

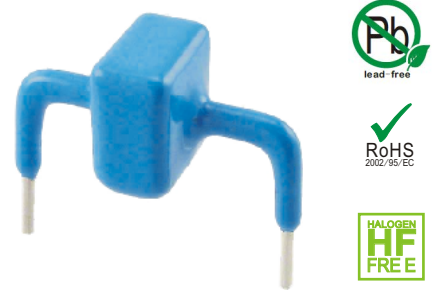
## Transient Voltage Suppression Diodes Axial Leaded-10kA

### Description

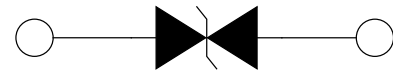
The AK10 series of high power TVS diode is specially designed for meeting severe surge test environment of both AC and DC line protection applications. It features a very fast response and ultra low clamping characteristics over traditional metal oxide ( MOV ) solutions. They can be connected in series 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



### Functional Diagram



### Maximum Ratings and Thermal Characteristics

(TA=25°C unless otherwise noted)

Parameter	Symbols	Value	Unit
Operating Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-55 to +125	°C
Current Rating <sup>1</sup>	I <sub>PP</sub>	10	kA

Note:1) Rated IPP measured with 8/20µS pulse.

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### Electrical Characteristics

Part Numbers	Part Marking	Standoff Voltage (VSO) Volts	Max. Reverse Leakage (IR)@VSO (uA)	Typical IR@85°C (uA)	Reverse Breakdown Voltage(VBR)@IT		Test Current IT mA	Max. clamping Voltage VCL@IPP Peak Pulse Current(IPP)(Note 1)		Max.Temp Coefficient OF VBR %/°C	Max. Capacitance 0 Bias 10KHZ nF
					Min Volts	Max Volts		VCL Volts	IPP 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
AK10 - 058C	10 - 058C	58	10	15	64	70	10	110	10,000	0.1	6.5
AK10 - 066C	10 - 066C	66	10	15	72	80	10	120	10,000	0.1	6.5
AK10 - 076C	10 - 076C	76	10	15	85	95	10	140	10,000	0.1	6.5
AK10 - 170C	10 - 170C	170	10	15	180	220	10	260	10,000	0.1	2.8
AK10 - 190C	10 - 190C	190	10	15	200	245	10	290	10,000	0.1	2.5
AK10 - 240C	10 - 240C	240	10	15	250	285	10	340	10,000	0.1	2.2
AK10 - 380C	10 - 380C	380	10	15	401	443	10	520	10,000	0.1	2.0
AK10 - 430C	10 - 430C	430	10	15	440	490	10	625	10,000	0.1	1.4
AK10 - 530C	10 - 530C	530	10	15	560	619	10	750	10,000	0.1	1.0

### Physical Specifications

<b>Weight</b>	<b>Contact manufacturer</b>
<b>Case</b>	<b>Epoxy encapsulated</b>
<b>Terminal</b>	<b>Silver plated leads, solderable per MIL-STD-750 Method 2026</b>

### Flow/Wave Soldering (Solder Dipping)

<b>Peak Temperature :</b>	<b>265°C</b>
<b>Dipping Time :</b>	<b>10 seconds</b>
<b>Soldering :</b>	<b>1 time</b>

### Wave Solder Profile

Figure 1- Non Lead-free Profile

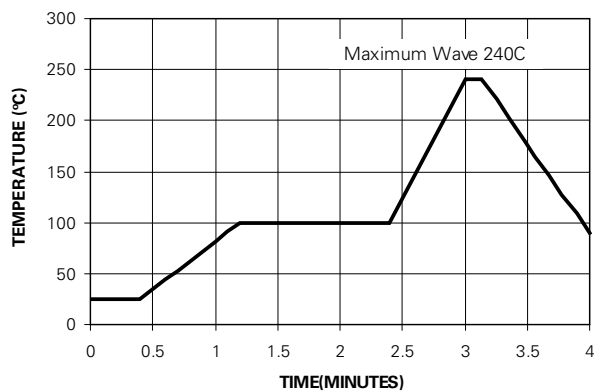
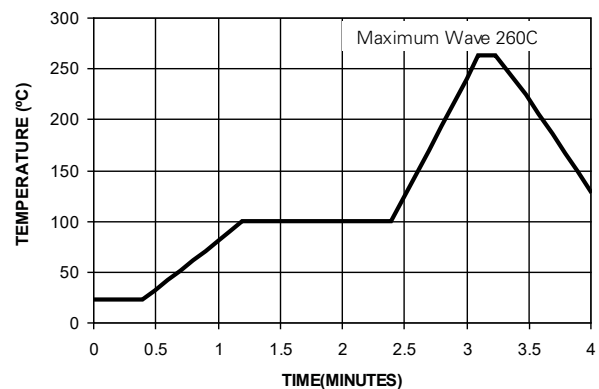


Figure 2- Lead-free Profile



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

Figure 3 - Peak Power Derating

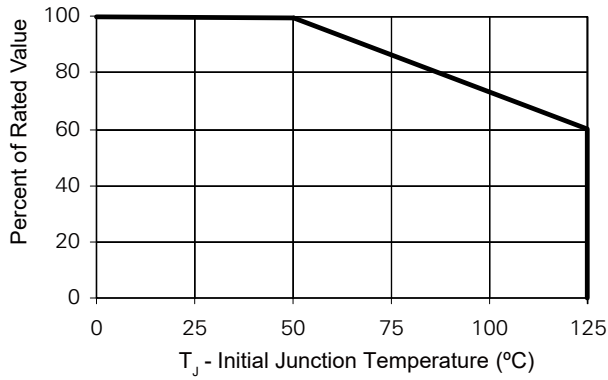


Figure 4 - Surge Response

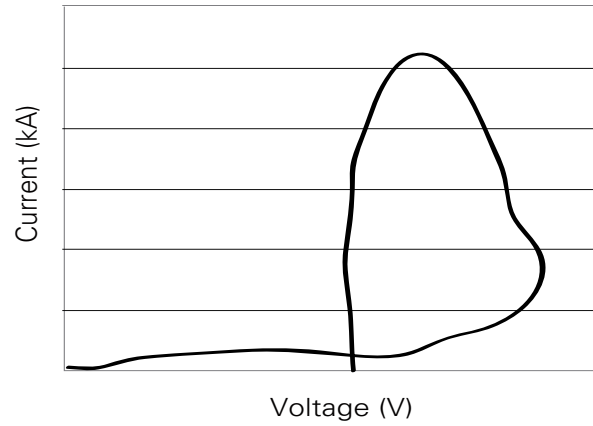


Figure 5 - Typical Peak Pulse Power Rating Curve

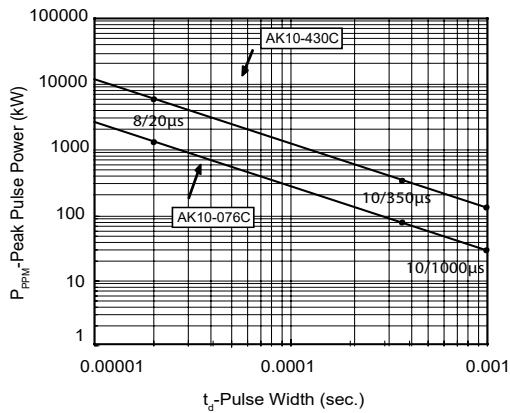


Figure 6 - Typical V<sub>BR</sub> Vs Junction Temperature

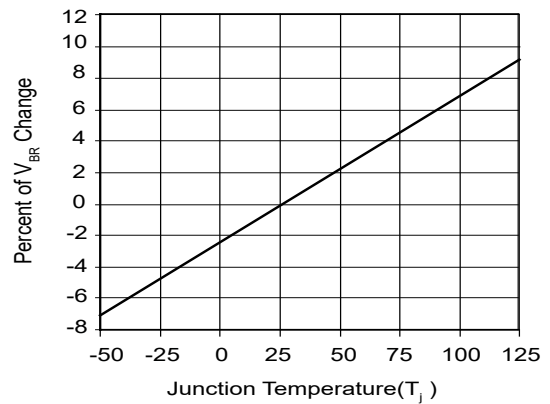


Figure 7 - Surge Response (8/20 Surge current waveform)

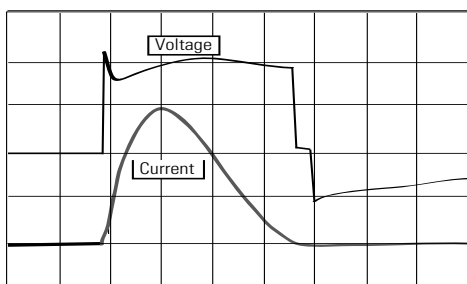
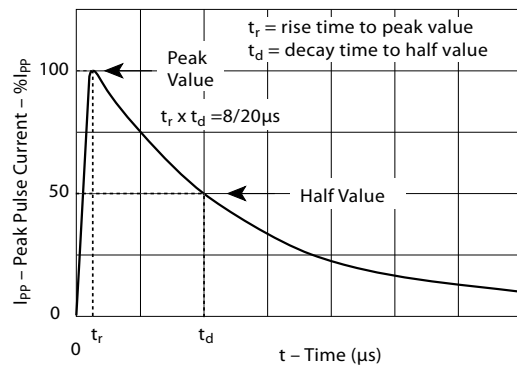


Figure 8 - Pulse Waveform

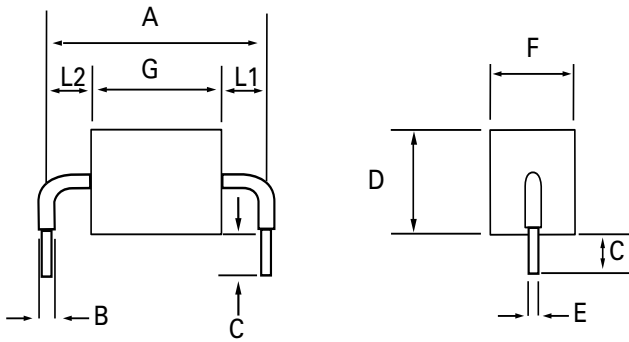


**Note:**

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.

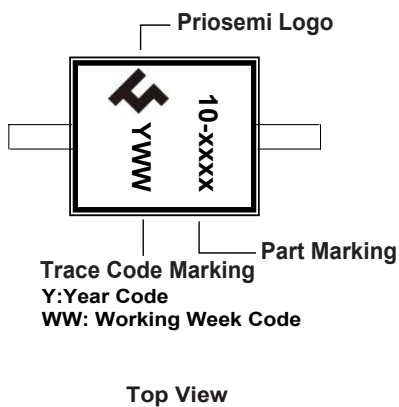
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### Dimensions

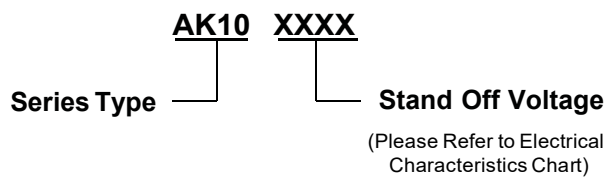


Dimensions	Inches	Millimeters
A	0.950±0.040	24.15±1.00
A - 530C	1.370±0.080	34.70±2.00
B	0.095±0.024	2.4±0.60
C	0.236±0.04	6.00±1.0
D	0.570 max	14.48 max
E	0.050±0.002	1.27±0.05
F	0.500 max	12.70 max
G - 015C	0.142±0.040	3.60±1.00
G - 030C	0.167±0.040	4.23±1.00
G - 058C/066C/076C	0.200±0.040	5.08±1.00
G - 170C/190C	0.362±0.040	9.2±1.00
G - 380C/430C	0.420±0.040	10.67±1.00
G - 240C	0.650±0.040	16.50±1.00
G - 530C	1.060±0.060	27.00±1.00
L1/L2	L1= L2 tolerance±0.04 inch (1.0 mm)	

### Part Marking System



### Part Marking System



### Packing Options

Part Number	Component Package	Quantity	Packaging Option
AK10-XXXX	AK Package	56pcs/Box	Bulk