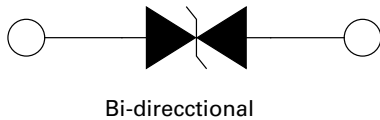




Functional Diagram



Description

The AK1 series of high power TVS diode is specially designed for meeting severe surge test environment of both AC and DC line protection applications. It features a very fast response and ultra low clamping characteristics over traditional metal oxide varistor (MOV) solutions. They can be connected in series and / or parallel to create a very high surge current protection solution.

Features

- Very low clamping voltage
- Ultra compact: less than one-tenth the size of traditional discrete solutions
- Sharp breakdown voltage
- Low slope resistance
- Bi-directional
- IEC 61000-4-2 ESD 15kV(Air), 8kV (Contact)
- Symmetric in leads width for easier soldering during assembly.
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Halogen-free
- RoHS compliant
- Glass passivated junction
- Pb-free E4 means 2nd level interconnect is Pb-free and the terminal finish material is Silver

Maximum Ratings and Thermal Characteristics

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

Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to 125	$^\circ\text{C}$
Current Rating ¹	I_{PP}	1	kA

Note:

1. Rated I_{PP} measured with 8/20 μs pulse.

Physical Specifications

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

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

Part Numbers	Part Marking	Standoff Voltage (V_{SO}) Volts	Max. Reverse Leakage (I_R) @ V_{SO} μA	Typical I_R @ 85°C (μA)	Reverse Breakdown Voltage (V_{BR}) @ I_T		Test Current I_T (mA)	Max. Clamping Voltage V_{CL} @ I_{PP} Peak Pulse Current (I_{PP}) (Note 1)		Max. Temp Coefficient OF V_{BR} (%/ $^\circ\text{C}$)	Max. Capacitance 0 Bias 10kHz (nF)
					Min Volts	Max Volts		V_{CL} Volts	I_{PP} Amps		
AK1 - 076C	1-076C	76	10	15	85	95	10	140	1,000	0.1	8.5

Note: Using 8/20 μs wave shape as defined in IEC 61000-4-5.



AK1 Series

Axial Leded – 1kA



Flow/Wave Soldering (Solder Dipping)

Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

Wave Solder Profile

Figure 1 -
Non Lead-free Profile

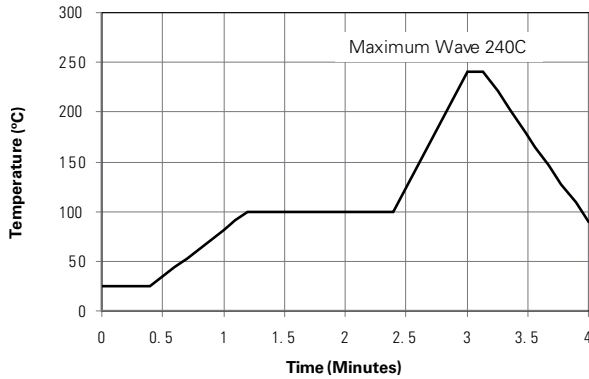
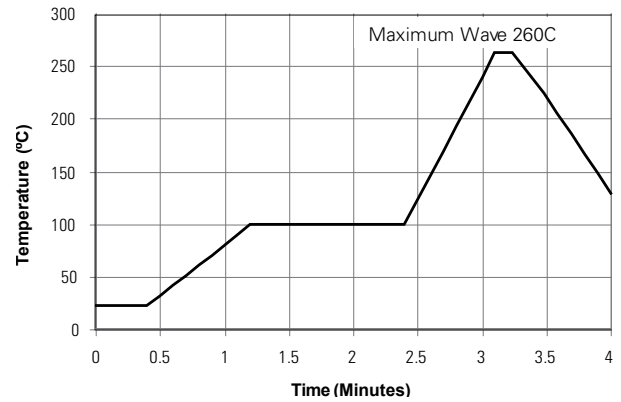


Figure 2 -
Lead-free Profile



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

Figure 3 -
Peak Power Derating

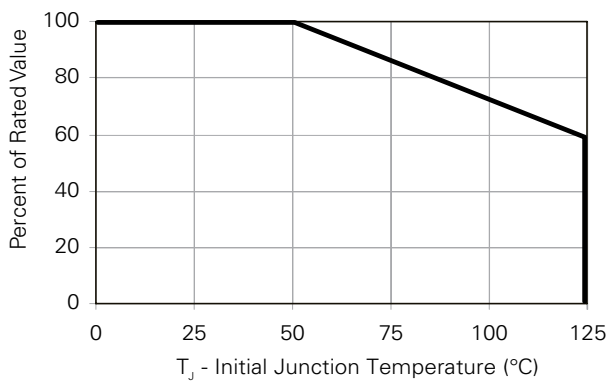
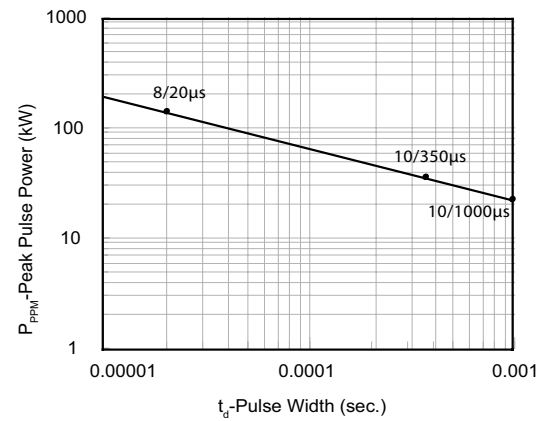


Figure 4 -
Typical Peak Pulse Power Rating Curve



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

Figure 5 -Typical VBR Vs JunctionTemperature

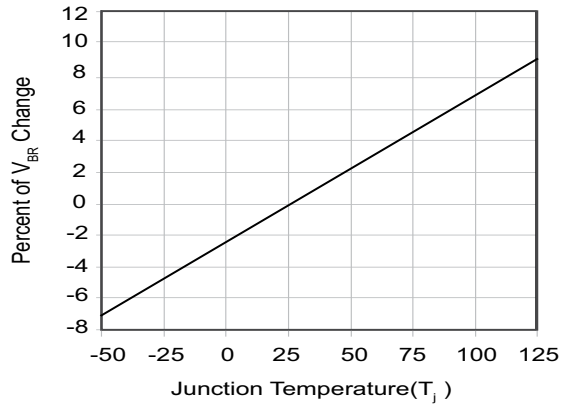
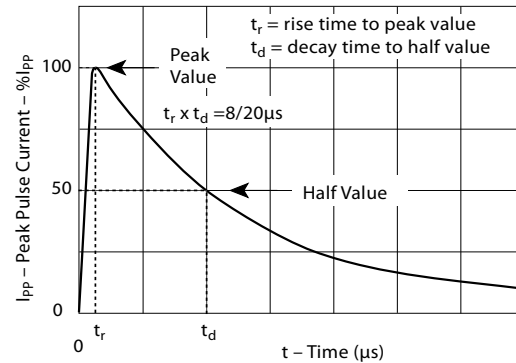
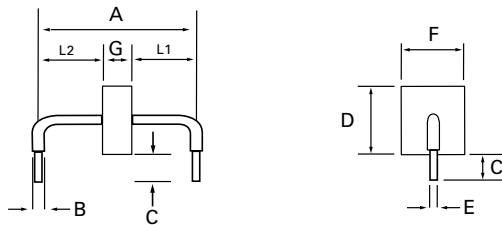


Figure 6 -Pulse Waveform

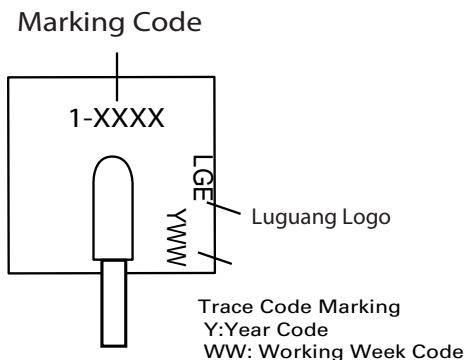


Dimensions



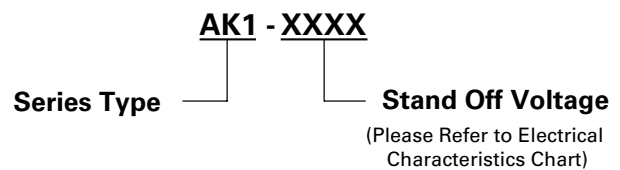
Dimensions	Inches	Millimeters
A	0.950 +/- 0.040	24.15 +/- 1.00
B	0.095 +/- 0.024	2.4 +/- 0.60
C	0.236 +/- 0.039	6.00 +/- 1.00
D	0.570 max.	14.48 max.
E	0.050 +/- 0.002	1.270 +/- 0.05
F	0.500 max.	12.70 max.
G	0.096 +/- 0.040	2.44 +/- 1.00
L1/L2	L1= L2 tolerance +/- 0.04 inch (1.0 mm)	

Part Marking System



Side View

Part Numbering System



Packing Options

Part Number	Component Package	Quantity	Packaging Option
AK1-XXXX	AK Package	56pcs/Box	Bulk
AK1-XXXX-12	AK Package	12pcs/Box	Bulk

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. LGE products are not designed for, and may not be used in, all applications.