



Descriptions

The AK3 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..



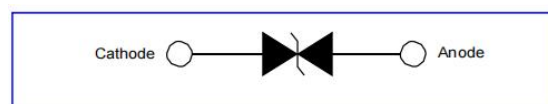
Maximum Ratings and Thermal Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	TJ , TSTG	(-)55 to 125	°C
Current Rating1	IPP	3	KA

Note:

1. Rated IPP with 8/20μs pulse.

Functional Diagram



Descriptions

- 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

Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage @IT		Test Current	Maximum Clamping Voltage @IPP (V)	Maximum Peak Pulse Current	Maximum Reverse Leakage @VRWM	Package
	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	VC(V)	8/20us (KA)	IR(μA)	
AK3-015C-BC	15	16	19	10	28	3	2	BPSS
AK3-030C-BC	30	32	37	10	58	3	2	BPSS
AK3-042C-BC	42	47	52	10	77	3	2	BPSS
AK3-058C-BC	58	64	70	10	110	3	2	BPSS
AK3-066C-BC	66	72	80	10	120	3	2	BPSS
AK3-076C-BC	76	85	95	10	140	3	2	BPSS
AK3-150C-BC	150	158	194	10	230	3	2	BPSS
AK3-170C-BC	170	179	220	10	260	3	2	BPSS
AK3-208C-BC	208	223	246	10	262	3	2	BPSS
AK3-380C-BC	380	401	443	10	520	3	2	BPSS
AK3-430C-BC	430	440	490	10	625	3	2	BPSS

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

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

Figure 1 - Non Lead-free Profile

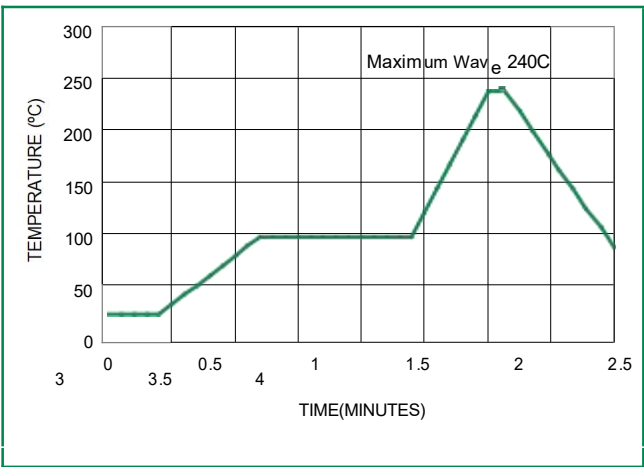


Figure 2 - Lead-free Profile

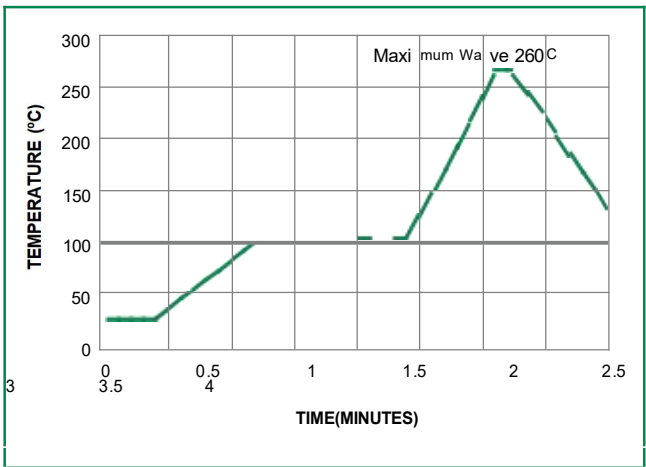
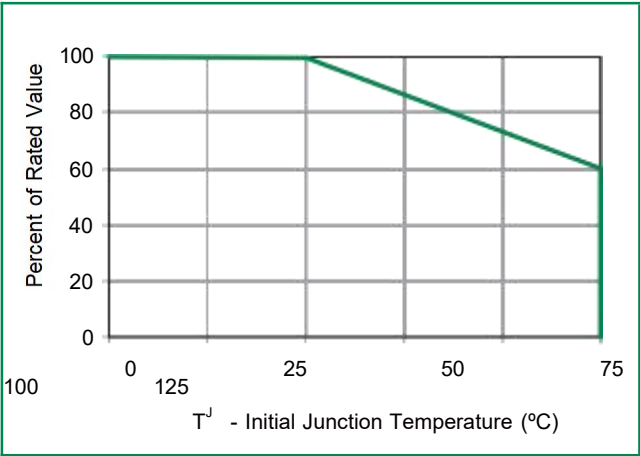


Figure 3 - Peak Power Derating



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

Figure 5 - Typical Peak Pulse Power Rating Curve

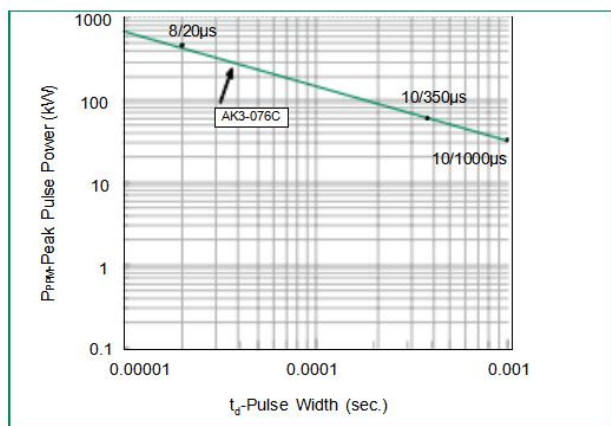


Figure 6 - Typical V_{BR} Vs Junction Temperature

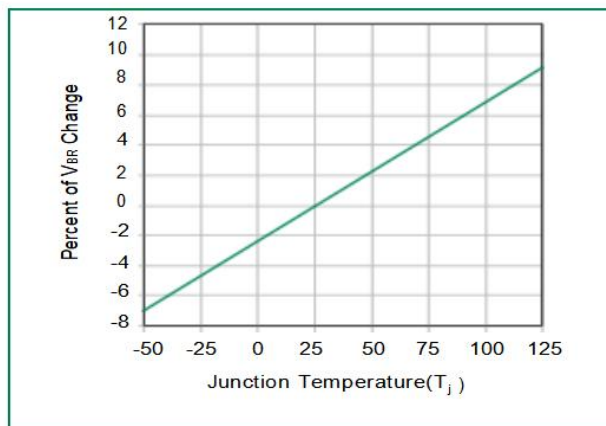


Figure 7 - Surge Response (8/20 Surge current waveform)

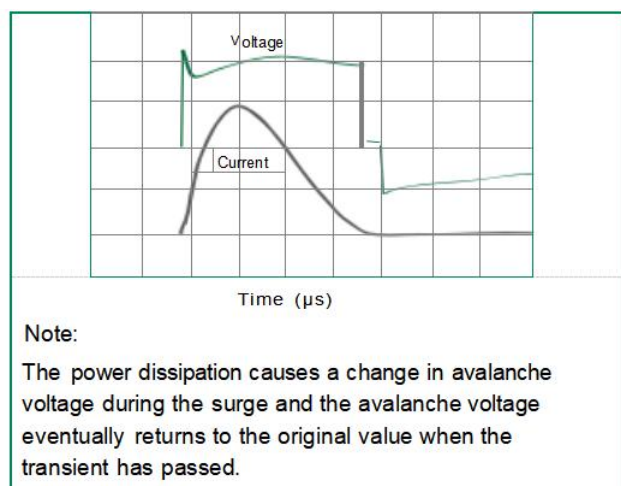
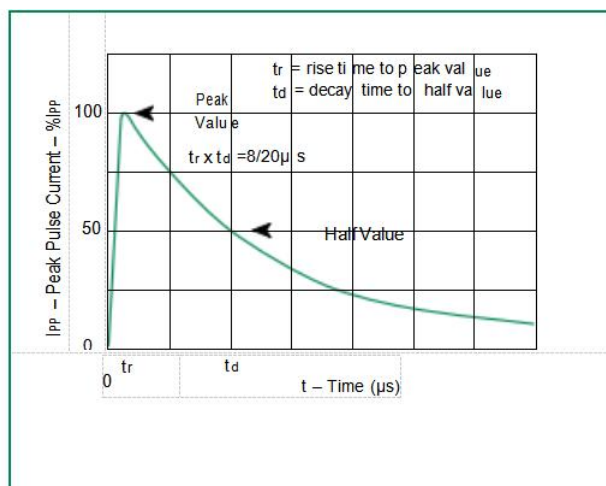
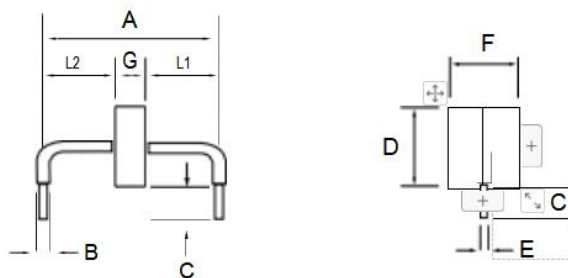


Figure 8 - Pulse Waveform



Dimensions



Dimensions	Inches	Millimeters
A	0.951 +/- 0.040	24.15 +/- 1.00
B	0.094 +/- 0.024	2.40 +/- 0.60
C	0.236 +/- 0.039	6.00 +/- 1.00
D	0.433 max.	11.0 max.
E	0.050 +/- 0.002	1.27 +/- 0.05
F	0.374 max.	9.50 max.
G	-015C	0.093 +/- 0.039
	-030C/-066C	0.130 +/- 0.047
	-058C/-076C	0.168 +/- 0.047
	-150C	0.383 +/- 0.047
	-170C	0.420 +/- 0.047
	-208C	0.358 +/- 0.047
	-380C	0.547 +/- 0.047
L1	-430C	0.583 +/- 0.047
	-208C	0.296 +/- 0.047
L1= L2 tolerance +/- 0.047 inch (+/- 1.20 mm)		
L2	-208C	= A - (G+L1) tolerance +/- 0.047 inch (+/- 1.20 mm)
		L1= L2 tolerance +/- 0.047 inch (+/- 1.20 mm)