

AK15 Series



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

Functional Diagram



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

Additional Information



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 (mA)	Max. Clamping Voltage V _{CL} @ Peak Pulse Current (I _{PP})			Max. Temp Coefficient of V _{BR} (%/°C)	Max. Capacitance 0V Bias 10kHz (nF)	Agency Approval 
					Min Volts	Max Volts		V _{CL} Volts	I _{PP} (8/20µS) (A)	I _{PP} (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

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

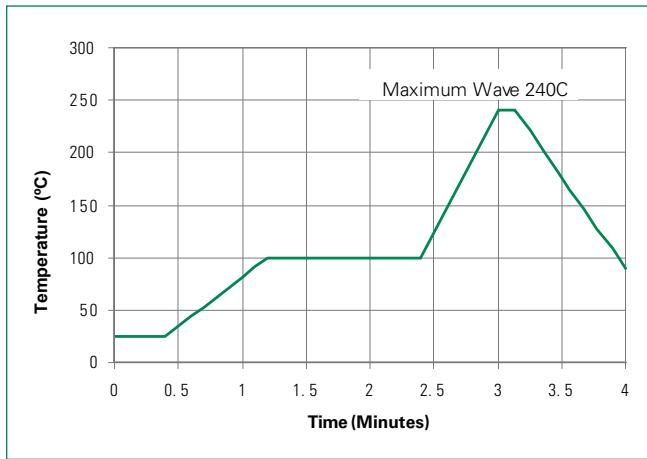
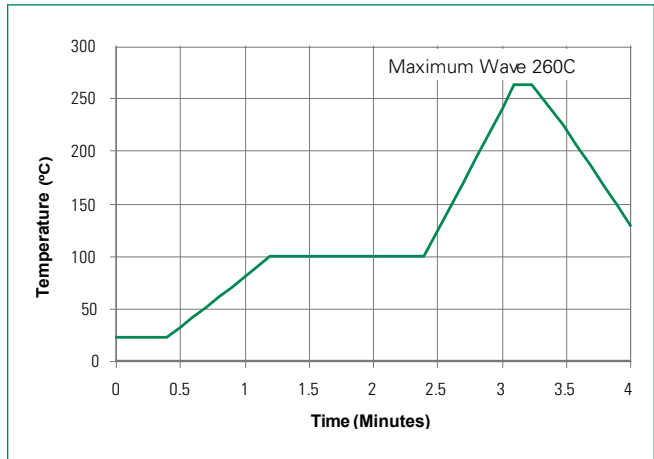


Figure 2- Lead-free Profile



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

Figure 3- Peak Power Derating

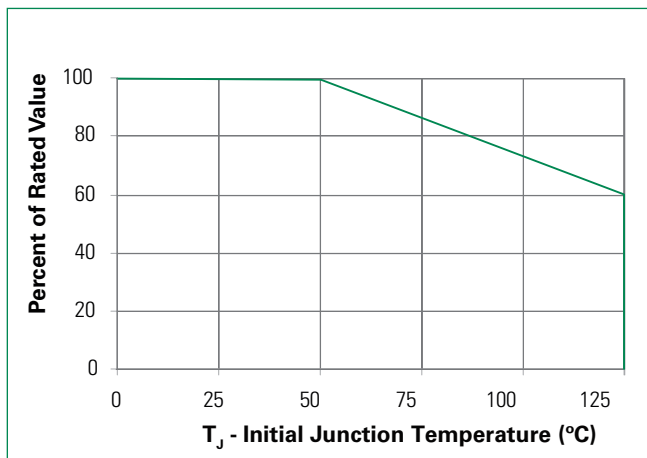
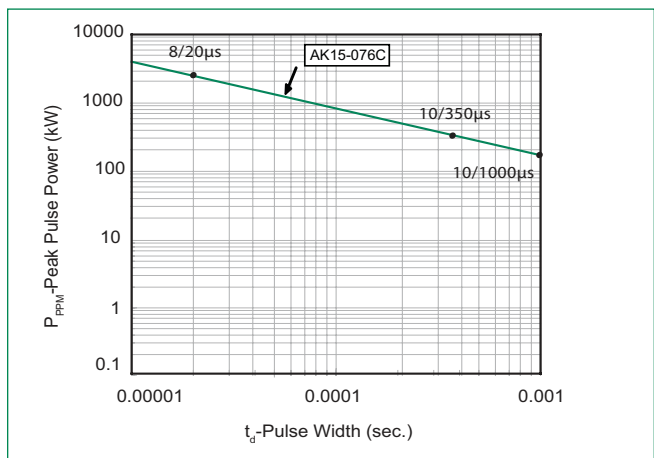


Figure 4 - Typical Peak Pulse Power Rating Curve



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

Figure 5 - Typical V_{BR} Vs Junction Temperature

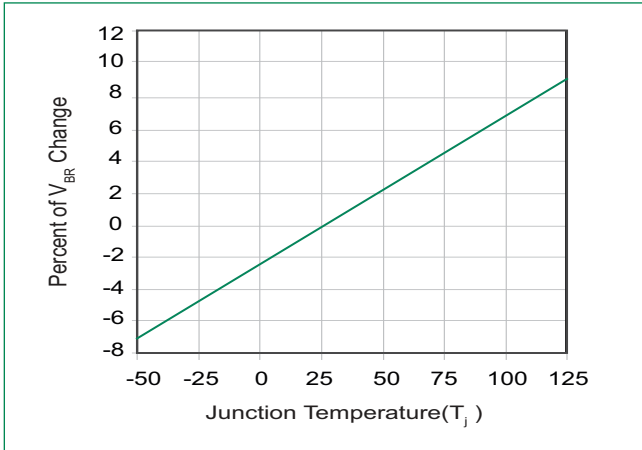
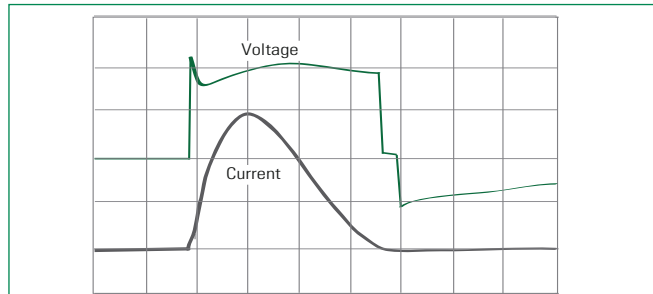
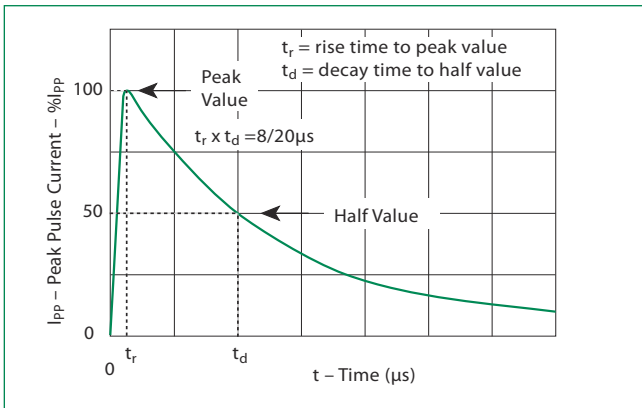


Figure 6 -Surge Response (8/20 Surge current waveform)

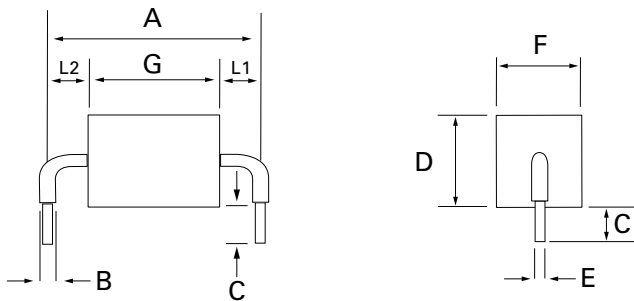


Note:
The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

Figure 7 - Pulse Waveform

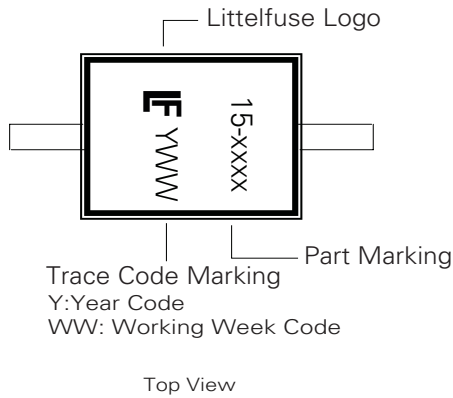


Dimensions

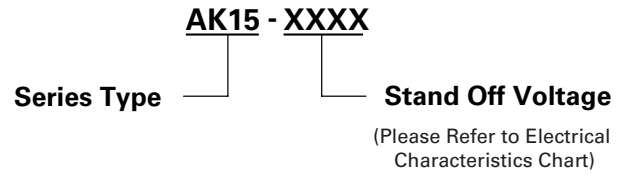


Dimensions	Inches	Millimeters
A	0.95±0.03	24.15±0.8
B	0.095±0.024	2.4±0.60
C	0.236±0.04	6.00±1.0
D	0.630±0.055	16.0±1.4
E	0.050±0.002	1.27±0.05
F	0.571±0.055	14.5±1.4
G - 058C	0.292±0.047	7.41±1.20
G - 066C/076C	0.351±0.047	8.91±1.20
G - 190C	0.362±0.047	8.20±1.20
L1/L2	L1= L2 tolerance +/- 0.04 inch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