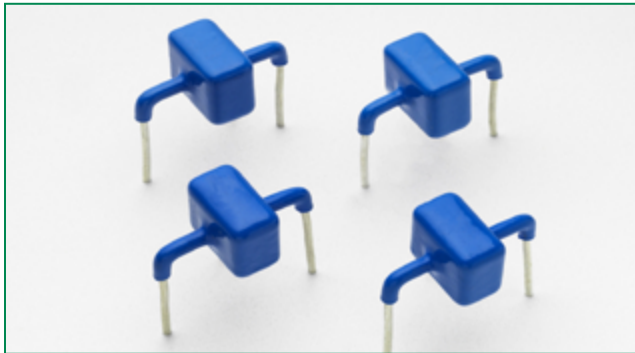



### AK15 Series



#### Agency Approvals

| AGENCY  | AGENCY FILE NUMBER |
|---|--------------------|
|  | E128662            |

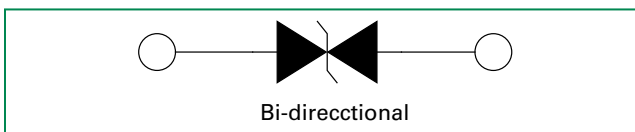
#### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                            | Symbol           | 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>  | 15         | kA   |

**Note:**

1. Rated I<sub>pp</sub> measured with 8/20μs pulse.

#### 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. 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<sub>A</sub>=25°C unless otherwise noted)

| Part Numbers | Part Marking | Standoff Voltage (V <sub>SO</sub> ) Volts | Max. Reverse Leakage (I <sub>R</sub> ) @ V <sub>SO</sub> (μA) | Typical I <sub>F</sub> @ 85°C (μA) | Reverse Breakdown Voltage (V <sub>BR</sub> ) @ I <sub>T</sub> |           | Test Current I <sub>T</sub> (mA) | Max. Clamping Voltage V <sub>CL</sub> @ Peak Pulse Current (I <sub>PP</sub> ) |                              |                                | Max. Temp Coefficient of V <sub>BR</sub> (%/°C) | Max. Capacitance 0 Bias 10kHz (nF) | Agency Approval  |
|--------------|--------------|---|---|------------------------------------|---|-----------|----------------------------------|---|------------------------------|--------------------------------|---|------------------------------------|---|
|              |              |   |   |                                    | Min Volts   | Max Volts |                                  | V <sub>CL</sub> Volts   | I <sub>PP</sub> (8/20μS) (A) | I <sub>PP</sub> (10/350μS) (A) |   |                                    |   |
| AK15 - 058C  | 15 - 058C    | 58  | 10  | 15                                 | 64  | 70        | 10                               | 110   | 15,000                       | 2,000                          | 0.1   | 12                                 | X   |
| AK15 - 066C  | 15 - 066C    | 66  | 10  | 15                                 | 72  | 80        | 10                               | 120   | 15,000                       | 2,000                          | 0.1   | 10                                 | X   |
| AK15 - 076C  | 15 - 076C    | 76  | 10  | 15                                 | 85  | 95        | 10                               | 150   | 15,000                       | 2,000                          | 0.1   | 10                                 | X   |

### Physical Specifications

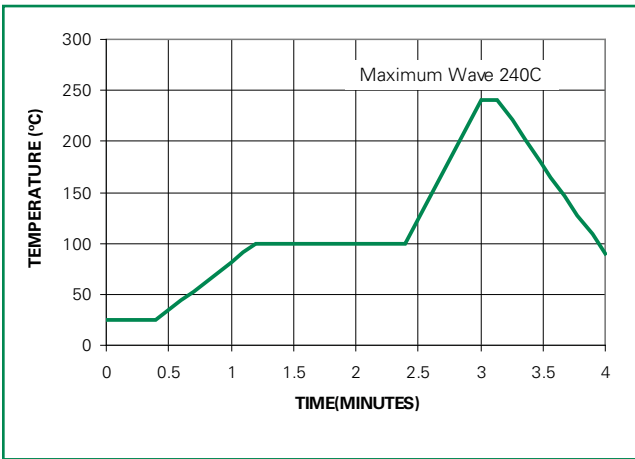
|                 |   |
|-----------------|---|
| <b>Weight</b>   | Contact manufacturer  |
| <b>Case</b>     | Epoxy encapsulated  |
| <b>Terminal</b> | Silver plated leads, solderable per MIL-STD-750 Method 2026 |

### Flow/Wave Soldering (Solder Dipping)

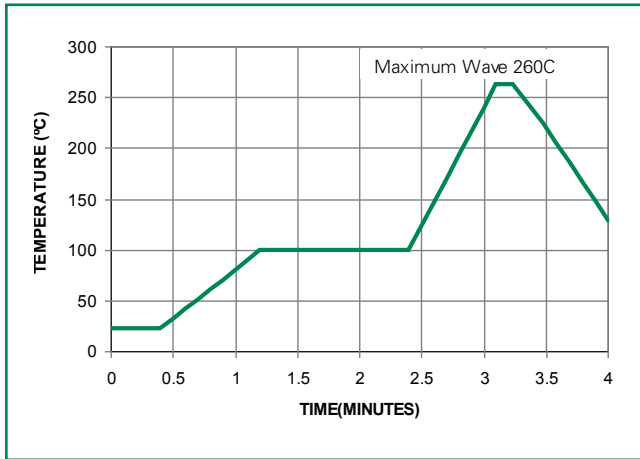
|                           |            |
|---------------------------|------------|
| <b>Peak Temperature :</b> | 265°C      |
| <b>Dipping Time :</b>     | 10 seconds |
| <b>Soldering :</b>        | 1 time     |

### Wave Solder Profile

**Figure 1- Non Lead-free Profile**

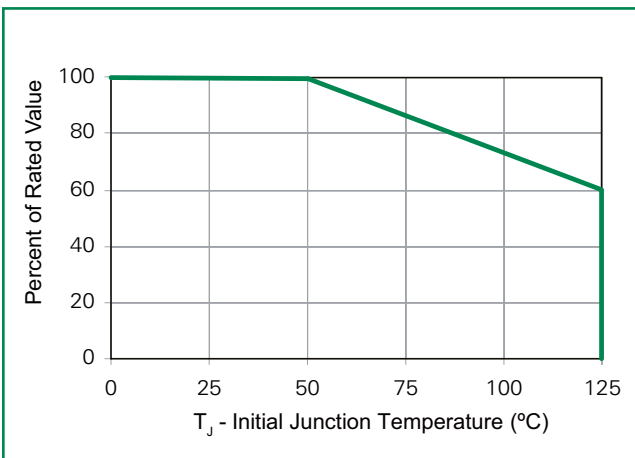


**Figure 2- Lead-free Profile**

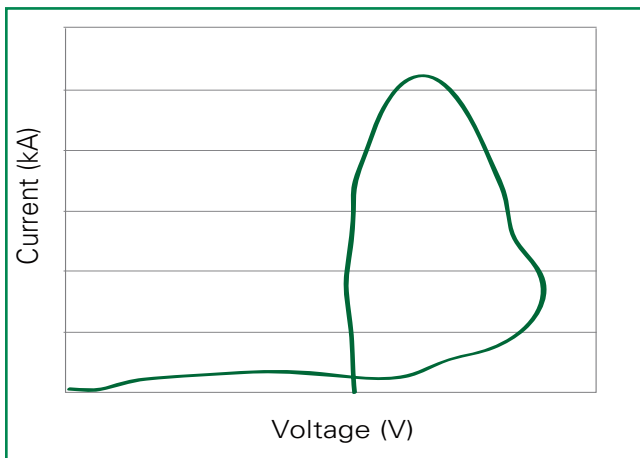


### Ratings and Characteristic Curves (T<sub>a</sub>=25°C unless otherwise noted)

**Figure 3- Peak Power Derating**



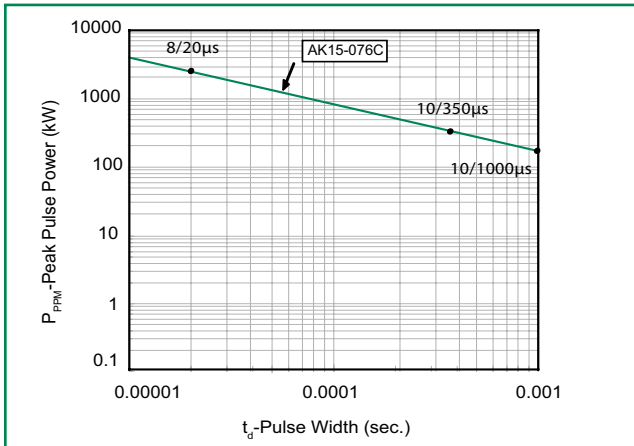
**Figure 4 - Surge Response**



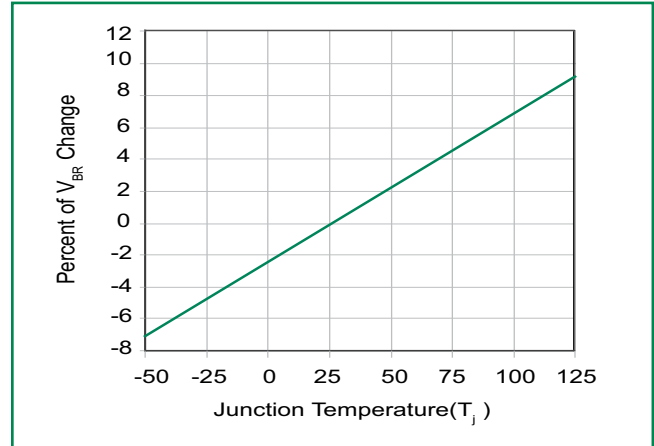
continues on next page.

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

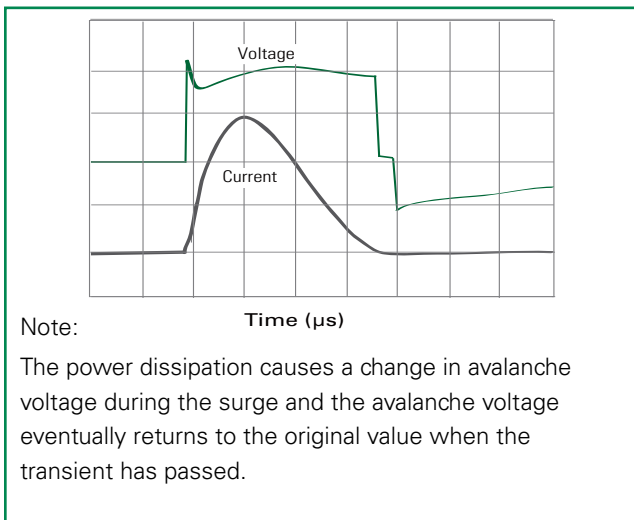
#### Figure 5 - Typical Peak Pulse Power Rating Curve



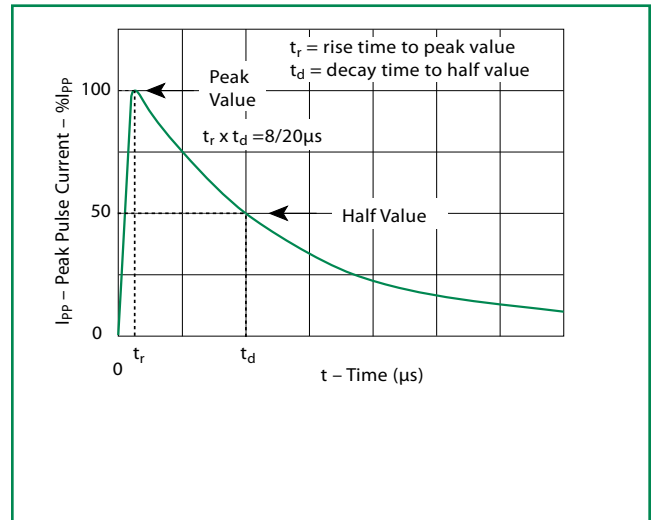
#### Figure 6 - Typical $V_{BR}$ Vs Junction Temperature



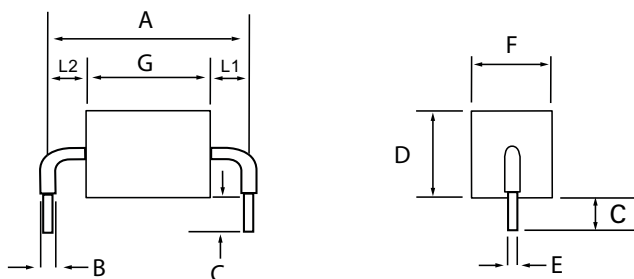
#### Figure 7 - Surge Response (8/20 Surge current waveform)



#### Figure 8 - Pulse Waveform

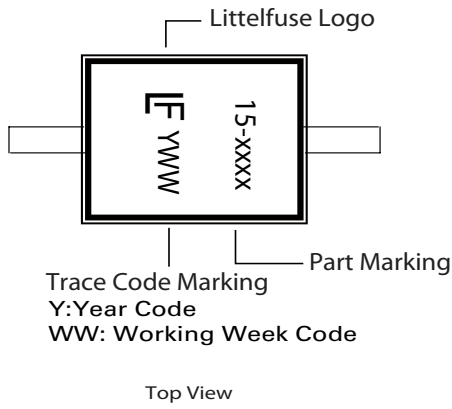


### Dimensions

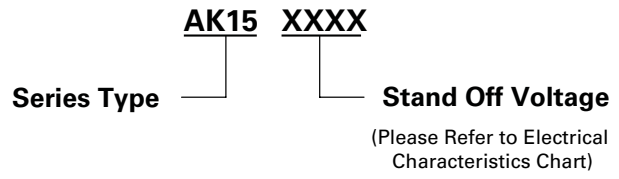


| Dimensions    | Inches                                  | Millimeters |
|---------------|---|-------------|
| A             | 0.95±0.03                               | 24.15±0.8   |
| B             | 0.095±0.024                             | 2.4±0.60    |
| C             | 0.236±0.04                              | 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   |
| 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             |