

## AK10 Series



### Agency Approvals

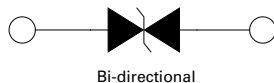
| AGENCY | AGENCY FILE NUMBER |
|--------|--------------------|
|        | E128662            |

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

| Parameter                            | Symbol           | Value       | Unit |
|--------------------------------------|------------------|-------------|------|
| Operating Junction Temperature Range | T <sub>STG</sub> | (-55 to 150 | °C   |
| Operating Junction Temperature Range | T <sub>J</sub>   | (-55 to 150 | °C   |
| Current Rating <sup>1</sup>          | I <sub>pp</sub>  | 10          | kA   |

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

### Functional Diagram



### Description

The AK10 series of high current transient suppressors have been specially designed for use in A.C. line protection and any demanding applications (AC or DC). They offer superior clamping characteristics over standard S.A.D. technologies by virtue of the Littelfuse Foldbak technology. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

### 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 (IEC801-2)
- EFT protection of data lines in accordance with IEC 61000-4-4 (IEC801-4)
- Halogen-free
- RoHS compliant
- Glass passivated junction
- 2nd level interconnect is Pb-free per IPC/JEDEC J-STD-609A.01

### 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>R</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> @ I <sub>pp</sub> Peak Pulse Current (I <sub>pp</sub> ) (Note 1) |                      | 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> Amps |                                                 |                                    |                 |
| AK10 - 015C* | 10-015C      | 15                                        | 10                                                          | 15                                 | 16                                                            | 19        | 10                               | 28                                                                                                     | 10,000               | 0.1                                             | 12.0                               |                 |
| AK10 - 030C  | 10-015C      | 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                                |                 |

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

## Physical Specifications

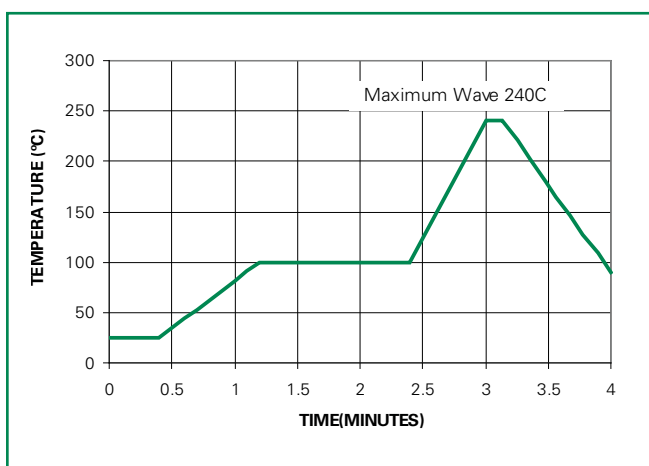
|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| <b>Weight</b>   | Contact manufacturer                                         |
| <b>Case</b>     | Epoxy encapsulated             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

## Flow/Wave Soldering (Solder Dipping)

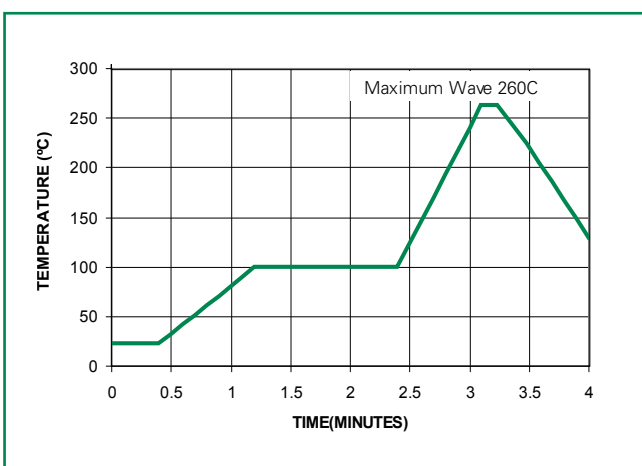
|                           |            |
|---------------------------|------------|
| <b>Peak Temperature :</b> | 265°C      |
| <b>Dipping Time :</b>     | 10 seconds |
| <b>Soldering :</b>        | 1 time     |

## Wave Solder Profile

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

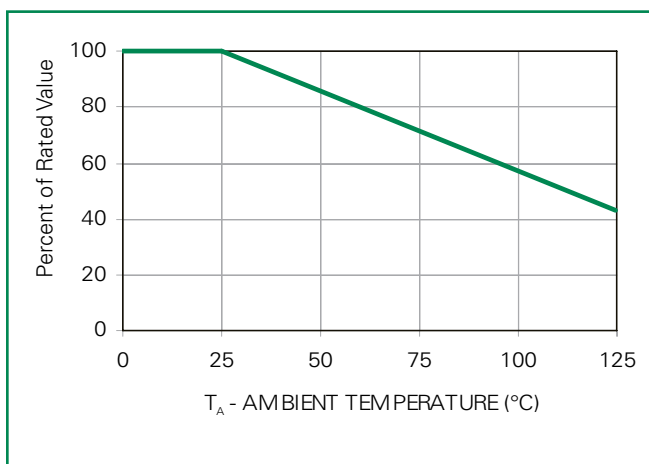


**Figure 2 - Lead-free Profile**

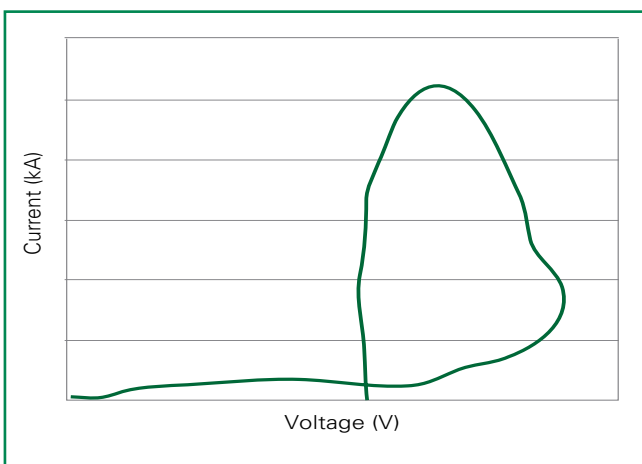


## Ratings and Characteristic Curves ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

**Figure 3 - Peak Power Derating**

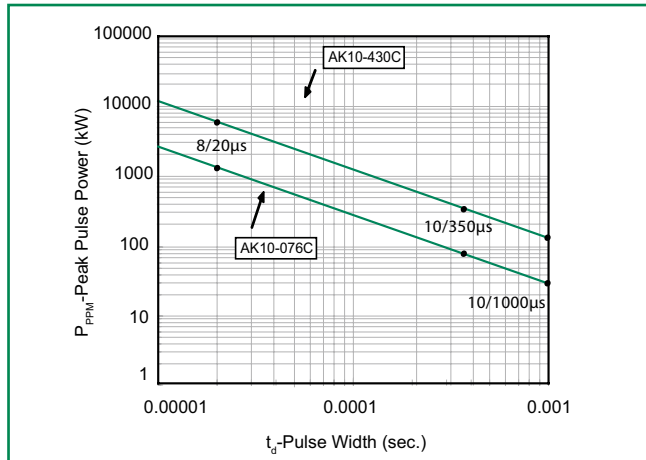


**Figure 4- Surge Response**

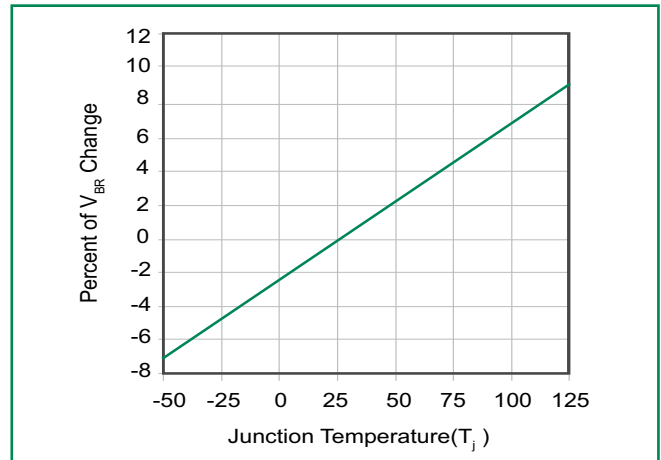


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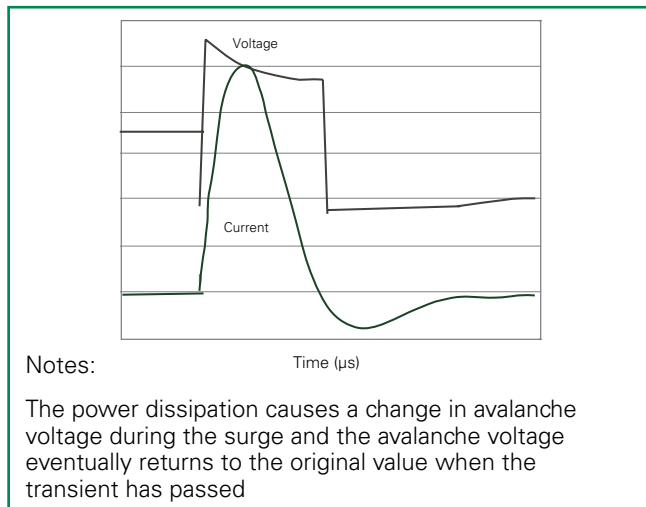
**Figure 5 - Typical Peak Pulse Power Rating Curve**



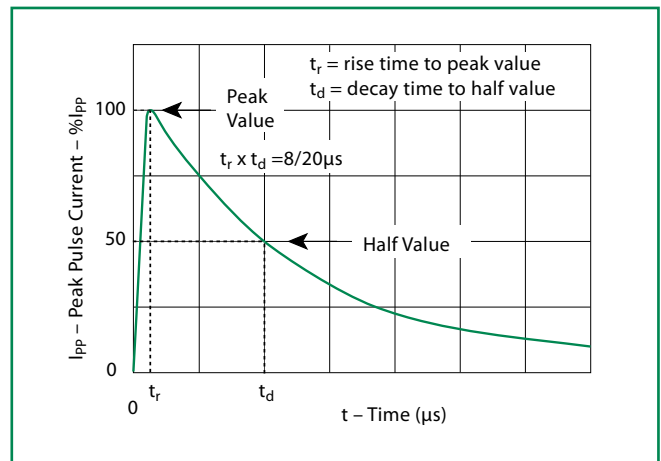
**Figure 6 - Typical  $V_{BR}$  Vs Junction Temperature**



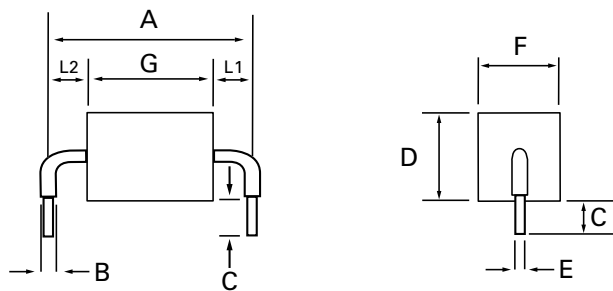
**Figure 7 - Surge Response (8/20 Surge current waveform)**



**Figure 8 - Pulse Waveform**

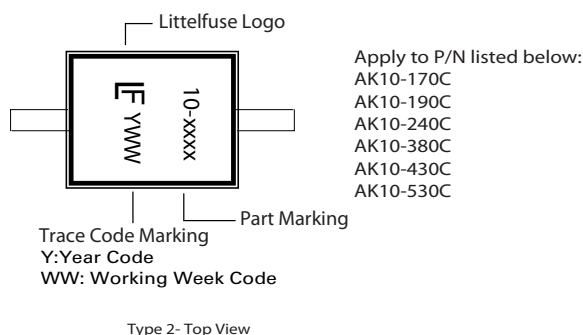
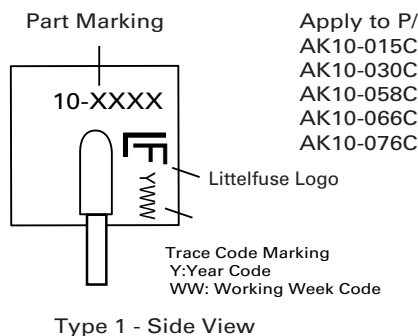


## Dimensions

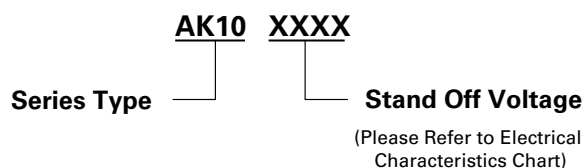


| Dimensions         | Inches                                   | Millimeters    |
|--------------------|------------------------------------------|----------------|
| A                  | 0.950 +/- 0.04                           | 24.15 +/- 1.00 |
| A - 530C           | 1.370 +/- 0.08                           | 34.70 +/- 2.00 |
| B                  | 0.095 +/- 0.024                          | 2.40 +/- 0.60  |
| C                  | 0.236 +/- 0.04                           | 6.00 +/- 1.00  |
| 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 +/- 0.04                           | 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                           | 9.20 +/- 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 |
|--------------|-------------------|-----------|------------------|
| AK10-XXXX    | AK Package        | 56pcs/box | Bulk             |
| AK10-XXXX-12 | AK Package        | 12pcs/box | Bulk             |

## Данный компонент на территории Российской Федерации

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Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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