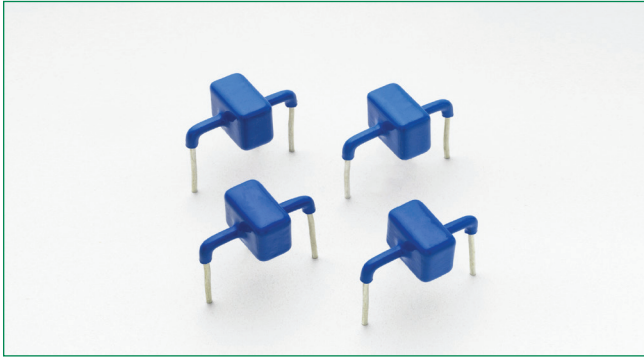


### AK15 Series



#### 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..

#### Agency Approvals

Agency	Agency File Number
	E128662

#### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-55 to 125	°C
Current Rating <sup>1</sup>	I <sub>PP</sub>	15	kA

**Note:**

1. Rated I<sub>PP</sub> measured with 8/20µs pulse as defined in IEC 61000-4-5 2nd edition

#### 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

#### Functional Diagram



#### Additional Information



Datasheet




Resources



Samples

#### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Numbers	Part Marking	Standoff Voltage (V <sub>SO</sub> ) Volts	Max. Reverse Leakage (I <sub>R</sub> ) @ V <sub>SO</sub> (µA)	Typical I <sub>R</sub> @ 85°C (µA)	Reverse Breakdown Voltage (V <sub>BR</sub> ) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max. Clamping Voltage V <sub>CL</sub> @ Peak Pulse Current (I <sub>PP</sub> )			Max. Temp Coefficient of V <sub>BR</sub> (%/°C)	Max. Capacitance 0V Bias 10kHz (nF)	Agency Approval 
					Min Volts	Max Volts		V <sub>CL</sub> Volts	I <sub>PP</sub> (8/20µS) (A)	I <sub>PP</sub> (10/350µS) (A)			
AK15-058C	15-058C	58	10	15	64	70	10	110	15,000	2,000	0.1	16	X
AK15-066C	15-066C	66	10	15	72	80	10	120	15,000	2,000	0.1	12	X
AK15-076C	15-076C	76	10	15	85	95	10	150	15,000	2,000	0.1	12	X
AK15-190C	15-190C	190	10	15	200	245	10	290	15,000	1,500	0.1	5	-

**Physical Specifications**

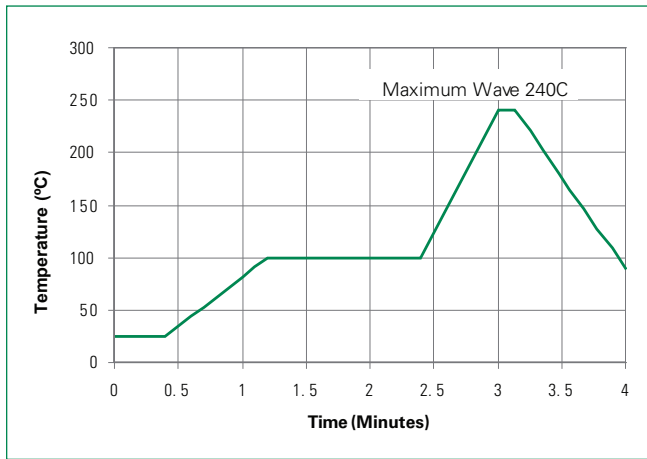
<b>Weight</b>	Contact manufacturer
<b>Case</b>	Epoxy encapsulated
<b>Terminal</b>	Silver plated leads, solderable per MIL-STD-750 Method 2026

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

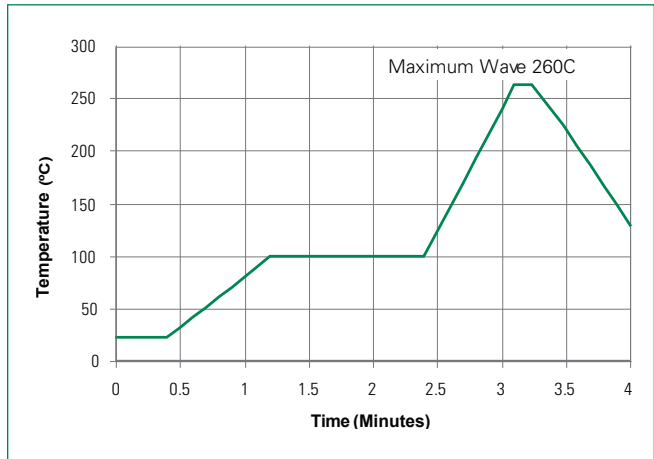
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

**Wave Solder Profile**

**Figure 1- Non Lead-free Profile**

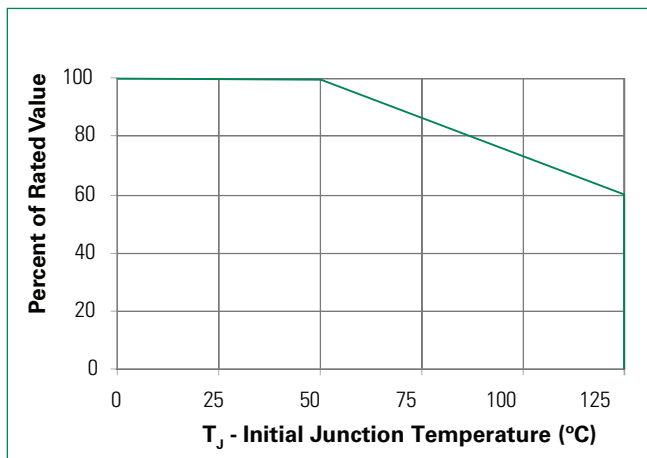


**Figure 2- Lead-free Profile**

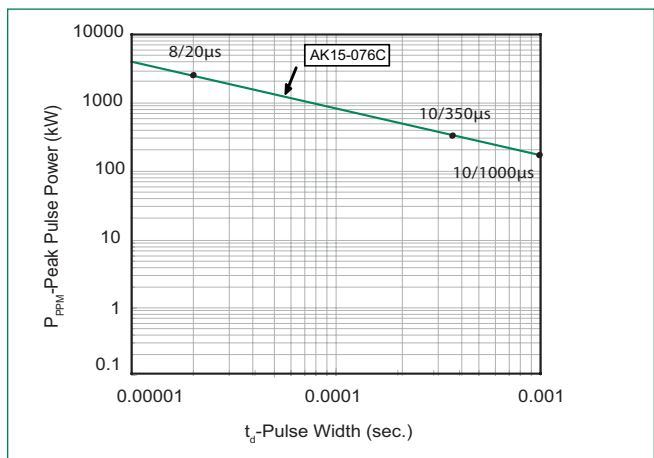


**Ratings and Characteristic Curves (T<sub>a</sub>=25°C unless otherwise noted)**

**Figure 3- Peak Power Derating**

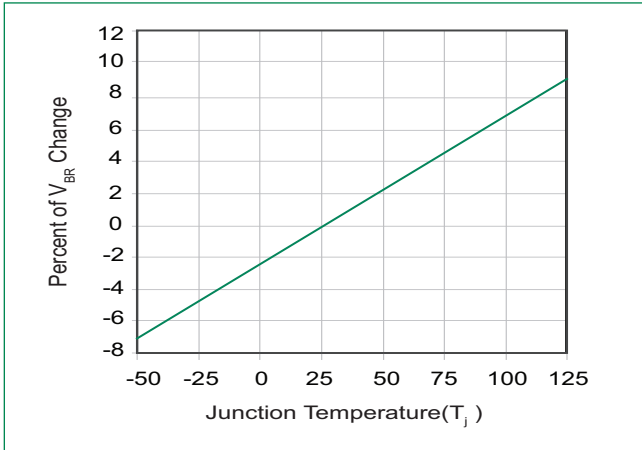


**Figure 4 - Typical Peak Pulse Power Rating Curve**

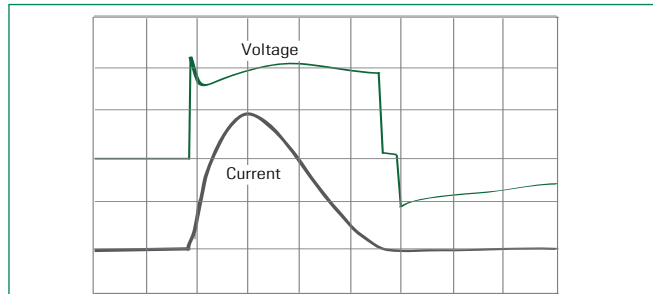


**Ratings and Characteristic Curves** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

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

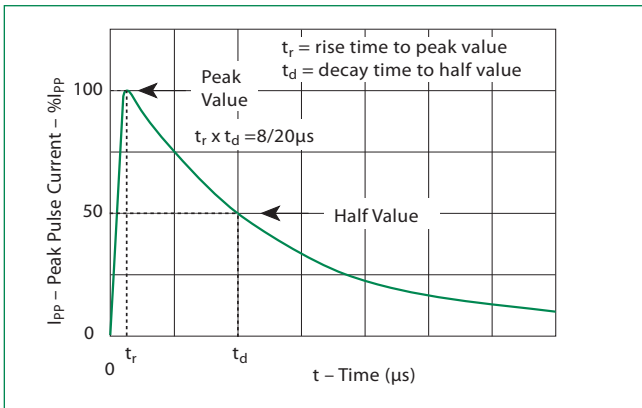


**Figure 6 -Surge Response (8/20 Surge current waveform)**

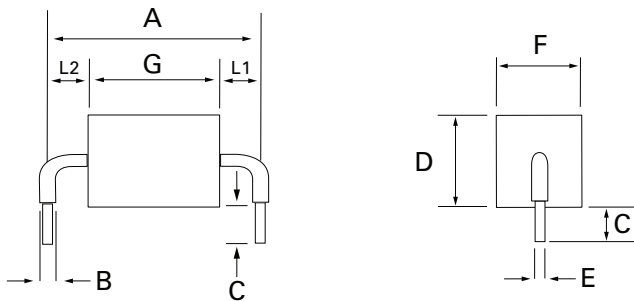


Note:  
The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

**Figure 7 - Pulse Waveform**

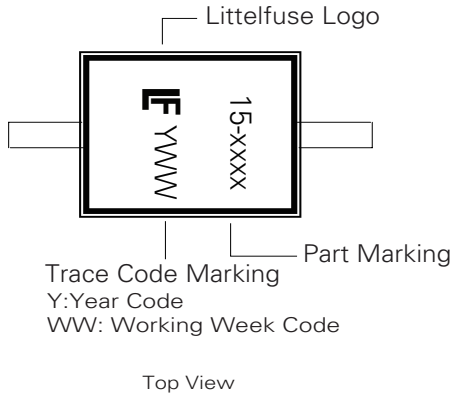


**Dimensions**

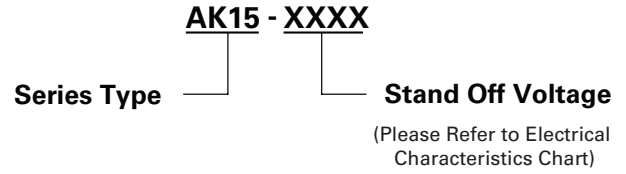


Dimensions	Inches	Millimeters
A	0.95±0.03	24.15±0.8
B	0.095±0.024	2.4±0.60
C	0.236±0.04	6.00±1.0
D	0.630±0.055	16.0±1.4
E	0.050±0.002	1.27±0.05
F	0.571±0.055	14.5±1.4
G - 058C	0.292±0.047	7.41±1.20
G - 066C/076C	0.351±0.047	8.91±1.20
G - 190C	0.362±0.047	8.20±1.20
L1/L2	L1= L2 tolerance +/- 0.04 inch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

**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

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