

AK10 Series



Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E128662

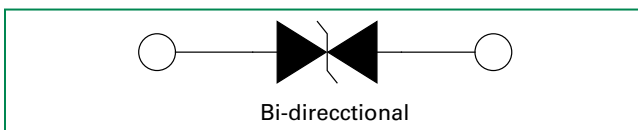
Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

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}	10	kA

Note:

1. Rated I_{pp} measured with 8/20µS pulse.

Functional Diagram



Description

The AK10 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 (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
- 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}) (Note 1)		Max. Temp Coefficient of V _{BR} (%/°C)	Max. Capacitance 0 Bias 10kHz (nF)	Agency Approval 
					Min Volts	Max Volts		V _{CL} Volts	I _{PP} Amps			
AK10 - 015C	10 - 015C	15	10	15	16	19	10	28	10,000	0.1	12.0	
AK10 - 030C	10 - 030C	30	10	15	32	37	10	58	10,000	0.1	11.0	X
AK10 - 058C	10 - 058C	58	10	15	64	70	10	110	10,000	0.1	6.5	X
AK10 - 066C	10 - 066C	66	10	15	72	80	10	120	10,000	0.1	6.5	X
AK10 - 076C	10 - 076C	76	10	15	85	95	10	140	10,000	0.1	6.5	X
AK10 - 170C	10 - 170C	170	10	15	180	220	10	260	10,000	0.1	2.8	X
AK10 - 190C	10 - 190C	190	10	15	200	245	10	290	10,000	0.1	2.5	X
AK10 - 240C	10 - 240C	240	10	15	250	285	10	340	10,000	0.1	2.2	X
AK10 - 380C	10 - 380C	380	10	15	401	443	10	520	10,000	0.1	2.0	X
AK10 - 430C	10 - 430C	430	10	15	440	490	10	625	10,000	0.1	1.4	X
AK10 - 530C	10 - 530C	530	10	15	560	619	10	750	10,000	0.1	1.0	X

Note: Using 8/20µS wave shaped defined in IEC 61000-4-5.

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

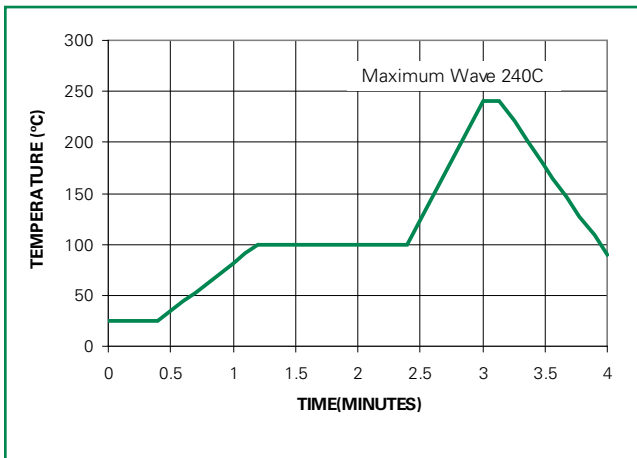
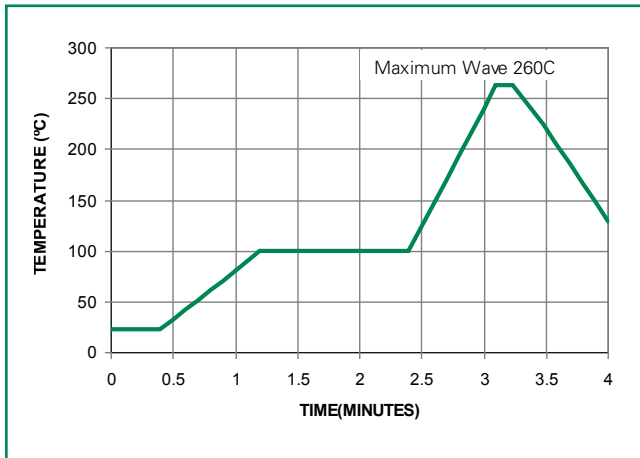


Figure 2 - Lead-free Profile



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

Figure 3 - Peak Power Derating

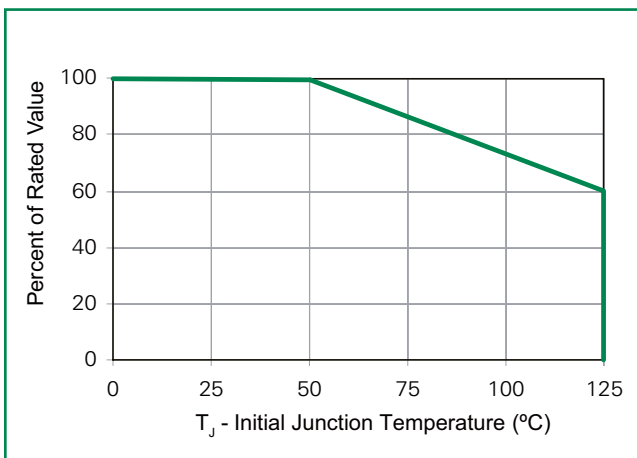
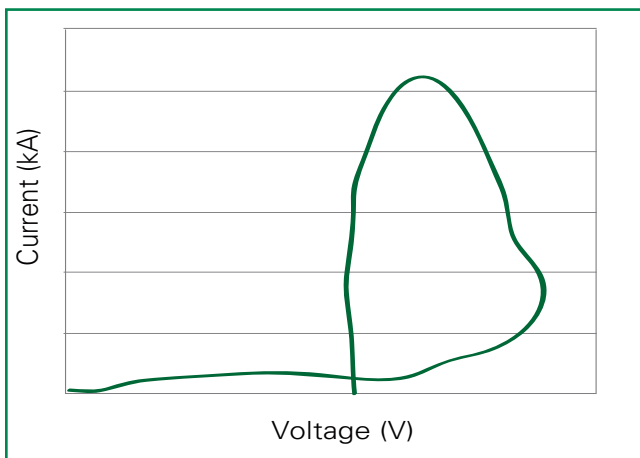


Figure 4 - Surge Response



continues on next page.

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

Figure 5 - Typical Peak Pulse Power Rating Curve

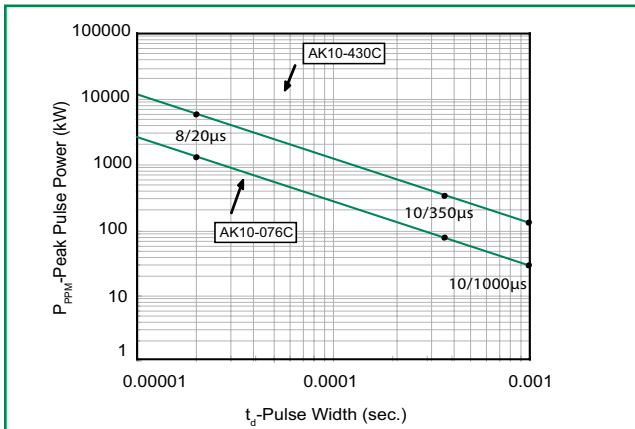
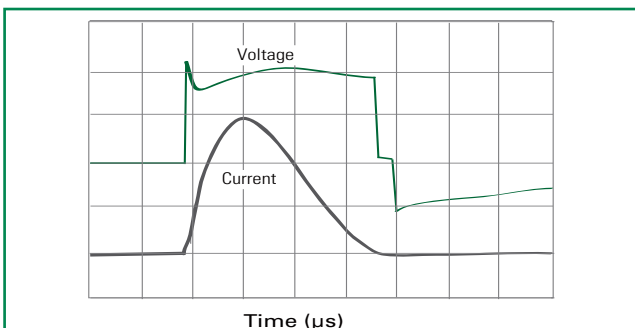


Figure 7 - Surge Response (8/20 Surge current waveform)



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 6 - Typical V_{BR} Vs Junction Temperature

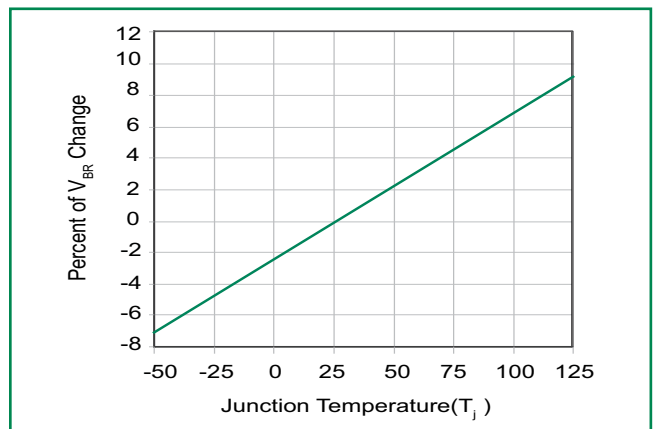
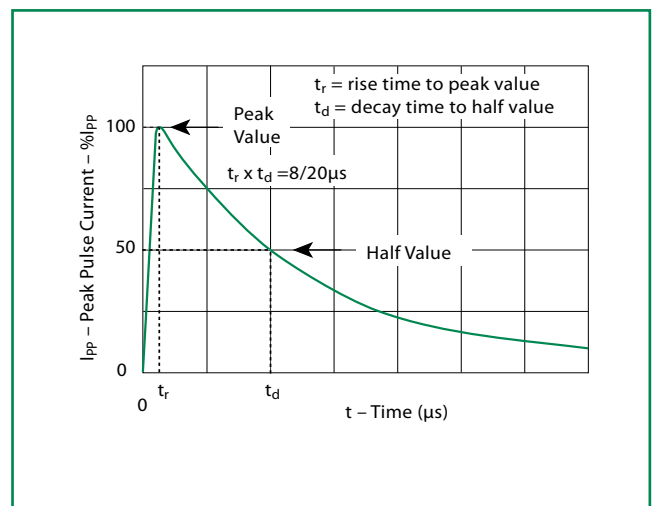
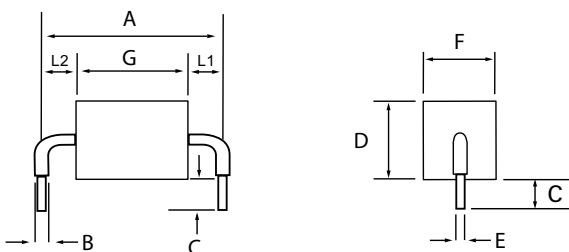


Figure 8 - Pulse Waveform

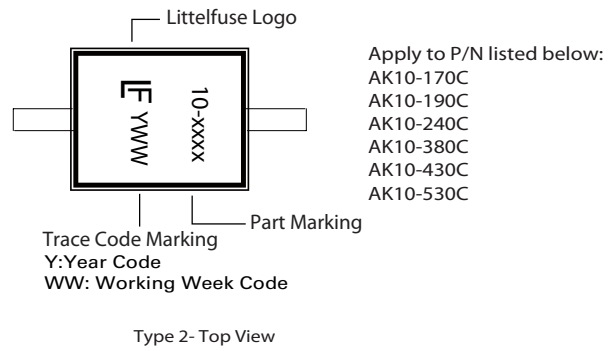
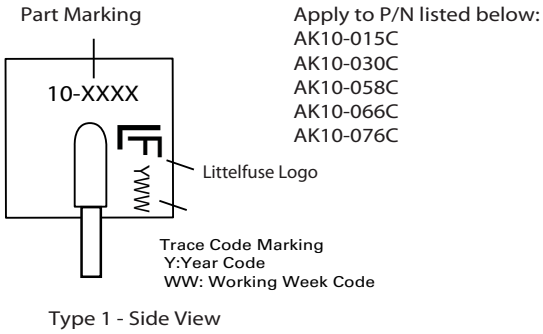


Dimensions

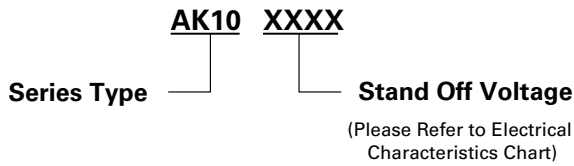


Dimensions	Inches	Millimeters
A	0.950 +/- 0.04	24.15 +/- 1.00
A - 530C	1.370 +/- 0.08	34.70 +/- 2.00
B	0.095 +/- 0.024	2.4 +/- 0.60
C	0.236 +/- 0.04	6.00 +/- 1.00
D	0.570 max.	14.48 max.
E	0.050 +/- 0.002	1.270 +/- 0.05
F	0.500 max.	12.70 max.
G - 015C	0.142 +/- 0.04	3.60 +/- 1.00
G - 030C	0.167 +/- 0.04	4.23 +/- 1.00
G - 058C/066C/076C	0.200 +/- 0.04	5.08 +/- 1.00
G - 170C/190C	0.362 +/- 0.04	9.2 +/- 1.00
G - 240C	0.420 +/- 0.04	10.67 +/- 1.00
G - 380C/430C	0.650 +/- 0.04	16.50 +/- 1.00
G - 530C	1.060 +/- 0.06	27.00 +/- 1.50
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
AK10XXXX	AK Package	56pcs/Box	Bulk
AK10-XXXX-12	AK Package	12pcs/Box	Bulk