AK15 Series

NOT RECOMMENDED FOR NEW DESIGN PCN/ECN#: LFPCN41521 REPLACED BY: AK15-Y Series



Descriptios

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_A=25°C unless otherwise noted)

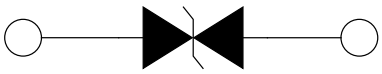
Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 125	°C
Current Rating[1]	I_{PP}	15	kA

Note:
1. Rated I_{PP} 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



Bi-direcctional

Additional Infomarion

Datasheet | Resources | Samples

Electrical Characteristics (T_A=25°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	Max. Clamping Voltage V_{CL} @ Peak Pulse Current (I_{PP})			Max. Temp Coefficient of V_{BR}	Max. Capacitance 0V Bias 10kHz	Agency Approval
					Min Volts	Max Volts	(mA)	V_{CL} Volts	I_{PP} (8/20µS) (A)	I_{PP} (10/350µS) (A)	(%/°C)	(nF)	
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	X

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Physical Specifications

Weight	Contact manufacturer
Case	Epoxy encapsulated
Terminal	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

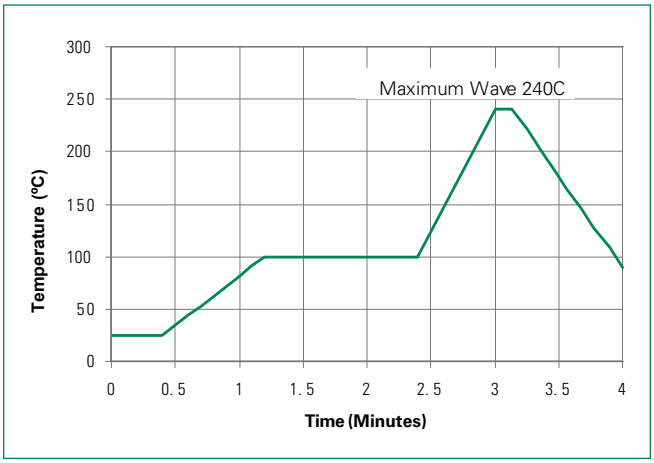
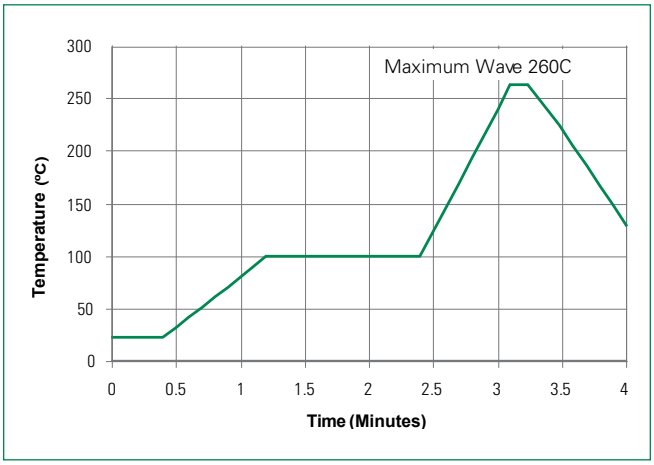


Figure 2- Lead-free Profile



Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 3- Peak Power Derating

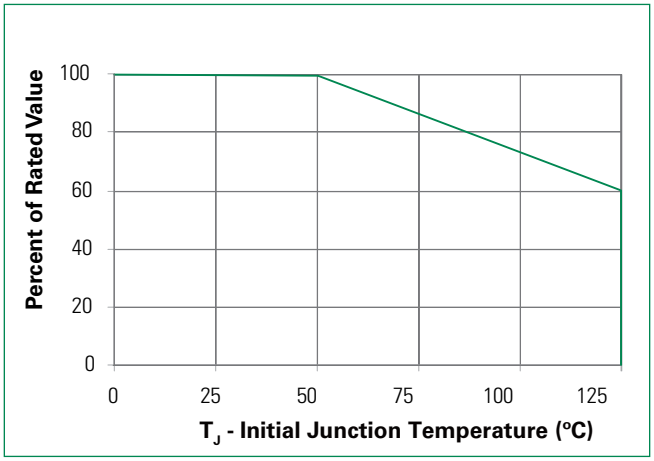
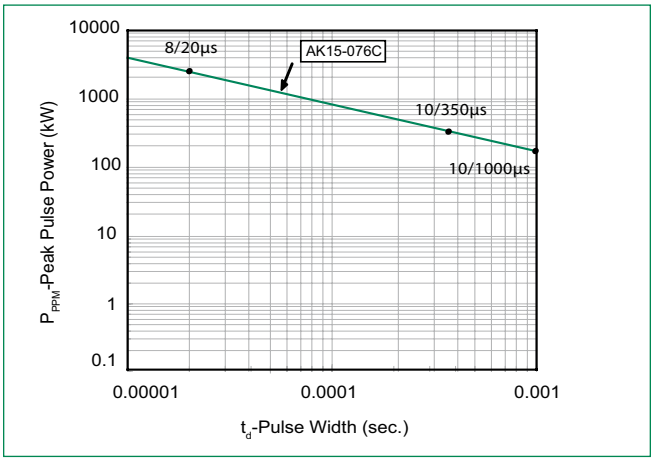


Figure 4 - Typical Peak Pulse Power Rating Curve



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Ratings and Characteristic Curves (T_A=25°C unless otherwise noted) (Continued)

Figure 5 - Typical V_{BR} Vs Junction Temperature

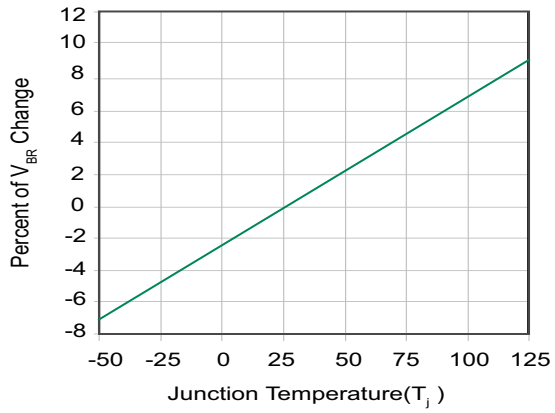
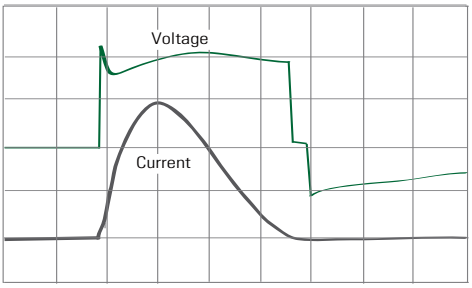


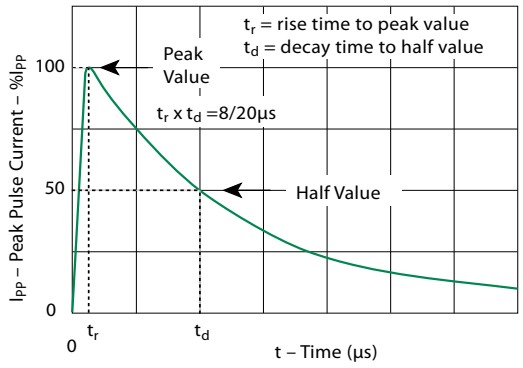
Figure 6 -Surge Response (8/20 Surge current waveform)



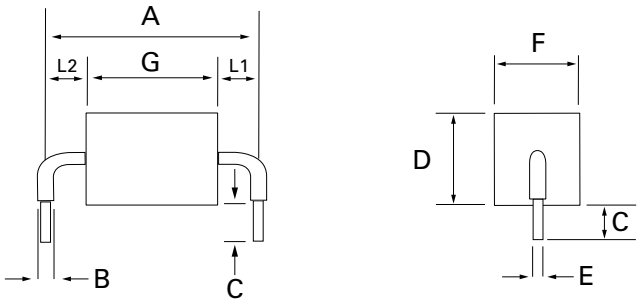
Note:

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



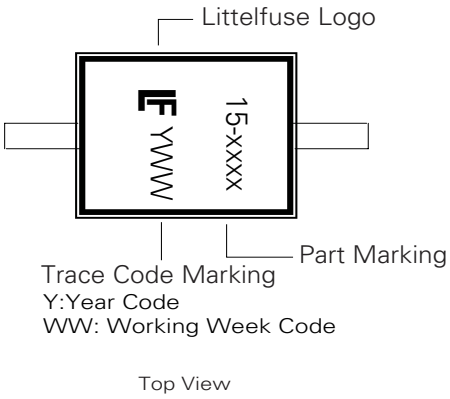
Dimensions	Inches	Millimeters
A	0.95±0.03	24.15±0.8
B	0.095±0.024	2.4±0.60
C	0.236±0.04	6.00±1.0
D	0.630±0.055	16.0±1.4
E	0.050±0.002	1.27±0.05
F	0.571±0.055	14.5±1.4
G - 058C	0.292±0.047	7.41±1.20
G - 066C/076C	0.351±0.047	8.91±1.20
G - 190C	0.362±0.047	8.20±1.20
L1/L2	L1= L2 tolerance +/- 0.04 inch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

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TVS Diodes

Axial Leaded – 15kA > AK15 series

Part Marking System



Part Numbering System

AK15 - XXXX

Series Type — **Stand Off Voltage**

(Please Refer to Electrical Characteristics Chart)

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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