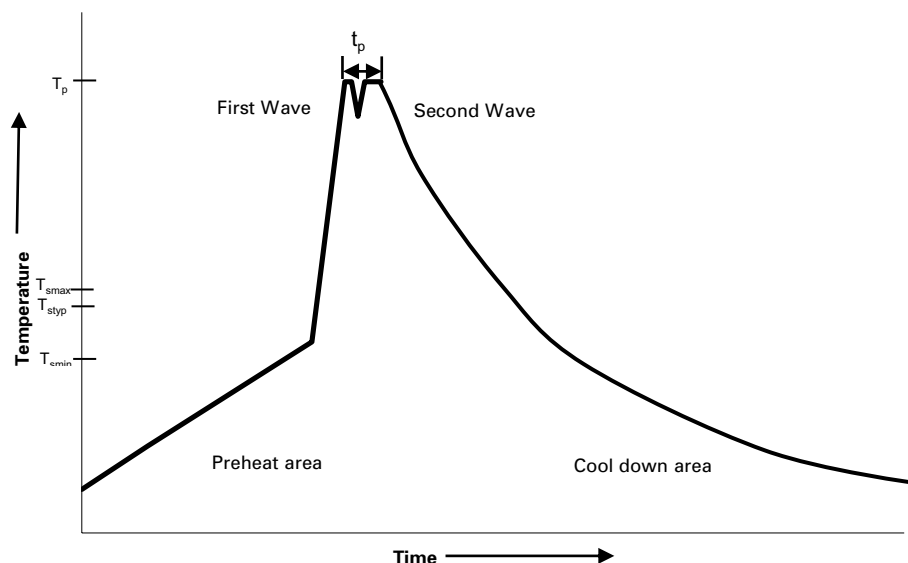
Pulse waveform



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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