



# P4KE10AS ~ P4KE250CAS Series

## Surface Mount Transient Voltage Suppressor

**Voltage** 10~250 V    **Power** 400 W

### Features

- For surface mounted applications in order to optimize board space.
- Low inductance
- High temperature soldering : 260°C/10 seconds at terminals
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : DO-41 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0119 ounces, 0.336 grams

DO-41



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

| PARAMETER   | SYMBOL                             | LIMIT       | UNITS |
|---|------------------------------------|-------------|-------|
| Peak Pulse Power Dissipation(tp = 10 / 1000 us)                     | P <sub>PP</sub> <sup>(1) (2)</sup> | 400         | W     |
| Peak Pulse Current on tp = 10 / 1000 us waveform <sup>(Fig.2)</sup> | I <sub>PPM</sub> <sup>(1)</sup>    | See table 1 | A     |
| Power Dissipation on Infinite Heat Sink at T <sub>L</sub> = 75 °C   | P <sub>D</sub>                     | 1.5         | W     |
| ESD IEC61000-4-2(Air)   | V <sub>ESD</sub>                   | ±30         | kV    |
| ESD IEC61000-4-2(Contact)   |                                    | ±30         |       |
| Typical Thermal Resistance Junction to Ambient                      | R <sub>θJA</sub> <sup>(3)</sup>    | 80          | °C/W  |
| Operating Junction Temperature Range                                | T <sub>J</sub>                     | -55~150     | °C    |
| Storage Temperature Range   | T <sub>STG</sub>                   | -55~150     | °C    |



## P4KE10AS ~ P4KE250CAS Series

### Electrical Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| Part Number                       |            | V <sub>RWM</sub> | V <sub>BR</sub> |      |                | I <sub>R</sub>     |    | V <sub>C@IPP</sub> |      | Marking Code |            |
|-----------------------------------|------------|------------------|-----------------|------|----------------|--------------------|----|--------------------|------|--------------|------------|
|                                   |            |                  | Min.            | Max. | I <sub>T</sub> | @ V <sub>RWM</sub> | uA |                    |      |              |            |
| UNI                               | BI         | V                | V               | V    | mA             | UNI                | BI | V                  | A    | UNI          | BI         |
| 400W Transient Voltage Suppressor |            |                  |                 |      |                |                    |    |                    |      |              |            |
| P4KE10AS                          | P4KE10CAS  | 8.55             | 9.5             | 10.5 | 1              | 10                 | 20 | 14.5               | 29   | P4KE10AS     | P4KE10CAS  |
| P4KE11AS                          | P4KE11CAS  | 9.4              | 10.5            | 11.6 | 1              | 5                  | 10 | 15.6               | 27   | P4KE11AS     | P4KE11CAS  |
| P4KE12AS                          | P4KE12CAS  | 10.2             | 11.4            | 12.6 | 1              | 1                  | 1  | 16.7               | 25   | P4KE12AS     | P4KE12CAS  |
| P4KE13AS                          | P4KE13CAS  | 11.1             | 12.4            | 13.7 | 1              | 1                  | 1  | 18.2               | 23   | P4KE13AS     | P4KE13CAS  |
| P4KE15AS                          | P4KE15CAS  | 12.8             | 14.3            | 15.8 | 1              | 1                  | 1  | 21.2               | 20   | P4KE15AS     | P4KE15CAS  |
| P4KE16AS                          | P4KE16CAS  | 13.6             | 15.2            | 16.8 | 1              | 1                  | 1  | 22.5               | 19   | P4KE16AS     | P4KE16CAS  |
| P4KE18AS                          | P4KE18CAS  | 15.3             | 17.1            | 18.9 | 1              | 1                  | 1  | 25.2               | 17   | P4KE18AS     | P4KE18CAS  |
| P4KE20AS                          | P4KE20CAS  | 17.1             | 19              | 21   | 1              | 1                  | 1  | 27.7               | 15   | P4KE20AS     | P4KE20CAS  |
| P4KE22AS                          | P4KE22CAS  | 18.8             | 20.9            | 23.1 | 1              | 1                  | 1  | 30.6               | 14   | P4KE22AS     | P4KE22CAS  |
| P4KE24AS                          | P4KE24CAS  | 20.5             | 22.8            | 25.2 | 1              | 1                  | 1  | 33.2               | 13   | P4KE24AS     | P4KE24CAS  |
| P4KE27AS                          | P4KE27CAS  | 23.1             | 25.7            | 28.4 | 1              | 1                  | 1  | 37.5               | 11.2 | P4KE27AS     | P4KE27CAS  |
| P4KE30AS                          | P4KE30CAS  | 25.6             | 28.5            | 31.5 | 1              | 1                  | 1  | 41.4               | 10   | P4KE30AS     | P4KE30CAS  |
| P4KE33AS                          | P4KE33CAS  | 28.2             | 31.4            | 34.7 | 1              | 1                  | 1  | 45.7               | 9    | P4KE33AS     | P4KE33CAS  |
| P4KE36AS                          | P4KE36CAS  | 30.8             | 34.2            | 37.8 | 1              | 1                  | 1  | 49.9               | 8.4  | P4KE36AS     | P4KE36CAS  |
| P4KE39AS                          | P4KE39CAS  | 33.3             | 37.1            | 41   | 1              | 1                  | 1  | 53.9               | 7.8  | P4KE39AS     | P4KE39CAS  |
| P4KE43AS                          | P4KE43CAS  | 36.8             | 40.9            | 45.2 | 1              | 1                  | 1  | 59.3               | 7.1  | P4KE43AS     | P4KE43CAS  |
| P4KE47AS                          | P4KE47CAS  | 40.2             | 44.7            | 49.4 | 1              | 1                  | 1  | 64.8               | 5    | P4KE47AS     | P4KE47CAS  |
| P4KE51AS                          | P4KE51CAS  | 43.6             | 48.5            | 53.6 | 1              | 1                  | 1  | 70.1               | 6    | P4KE51AS     | P4KE51CAS  |
| P4KE56AS                          | P4KE56CAS  | 47.8             | 53.2            | 58.8 | 1              | 1                  | 1  | 77                 | 5.5  | P4KE56AS     | P4KE56CAS  |
| P4KE62AS                          | P4KE62CAS  | 53               | 58.9            | 65.1 | 1              | 1                  | 1  | 85                 | 5    | P4KE62AS     | P4KE62CAS  |
| P4KE68AS                          | P4KE68CAS  | 58.1             | 64.6            | 71.4 | 1              | 1                  | 1  | 92                 | 4.6  | P4KE68AS     | P4KE68CAS  |
| P4KE75AS                          | P4KE75CAS  | 64.1             | 71.3            | 78.8 | 1              | 1                  | 1  | 103                | 4.1  | P4KE75AS     | P4KE75CAS  |
| P4KE82AS                          | P4KE82CAS  | 70.1             | 77.9            | 86.1 | 1              | 1                  | 1  | 113                | 3.7  | P4KE82AS     | P4KE82CAS  |
| P4KE91AS                          | P4KE91CAS  | 77.8             | 86.5            | 95.5 | 1              | 1                  | 1  | 125                | 3.4  | P4KE91AS     | P4KE91CAS  |
| P4KE100AS                         | P4KE100CAS | 85.5             | 95              | 105  | 1              | 1                  | 1  | 137                | 3.1  | P4KE100AS    | P4KE100CAS |
| P4KE110AS                         | P4KE110CAS | 94               | 105             | 116  | 1              | 1                  | 1  | 152                | 2.8  | P4KE110AS    | P4KE110CAS |
| P4KE120AS                         | P4KE120CAS | 102              | 114             | 126  | 1              | 1                  | 1  | 165                | 2.5  | P4KE120AS    | P4KE120CAS |
| P4KE130AS                         | P4KE130CAS | 111              | 124             | 137  | 1              | 1                  | 1  | 179                | 2.3  | P4KE130AS    | P4KE130CAS |
| P4KE150AS                         | P4KE150CAS | 128              | 143             | 158  | 1              | 1                  | 1  | 207                | 2    | P4KE150AS    | P4KE150CAS |
| P4KE160AS                         | P4KE160CAS | 136              | 152             | 168  | 1              | 1                  | 1  | 219                | 1.9  | P4KE160AS    | P4KE160CAS |



## P4KE10AS ~ P4KE250CAS Series

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part Number                       |            | VRWM | VBR  |      |    | IR<br>@VRWM |    | VC@IPP |     | Marking Code |            |
|-----------------------------------|------------|------|------|------|----|-------------|----|--------|-----|--------------|------------|
|                                   |            |      | Min. | Max. | IT | uA          |    |        |     |              |            |
| UNI                               | BI         | V    | V    | V    | mA | UNI         | BI | V      | A   | UNI          | BI         |
| 400W Transient Voltage Suppressor |            |      |      |      |    |             |    |        |     |              |            |
| P4KE170AS                         | P4KE170CAS | 145  | 162  | 179  | 1  | 1           | 1  | 234    | 1.8 | P4KE170AS    | P4KE170CAS |
| P4KE180AS                         | P4KE180CAS | 154  | 171  | 189  | 1  | 1           | 1  | 246    | 1.7 | P4KE180AS    | P4KE180CAS |
| P4KE200AS                         | P4KE200CAS | 171  | 190  | 210  | 1  | 1           | 1  | 274    | 1.5 | P4KE200AS    | P4KE200CAS |
| P4KE220AS                         | P4KE220CAS | 185  | 209  | 231  | 1  | 1           | 1  | 328    | 1.2 | P4KE220AS    | P4KE220CAS |
| P4KE250AS                         | P4KE250CAS | 214  | 237  | 263  | 1  | 1           | 1  | 344    | 1.2 | P4KE250AS    | P4KE250CAS |

**Notes :**

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2
2. Mounted on 100cm<sup>2</sup> copper pads to each terminal
3. Mounted on a FR4 PCB, single-sided copper, standard footprint



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## TYPICAL CHARACTERISTIC CURVES

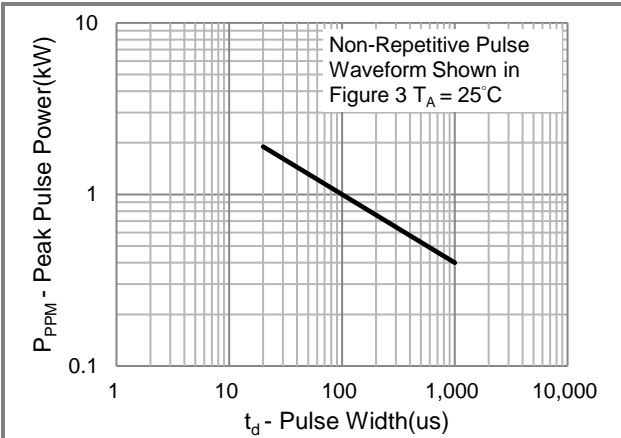


Fig.1 Pulse Power Rating Curve



Fig.2 Derating Curve

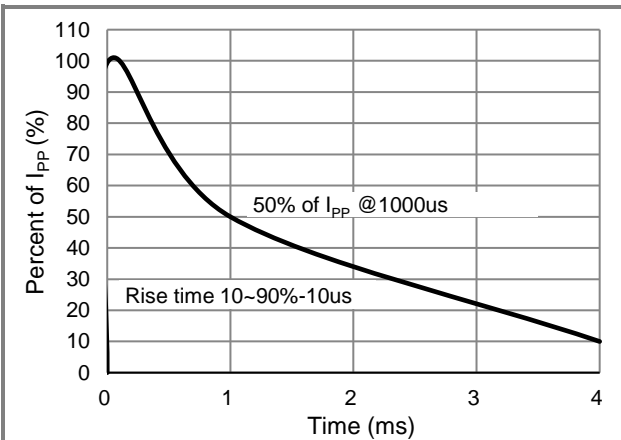


Fig.3 10/1000us Pulse Waveform

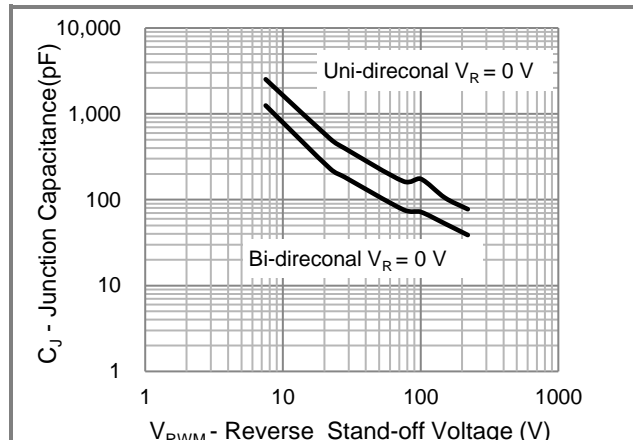


Fig.4 Typical Capacitance



## P4KE10AS ~ P4KE250CAS Series

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type  | Marking   | Version                        |
|-----------------------|--------------|---------------|-----------|--------------------------------|
| P4KExxxxAS_AY_00001   | DO-41        | 5K pcs / Ammo | See Table | Halogen free<br>RoHS compliant |

### Packaging Information





## **P4KE10AS ~ P4KE250CAS Series**

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