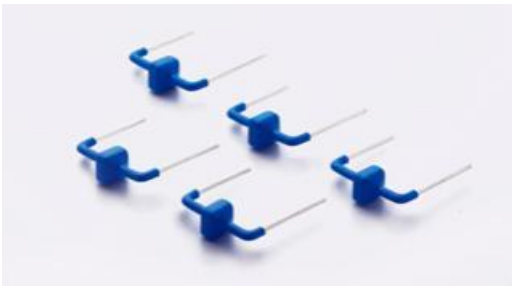
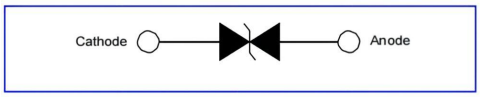
TVS Diodes Axial Leaded

1 General Description

1.1 Description

- 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..





1.2 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

Flow/Wave Soldering(Solder Dipping)	
Peak Temperature:	265℃
Dipping Time:	10 seconds
Soldering:	1 time

1.3 Mechanical Data

- Case: Epoxy encapsulated
- Terminals: Silver plated leads,solderable per MIL-STD-750 Method2026
- Weight:Contact manufacturer

2 Maximum Ratings(TA=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Current Rating 1	I_{PP}	10	KA
Operating Junction Temperature Range	T_J	-55 to +125	℃
Storage Temperature Range	T_{STG}	-55 to +125	℃

Note:1.Rated I_{PP} with 8/20μs pulse.

3 Electrical Characteristics(TA=25℃ Unless otherwise specified)

Part Number	Reverse Stand-off Voltage	Breakdown Voltage @IT		Test Current	Maximum Clamping Voltage@IPP(V)	Maximum Peak Pulse Current	Maximum Reverse Leakage@VRWM
	VRWM(V)	VBR MIN (V)	VBR MAX (V)	IT (mA)	VC(V)	8/20μs (KA)	IR (μA)
AK10-015C-BC	15	16	19	10	28	10	1
AK10-030C-BC	30	32	37	10	58	10	1
AK10-038C-BC	38	40.5	49.5	10	63.5	10	1
AK10-042C-BC	42	47	52	10	77	10	1
AK10-058C-BC	58	64	70	10	110	10	1
AK10-066C-BC	66	72	80	10	120	10	1
AK10-076C-BC	76	85	95	10	140	10	1
AK10-170C-BC	170	180	220	10	260	10	1
AK10-190C-BC	190	200	245	10	290	10	1
AK10-240C-BC	240	250	285	10	340	10	1
AK10-300C-BC	300	310	345	10	480	10	1
AK10-380C-BC	380	401	443	10	520	10	1
AK10-430C-BC	430	440	490	10	625	10	1
AK10-530C-BC	530	560	619	10	750	10	1

4 Characteristics Curves(TA=25℃ Unless otherwise specified)

Figure 1 - Non Lead-free Profile

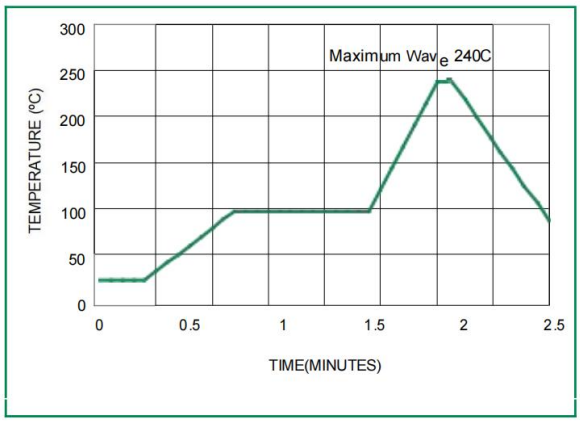


Figure 2 - Lead-free Profile

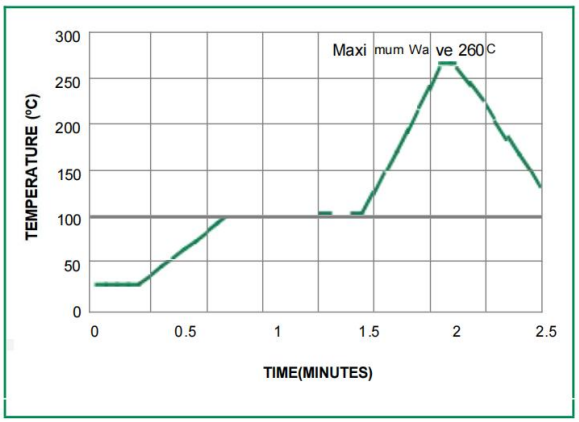


Figure 3 - Peak Power Derating

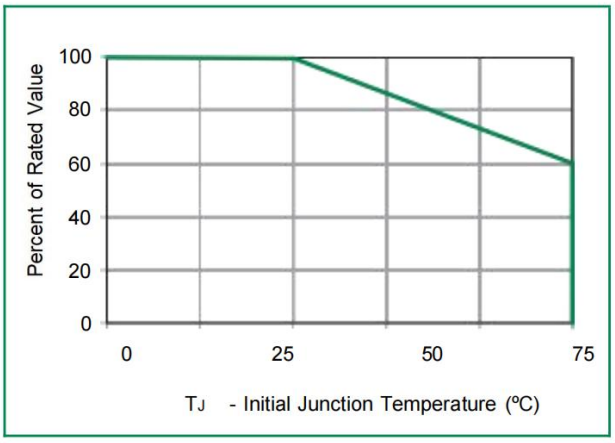


Figure 4 - Typical Peak Pulse Power Rating Curve

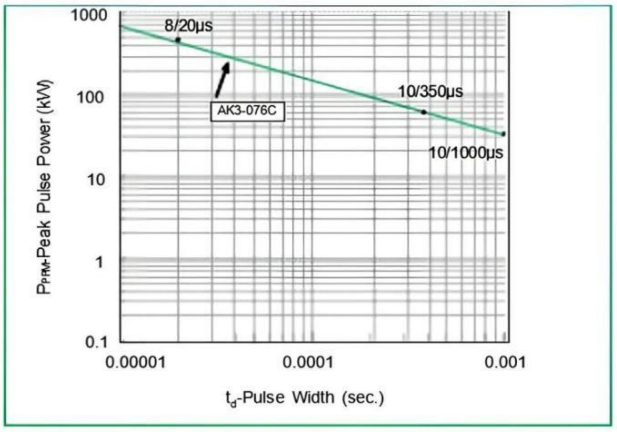


Figure 5 - Typical V_{BR} Vs Junction Temperature

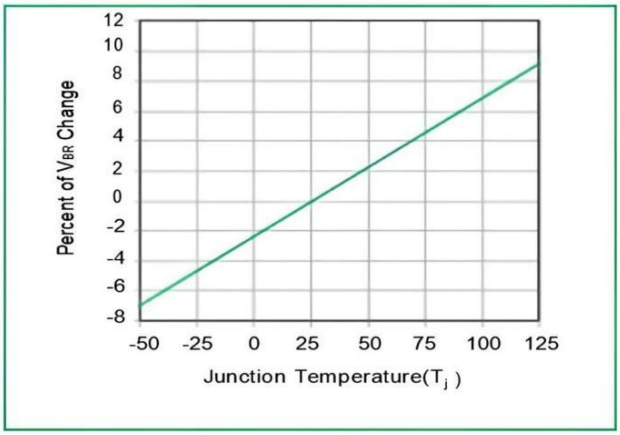
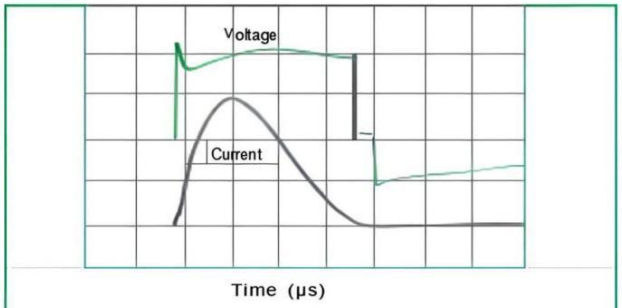


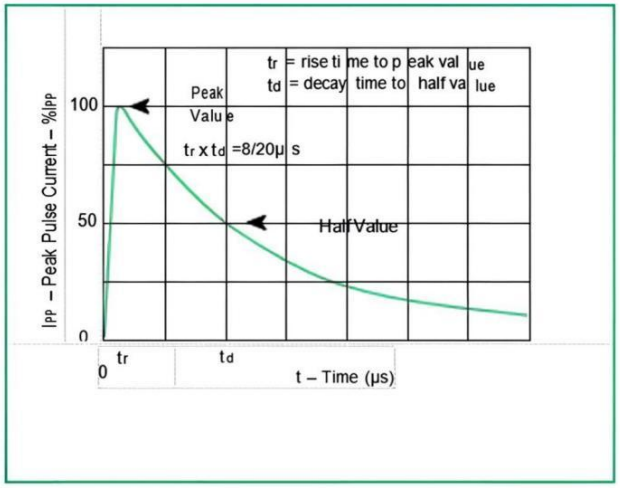
Figure 6 -Surge Response (8/20 Surge current waveform)



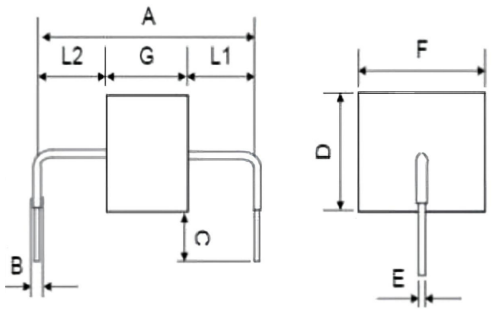
Note:

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



5 Package Outline Dimensions



Symbol		Dimensions Millimeters
A		24.15±1.00
A-530C		29.5±1.00
B		2.40±0.60
C		6.00 min
D		16.0 max
E		1.28±0.02
F		16.0 max
G	30C/38C	6.0 max
	58C/66C/76C/86C	8.0 max
	170C/190C/240C	14.0 max
	300C/380C/430C	18.0 max
	530C	22.0 max
L1=L2 tolerance ±1.20mm		

6 Ordering Information

PACKAGE	UNIT WEIGHT (g)	BOX (pcs)	CARTON (pcs)
BPSS	consult	56	not fixed

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