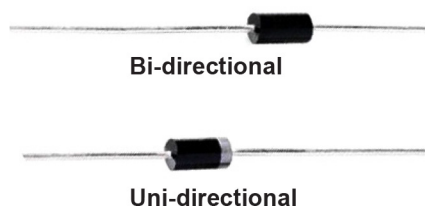


# Transient Voltage Suppression Diodes

## P6KE Series, 600W

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**RoHS  
Compliant**



### Features

- Exceeds environmental standards of MIL-STD-19500
- 600W surge capability at  $10 \times 1,000\mu\text{s}$  waveform, duty cycle: 0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1ps from 0V to VBR for unidirectional and 5ns for bidirectional
- Typical IR less than 1  $\mu\text{A}$  above 10 V
- High temperature soldering guaranteed:  $260^\circ\text{C}$  / 10 seconds / 0.375 Inched (9.5mm) lead length/5lbs. (2.3kg) tension
- Case style: DO-204AC (DO-15) molded plastic

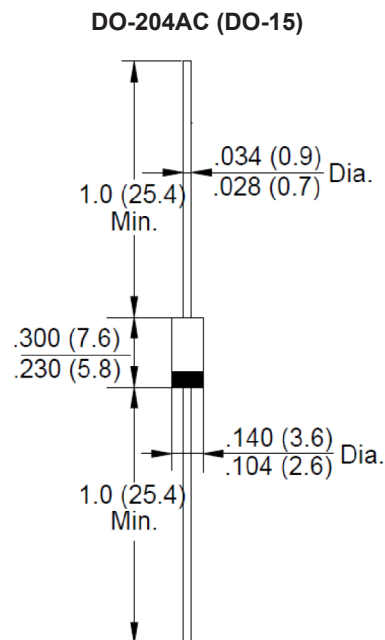
### Mechanical Data

Case : Molded plastic

Lead : Pure tin plated lead free, solderable per MIL-STD-202, Method 208

Polarity : Colour band denotes cathode except bipolar

Weight : 0.42g



Dimensions : Inches (Millimetres)

### Maximum Ratings and Electrical Characteristics

Rating at  $25^\circ\text{C}$  ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| Characteristics                                                                                               | Symbol         | Values      | Unit             |
|---------------------------------------------------------------------------------------------------------------|----------------|-------------|------------------|
| Peak Power Dissipation at $T_A = 25^\circ\text{C}$ , $T_P = 1\text{ms}$ (Note 1)                              | $P_{PK}$       | Min. 600    | Watts            |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$<br>Lead Lengths 0.375 Inch 9.5 mm (Note 2)         | $P_D$          | 5           |                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave<br>Superimposed on Rated Load (JEDEC method) (Note 3) | $I_{FSM}$      | 100         | Amps             |
| Maximum Instantaneous Forward Voltage at 50A for<br>Unidirectional Only (Note 4)                              | $V_F$          | 3.5 / 5     | Volts            |
| Operating and Storage Temperature Range                                                                       | $T_J, T_{STG}$ | -55 to +175 | $^\circ\text{C}$ |

**Notes :** 1. Non-repetitive current pulse and derated above  $T_A = 25^\circ\text{C}$

2. Mounted on copper pad area of  $1.6 \times 1.6$  inches (40mm  $\times$  40mm) per

3. 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum

4.  $V_F = 3.5\text{V}$  for devices of  $V_{BR} \leq 200\text{V}$  and  $V_F = 5\text{V}$  maximum for devices of  $V_{BR} > 200\text{V}$

Devices for bipolar applications

1. For bidirectional use C or CA suffix for types P6KE6.8 through types P6KE400

2. Electrical characteristics apply in both directions

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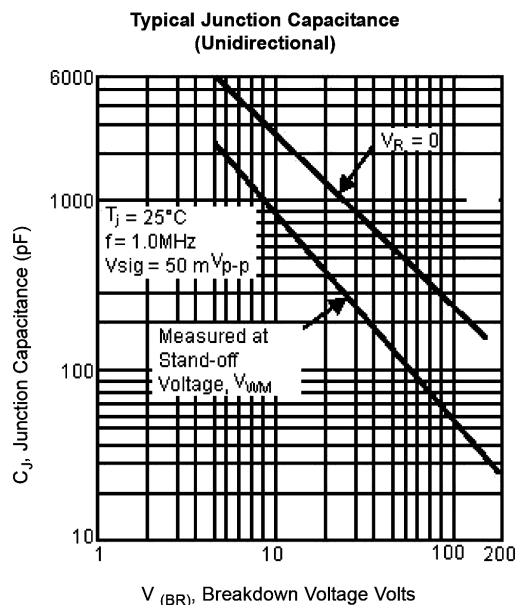
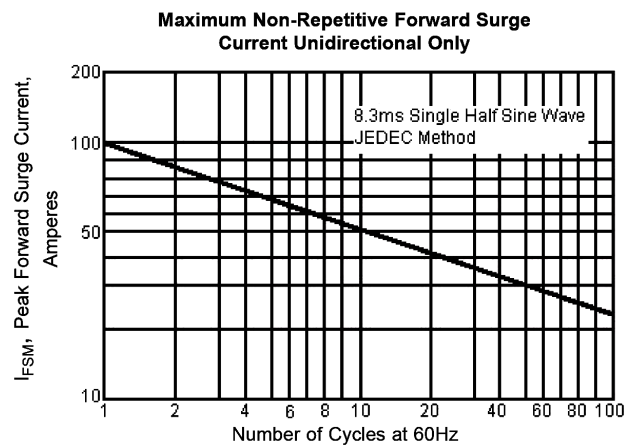
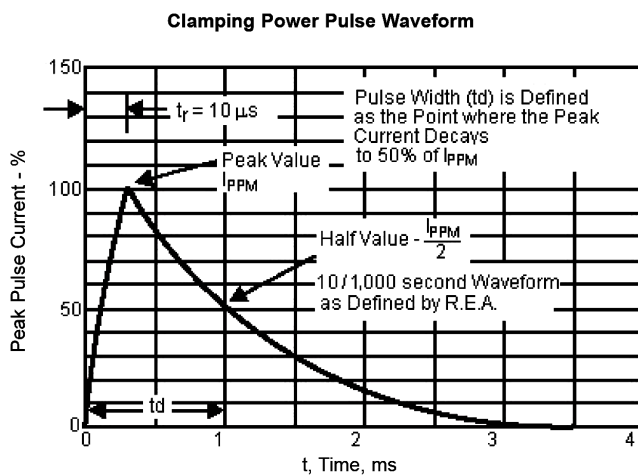
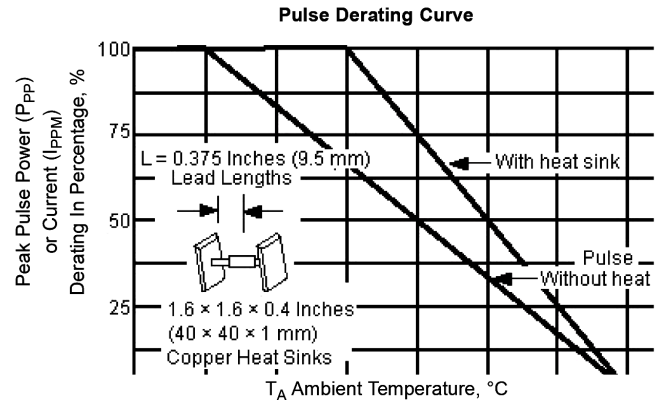
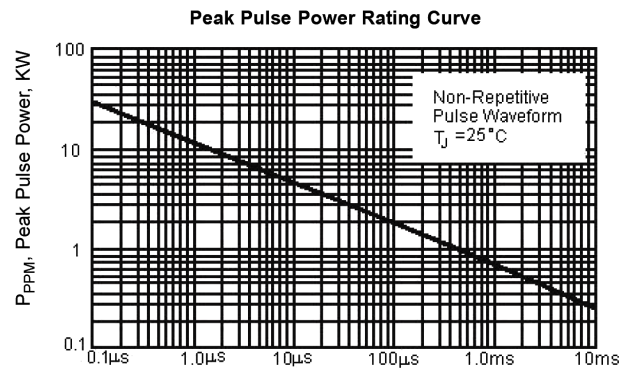
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# Transient Voltage Suppression Diodes

## P6KE Series, 600W

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### Ratings and Characteristic Curves



# Transient Voltage Suppression Diodes

## P6KE Series, 600W

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

| Part Number    |               | Nominal Voltage (Volts) | Breakdown Voltage                |         | Test Current at I <sub>T</sub> (mA) | Stand-Off Voltage V <sub>WM</sub> (Volts) | Maximum Reverse Leakage at V <sub>WM</sub> ID (μA) | Maximum Peak Pulse Current I <sub>PRM</sub> (Note 2) (Amps) | Maximum Clamping Voltage at I <sub>PRM</sub> V <sub>C</sub> (Volts) | Maximum Temperature Coefficient of V <sub>BR</sub> (%/°C) |
|----------------|---------------|-------------------------|----------------------------------|---------|-------------------------------------|-------------------------------------------|----------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|
|                |               |                         | V <sub>BR</sub> (Volts) (Note 1) |         |                                     |                                           |                                                    |                                                             |                                                                     |                                                           |
| Unidirectional | Bidirectional |                         | Minimum                          | Maximum |                                     |                                           |                                                    |                                                             |                                                                     |                                                           |
| P6KE100A       | P6KE100CA     | 100                     | 95                               | 105     | 1                                   | 85.5                                      | 5                                                  | 4.5                                                         | 137                                                                 | 0.106                                                     |
| P6KE10A        | P6KE10CA      | 10                      | 9.5                              | 10.5    |                                     | 8.55                                      | 10                                                 | 43                                                          | 14.5                                                                | 0.073                                                     |
| P6KE110A       | P6KE110CA     | 110                     | 105                              | 116     |                                     | 94                                        | 5                                                  | 4.1                                                         | 152                                                                 | 0.107                                                     |
| P6KE120A       | P6KE120CA     | 120                     | 114                              | 126     |                                     | 102                                       |                                                    | 3.8                                                         | 165                                                                 |                                                           |
| P6KE12A        | P6KE12CA      | 12                      | 11.4                             | 12.6    |                                     | 10.2                                      |                                                    | 37                                                          | 16.7                                                                | 0.078                                                     |
| P6KE13A        | P6KE13CA      | 13                      | 12.4                             | 13.7    |                                     | 11.1                                      |                                                    | 34                                                          | 18.2                                                                | 0.081                                                     |
| P6KE150A       | P6KE150CA     | 150                     | 143                              | 158     |                                     | 128                                       |                                                    | 3                                                           | 207                                                                 | 0.108                                                     |
| P6KE15A        | P6KE15CA      | 15                      | 14.3                             | 15.8    |                                     | 12.8                                      |                                                    | 29                                                          | 21.2                                                                | 0.084                                                     |
| P6KE160A       | P6KE160CA     | 160                     | 152                              | 168     |                                     | 136                                       |                                                    | 2.8                                                         | 219                                                                 | 0.108                                                     |
| P6KE16A        | P6KE16CA      | 16                      | 15.2                             | 16.8    |                                     | 13.6                                      |                                                    | 28                                                          | 22.5                                                                | 0.086                                                     |
| P6KE180A       | P6KE180CA     | 180                     | 171                              | 189     |                                     | 154                                       |                                                    | 2.5                                                         | 246                                                                 | 0.108                                                     |
| P6KE18A        | P6KE18CA      | 18                      | 17.1                             | 18.9    |                                     | 15.3                                      |                                                    | 25                                                          | 25.2                                                                | 0.088                                                     |
| P6KE200A       | P6KE200CA     | 200                     | 190                              | 210     |                                     | 171                                       |                                                    | 2.2                                                         | 274                                                                 | 0.108                                                     |
| P6KE20A        | P6KE20CA      | 20                      | 19                               | 21      |                                     | 17.1                                      |                                                    | 22                                                          | 27.7                                                                | 0.09                                                      |
| P6KE22A        | P6KE22CA      | 22                      | 20.9                             | 23.1    |                                     | 18.8                                      |                                                    | 20                                                          | 30.6                                                                | 0.092                                                     |
| P6KE24A        | P6KE24CA      | 24                      | 22.8                             | 25.2    |                                     | 20.5                                      |                                                    | 19                                                          | 33.2                                                                | 0.094                                                     |
| P6KE27A        | P6KE27CA      | 27                      | 25.7                             | 28.4    |                                     | 23.1                                      |                                                    | 16.8                                                        | 37.5                                                                | 0.096                                                     |
| P6KE300A       | P6KE300CA     | 300                     | 285                              | 315     |                                     | 256                                       |                                                    | 1.5                                                         | 414                                                                 | 0.11                                                      |
| P6KE30A        | P6KE30CA      | 30                      | 28.5                             | 31.5    |                                     | 25.6                                      |                                                    | 15                                                          | 41.4                                                                | 0.097                                                     |
| P6KE33A        | P6KE33CA      | 33                      | 31.4                             | 34.7    |                                     | 28.2                                      |                                                    | 13.8                                                        | 45.7                                                                | 0.098                                                     |
| P6KE36A        | P6KE36CA      | 36                      | 34.2                             | 37.8    |                                     | 30.8                                      |                                                    | 12.6                                                        | 49.9                                                                | 0.099                                                     |
| P6KE39A        | P6KE39CA      | 39                      | 37.1                             | 41      |                                     | 33.3                                      |                                                    | 11.6                                                        | 53.9                                                                | 0.1                                                       |
| P6KE400A       | P6KE400CA     | 400                     | 380                              | 420     |                                     | 342                                       |                                                    | 1.1                                                         | 548                                                                 | 0.11                                                      |
| P6KE440A       | P6KE440CA     | 440                     | 418                              | 462     |                                     | 376                                       |                                                    | 1.04                                                        | 600                                                                 |                                                           |
| P6KE47A        | P6KE47CA      | 47                      | 44.7                             | 49.4    |                                     | 40.2                                      |                                                    | 9.7                                                         | 64.8                                                                | 0.101                                                     |
| P6KE62A        | P6KE62CA      | 62                      | 58.9                             | 65.1    |                                     | 53                                        |                                                    | 7.4                                                         | 85                                                                  | 0.104                                                     |
| P6KE68A        | P6KE68CA      | 68                      | 64.6                             | 71.4    |                                     | 58.1                                      |                                                    | 6.8                                                         | 92                                                                  |                                                           |
| P6KE7.5A       | P6KE7.5CA     | 7.5                     | 7.13                             | 7.88    | 10                                  | 6.4                                       | 500                                                | 55                                                          | 11.3                                                                | 0.061                                                     |
| P6KE8.2A       | P6KE8.2CA     | 8.2                     | 7.79                             | 8.61    | 1                                   | 7.02                                      | 200                                                | 52                                                          | 12.1                                                                | 0.064                                                     |
| P6KE9.1A       | P6KE9.1CA     | 9.1                     | 8.65                             | 9.55    |                                     | 7.78                                      | 50                                                 | 47                                                          | 13.4                                                                | 0.068                                                     |
| P6KE91A        | P6KE91CA      | 91                      | 86.5                             | 95.5    |                                     | 77.8                                      | 5                                                  | 5                                                           | 125                                                                 | 0.106                                                     |

#### Notes:

1. V<sub>BR</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub> = square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate.
3. For bipolar types having V<sub>WM</sub> of 10 volts and under, the ID limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.

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# Transient Voltage Suppression Diodes

## P6KE Series, 600W

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**Part Number Table**

| Description                                                               | Part Number |
|---------------------------------------------------------------------------|-------------|
| TVS Diode, 600W, 100V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE100A    |
| TVS Diode, 600W, 100V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE100CA   |
| TVS Diode, 600W, 10V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE10A     |
| TVS Diode, 600W, 10V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE10CA    |
| TVS Diode, 600W, 110V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE110A    |
| TVS Diode, 600W, 110V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE110CA   |
| TVS Diode, 600W, 120V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE120A    |
| TVS Diode, 600W, 120V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE120CA   |
| TVS Diode, 600W, 12V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE12A     |
| TVS Diode, 600W, 12V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE12CA    |
| TVS Diode, 600W, 13V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE13A     |
| TVS Diode, 600W, 13V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE13CA    |
| TVS Diode, 600W, 150V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE150A    |
| TVS Diode, 600W, 150V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE150CA   |
| TVS Diode, 600W, 15V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE15A     |
| TVS Diode, 600W, 15V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE15CA    |
| TVS Diode, 600W, 160V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE160A    |
| TVS Diode, 600W, 160V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE160CA   |
| TVS Diode, 600W, 16V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE16A     |
| TVS Diode, 600W, 16V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE16CA    |
| TVS Diode, 600W, 180V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE180A    |
| TVS Diode, 600W, 180V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE180CA   |
| TVS Diode, 600W, 18V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE18A     |
| TVS Diode, 600W, 18V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE18CA    |
| TVS Diode, 600W, 200V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE200A    |
| TVS Diode, 600W, 200V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE200CA   |
| TVS Diode, 600W, 20V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE20A     |
| TVS Diode, 600W, 20V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE20CA    |
| TVS Diode, 600W, 22V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE22A     |
| TVS Diode, 600W, 22V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE22CA    |
| TVS Diode, 600W, 24V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE24A     |
| TVS Diode, 600W, 24V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE24CA    |
| TVS Diode, 600W, 27V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE27A     |
| TVS Diode, 600W, 27V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE27CA    |
| TVS Diode, 600W, 300V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE300A    |
| TVS Diode, 600W, 300V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE300CA   |
| TVS Diode, 600W, 30V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE30A     |

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# Transient Voltage Suppression Diodes

## P6KE Series, 600W

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| Description                                                               | Part Number |
|---------------------------------------------------------------------------|-------------|
| TVS Diode, 600W, 30V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE30CA    |
| TVS Diode, 600W, 33V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE33A     |
| TVS Diode, 600W, 33V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE33CA    |
| TVS Diode, 600W, 36V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE36A     |
| TVS Diode, 600W, 36V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE36CA    |
| TVS Diode, 600W, 39V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE39A     |
| TVS Diode, 600W, 39V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE39CA    |
| TVS Diode, 600W, 400V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE400A    |
| TVS Diode, 600W, 400V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE400CA   |
| TVS Diode, 600W, 440V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE440A    |
| TVS Diode, 600W, 440V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE440CA   |
| TVS Diode, 600W, 47V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE47A     |
| TVS Diode, 600W, 47V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE47CA    |
| TVS Diode, 600W, 62V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE62A     |
| TVS Diode, 600W, 62V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE62CA    |
| TVS Diode, 600W, 68V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE68A     |
| TVS Diode, 600W, 68V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE68CA    |
| TVS Diode, 600W, 7.5V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE7.5A    |
| TVS Diode, 600W, 7.5V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE7.5CA   |
| TVS Diode, 600W, 8.2V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE8.2A    |
| TVS Diode, 600W, 8.2V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE8.2CA   |
| TVS Diode, 600W, 9.1V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15) | P6KE9.1A    |
| TVS Diode, 600W, 9.1V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)  | P6KE9.1CA   |
| TVS Diode, 600W, 91V <sub>BR</sub> Nom, Unidirectional, DO-204AC (DO-15)  | P6KE91A     |
| TVS Diode, 600W, 91V <sub>BR</sub> Nom, Bidirectional, DO-204AC (DO-15)   | P6KE91CA    |

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