

**Radial Lead Transient Voltage Suppressors (TVS)**

**Current Rating- 1KA**

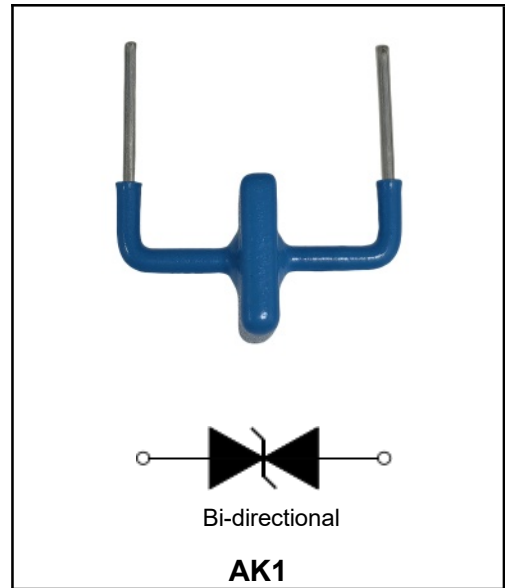
**Reverse Voltage - 12V to 430V**

**Description**

The AK1 Series of high current transient suppressors have been specially designed for use in A.C. line protection and any demanding applications (AC or DC). 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**

- ◆ Axial lead terminals
- ◆ High current transient suppressor
- ◆ Excellent Clamping Capability
- ◆ Glass Passivated Junction
- ◆ Bi-directional
- ◆ Low Slope Resistance
- ◆ Repetition Rate (duty cycle):0.01%
- ◆ Hazardous Substances Free
- ◆ RoHS Compliant
- ◆ High Temperature soldering: 260°C/10 seconds at terminals
- ◆ Epoxy Encapsulated
- ◆ Silver plated leads
- ◆ Solderable per MIL-STD-202 Method 208



**Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)**

Parameter	Symbols	Value	Unit
Current Rating <sup>1</sup>	I <sub>PP</sub>	1	KA
Operating junction	T <sub>J</sub>	-55 to+150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to+150	°C

**Notes:**

1. Rated IPP measured with 8 × 20μs pulse.

**Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

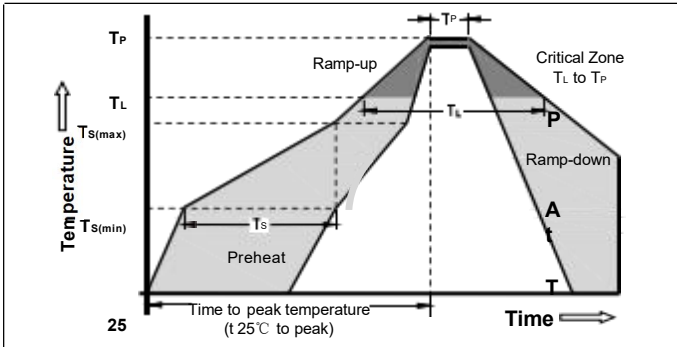
Part Number	Reverse Stand-Off Voltage		Breakdown Voltage	Test Current	Current Rating	Maximum Clamping Voltage	Reverse Leakage
	VAC(V)	VDC(V)	$V_{BR}(V)$ MIN.@ $I_T$	$I_T$ (mA)	$I_{PP}$ 8/20 $\mu$ s (KA)	$V_C(V)$ @ $I_{PP}$	$I_R(\mu A)$ @VDC
AK1-012C	8.5	12.8	14	10	1	28	5
AK1-015C	11	15	17	10	1	30	5
AK1-020C	14	20	22	10	1	40	5
AK1-025C	17	25	28	10	1	50	5
AK1-030C	21	30	33	10	1	60	5
AK1-042C	30	42	47	10	1	77	5
AK1-058C	40	58	64	10	1	110	5
AK1-066C	45	66	70	10	1	125	5
AK1-076C	54	76	85	10	1	140	5
AK1-100C	72	100	110	10	1	165	5
AK1-133C	100	133	147	10	1	220	5
AK1-170C	130	170	180	10	1	260	5
AK1-190C	145	190	200	10	1	290	5
AK1-200C	150	200	222	10	1	330	5
AK1-240C	180	240	250	10	1	340	5
AK1-380C	275	380	401	10	1	520	5
AK1-430C	310	430	440	10	1	625	5

**Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)**

**Physical Specifications**

<b>Weight</b>	Contact manufacturer
<b>Case</b>	Epoxy encapsulated
<b>Terminal</b>	Silver plated leads, solderable per MIL-STD-750, Method 2026

**Soldering Parameters**



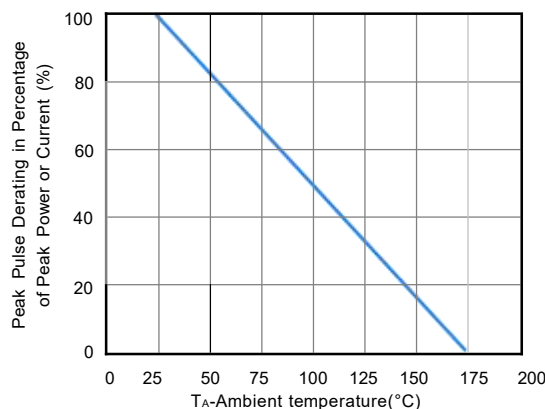
<b>Reflow Condition</b>		Lead-free assembly
<b>Pre Heat</b>	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $T_s$ )	60 -180 Seconds
<b>Average ramp up rate ( Liquidus Temp <math>T_L</math> to peak)</b>		3°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Time (min to max) ( $T_L$ )	60 -150 Seconds
<b>Peak Temperature (<math>T_P</math>)</b>		260 +0/-5°C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		20 -40 Seconds
<b>Ramp-down Rate</b>		6°C/second max
<b>Time 25°C to peak Temperature (<math>T_P</math>)</b>		8 minutes Max
<b>Do not exceed</b>		280°C

**Flow/Wave Soldering (Solder Dipping)**

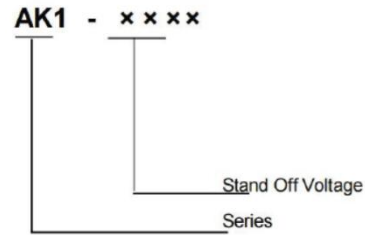
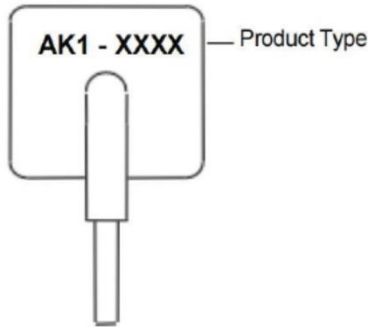
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

**Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

**Pulse Derating Curve**



Marking Diagram



Ordering information

Package	Packing Description	Base Quantity
AK1	Bulk	56pcs/Box

Package Dimensions

AK1

		Symbol	Millimeter	Inches	
		A	9.5±1.0	0.37±0.039	
		B	9.5±1.0	0.37±0.039	
		C	1.30±0.1	0.051±0.004	
		D	6.00±1.0	0.236±0.039	
		E	24.15±0.7	0.95±0.028	
		F	3.5±0.7	0.138±0.028	
		G	012~025	4.5±1.2	0.177±0.047
			030~042	5.3±1.2	0.209±0.047
			058~076	6.2±1.2	0.244±0.047
			100	7.8±1.2	0.307±0.047
133	8.6±1.2		0.339±0.047		
170~200	9.4±1.2		0.370±0.047		
240	11.0±1.2		0.433±0.047		
	380	14.4±1.2	0.567±0.047		
	430	15.2±1.2	0.598±0.047		

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