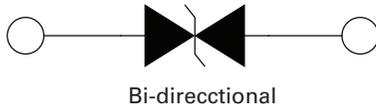


**Functional Diagram**



### 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 <sup>1</sup>	$I_{PP}$	15	kA

**Note:**

1. Rated  $I_{PP}$  measured with 8/20 $\mu\text{s}$  pulse as defined in IEC 61000-4-5 2nd edition

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

Part Numbers	Part Marking	Standoff Voltage ( $V_{SO}$ ) Volts	Max. Reverse Leakage ( $I_R$ ) @ $V_{SO}$ ( $\mu\text{A}$ )	Typical $I_R$ @ $85^\circ\text{C}$ ( $\mu\text{A}$ )	Reverse Breakdown Voltage ( $V_{BR}$ ) @ $I_T$		Test Current $I_T$ (mA)	Max. Clamping Voltage $V_{CL}$ @ Peak Pulse Current ( $I_{PP}$ )			Max. Temp Coefficient of $V_{BR}$ (%/ $^\circ\text{C}$ )	Max. Capacitance 0V Bias 10kHz (nF)
					Min Volts	Max Volts		$V_{CL}$ Volts	$I_{PP}$ (8/20 $\mu\text{s}$ ) (A)	$I_{PP}$ (10/350 $\mu\text{s}$ ) (A)		
AK15 - 058C	15 - 058C	58	10	15	64	70	10	110	15,000	2,000	0.1	16
AK15 - 066C	15 - 066C	66	10	15	72	80	10	120	15,000	2,000	0.1	12
AK15 - 076C	15 - 076C	76	10	15	85	95	10	150	15,000	2,000	0.1	12
AK15-190C	15 - 190C	190	10	15	200	245	10	290	15,000	1,500	0.1	5

### Descriptions

The AK15 series of high power TVS diode is specially designed for meeting severe surge test environment of both AC and DC line protection applications. The AK15 features a very fast response and ultra low clamping characteristics as compared to MOVs (Metal Oxide Varistors). These AK components 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
- Foldbak technology for superior clamping factor
- Symmetric in leads width for easier soldering during assembly.
- IEC 61000-4-2 ESD 15kV(Air), 8kV (Contact)
- 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

### 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



### 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

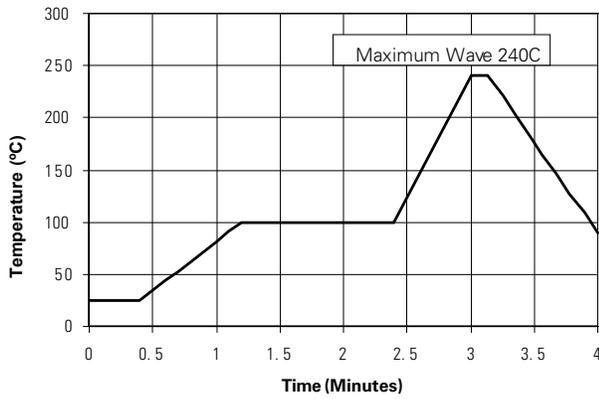
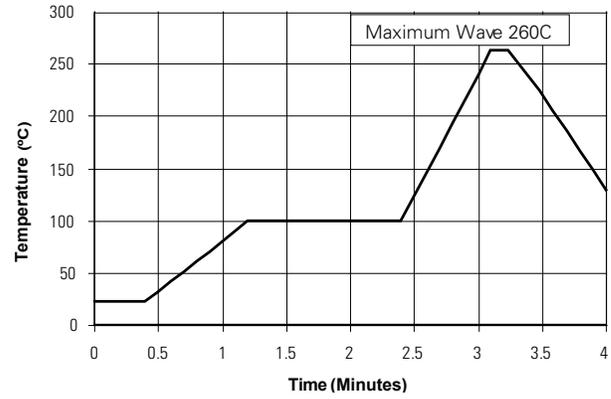


Figure 2- Lead-free Profile



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

Figure 3- Peak Power Derating

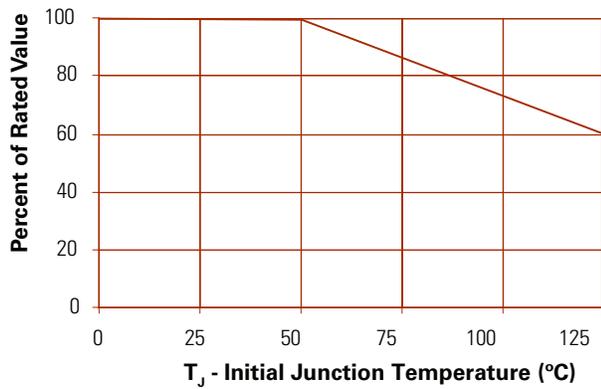
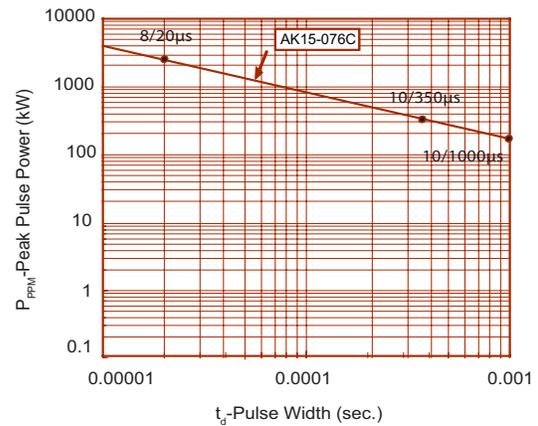


Figure 4 - Typical Peak Pulse Power Rating Curve



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

Figure 5 - Typical  $V_{BR}$  Vs Junction Temperature

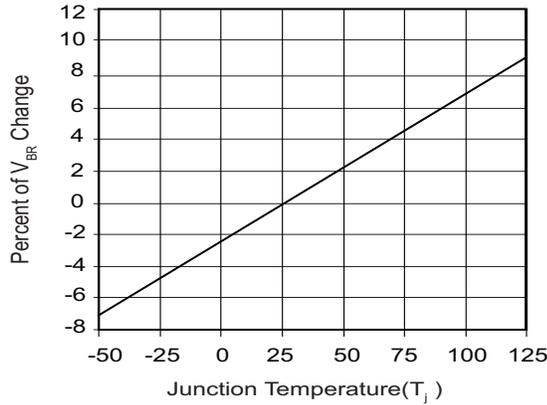
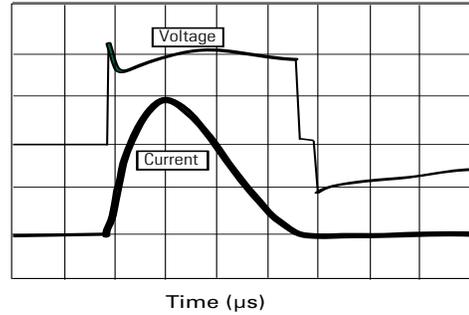


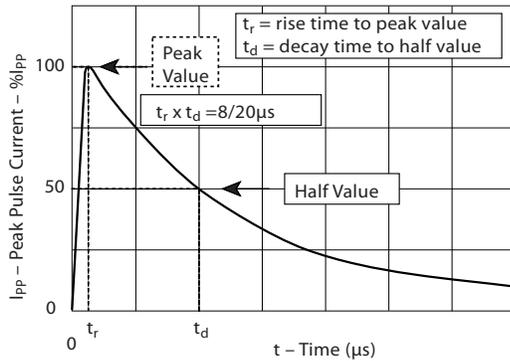
Figure 6 - Surge Response (8/20 Surge current waveform)



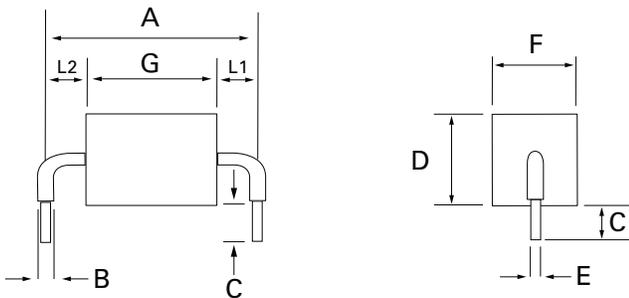
Note:

The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

Figure 7 - Pulse Waveform



### Dimensions



Dimensions	Inches	Millimeters
A	0.95±0.03	24.15±0.8
B	0.095±0.024	2.4±0.60
C	0.236±0.04	6.00±1.0
D	0.630±0.055	16.0±1.4
E	0.050±0.002	1.27±0.05
F	0.571±0.055	14.5±1.4
G - 058C	0.292±0.047	7.41±1.20
G - 066C/076C	0.351±0.047	8.91±1.20
G - 190C	0.362±0.047	8.20±1.20
L1/L2	L1= L2 tolerance +/- 0.04 inch (1.0 mm)	

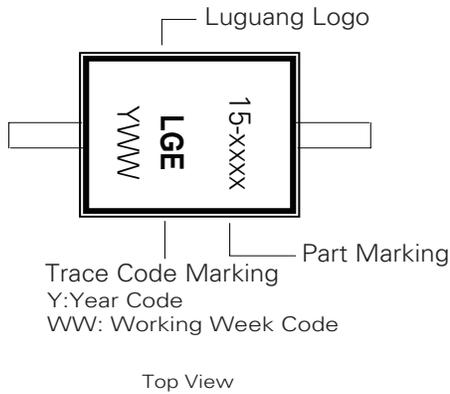


# AK15 Series

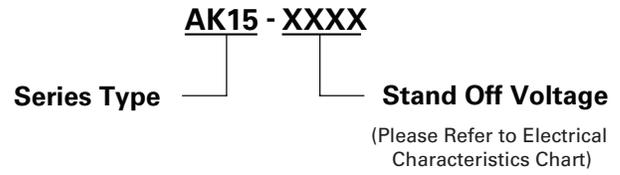
## Axial Leaded – 15kA



### Part Marking System



### Part Numbering System



### Packing Options

Part Number	Component Package	Quantity	Packaging Option
AK15-XXXX	AK Package	56pcs/Box	Bulk
AK15-XXXX-12	AK Package	12pcs/Box	Bulk

**Disclaimer Notice** - Luguang products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Luguang product documentation. Warranties granted by Luguang shall be deemed void for products used for any purpose not expressly set forth in applicable Luguang documentation. Luguang shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Luguang as set forth in applicable Luguang documentation. The sale and use of Luguang products is subject to Luguang Terms and Conditions of Sale, unless otherwise agreed by Luguang.