

FEATURES

- | Plastic package
- | Glass passivated chip junction in DO-15 Package
- | 600W peak pulse power capability on 10/1000us waveform
- | Excellent clamping capability
- | Low zener impedance
- | Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} Min
- | Typical IR less than 1uA above 12V
- | Polarity: Color band denoted cathode except bidirectional
- | Mounting Position: Any



DO-15



Bi-directional



Uni-directional

Schematic Symbol

APPROVALS

| | |
|-------------|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |

MAXIMUM RATINGS AND CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------------------------------------------------------------|-----------------|-------------|---------------------------|
| Peak pulse power dissipation at 10/1000 μ s waveform | P_{PP} | 600 | W |
| Steady state power dissipation at $T_L = 75^\circ\text{C}$ | P_D | 5.0 | |
| Peak Pulse Current of on 10/1000us waveform (Note1) | I_{PPM} | See Table | A |
| Peak forward surge current, 8.3ms single half sine-wave for unidirectional only | I_{FSM} | 100 | |
| Typical thermal resistance, junction to ambient | $R_{\theta JA}$ | 75 | $^\circ\text{C}/\text{W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS (T_A=25°C)

| Part Number | | Marking Code | | V _R | V _{BR} @I _T | | I _T | V _C @I _{PP} | I _{PP} ^① | I _R @V _R |
|-------------|-----------|--------------|-----------|----------------|---------------------------------|---------|----------------|---------------------------------|------------------------------|--------------------------------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Min(V) | Max (V) | mA | V | A | Max(μA) |
| P6KE6.8A | P6KE6.8CA | P6KE6.8A | P6KE6.8CA | 5.8 | 6.45 | 7.14 | 10 | 10.5 | 58.1 | 1000 |
| P6KE7.5A | P6KE7.5CA | P6KE7.5A | P6KE7.5CA | 6.4 | 7.13 | 7.88 | 10 | 11.3 | 54.0 | 500 |
| P6KE8.2A | P6KE8.2CA | P6KE8.2A | P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.4 | 200 |
| P6KE9.1A | P6KE9.1CA | P6KE9.1A | P6KE9.1CA | 7.78 | 8.65 | 9.55 | 1.0 | 13.4 | 45.5 | 50 |
| P6KE10A | P6KE10CA | P6KE10A | P6KE10CA | 8.55 | 9.50 | 10.5 | 1.0 | 14.5 | 42.1 | 10 |
| P6KE11A | P6KE11CA | P6KE11A | P6KE11CA | 9.4 | 10.5 | 11.6 | 1.0 | 15.6 | 39.1 | 5.0 |
| P6KE12A | P6KE12CA | P6KE12A | P6KE12CA | 10.2 | 11.4 | 12.6 | 1.0 | 16.7 | 36.5 | 5.0 |
| P6KE13A | P6KE13CA | P6KE13A | P6KE13CA | 11.1 | 12.4 | 13.7 | 1.0 | 18.2 | 33.5 | 1.0 |
| P6KE15A | P6KE15CA | P6KE15A | P6KE15CA | 12.8 | 14.3 | 15.8 | 1.0 | 21.2 | 28.8 | 1.0 |
| P6KE16A | P6KE16CA | P6KE16A | P6KE16CA | 13.6 | 15.2 | 16.8 | 1.0 | 22.5 | 27.1 | 1.0 |
| P6KE18A | P6KE18CA | P6KE18A | P6KE18CA | 15.3 | 17.2 | 18.9 | 1.0 | 25.5 | 24.2 | 1.0 |
| P6KE20A | P6KE20CA | P6KE20A | P6KE20CA | 17.1 | 19.0 | 21.0 | 1.0 | 27.7 | 22.0 | 1.0 |
| P6KE22A | P6KE22CA | P6KE22A | P6KE22CA | 18.8 | 20.9 | 23.1 | 1.0 | 30.6 | 19.9 | 1.0 |
| P6KE24A | P6KE24CA | P6KE24A | P6KE24CA | 20.5 | 22.8 | 25.2 | 1.0 | 33.2 | 18.4 | 1.0 |
| P6KE27A | P6KE27CA | P6KE27A | P6KE27CA | 23.1 | 25.7 | 28.4 | 1.0 | 37.5 | 16.3 | 1.0 |
| P6KE30A | P6KE30CA | P6KE30A | P6KE30CA | 25.6 | 28.5 | 31.5 | 1.0 | 41.4 | 14.7 | 1.0 |
| P6KE33A | P6KE33CA | P6KE33A | P6KE33CA | 28.2 | 31.4 | 34.7 | 1.0 | 45.7 | 13.3 | 1.0 |
| P6KE36A | P6KE36CA | P6KE36A | P6KE36CA | 30.8 | 34.2 | 37.8 | 1.0 | 49.9 | 12.2 | 1.0 |
| P6KE39A | P6KE39CA | P6KE39A | P6KE39CA | 33.3 | 37.1 | 41.0 | 1.0 | 53.9 | 11.3 | 1.0 |
| P6KE43A | P6KE43CA | P6KE43A | P6KE43CA | 36.8 | 40.9 | 45.2 | 1.0 | 59.3 | 10.3 | 1.0 |
| P6KE47A | P6KE47CA | P6KE47A | P6KE47CA | 40.2 | 44.7 | 49.4 | 1.0 | 64.8 | 9.4 | 1.0 |
| P6KE51A | P6KE51CA | P6KE51A | P6KE51CA | 43.6 | 48.5 | 53.6 | 1.0 | 70.1 | 8.7 | 1.0 |
| P6KE56A | P6KE56CA | P6KE56A | P6KE56CA | 47.8 | 53.2 | 58.8 | 1.0 | 77.0 | 7.9 | 1.0 |
| P6KE62A | P6KE62CA | P6KE62A | P6KE62CA | 53.0 | 58.9 | 65.1 | 1.0 | 85.0 | 7.2 | 1.0 |

| Part Number | | Marking Code | | V_R | $V_{BR}@I_T$ | | I_T | $V_C@I_{PP}$ | $I_{PP}^{①}$ | $I_R@V_R$ |
|-------------|-----------|--------------|-----------|-------|--------------|---------|-------|--------------|--------------|-----------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Min(V) | Max (V) | mA | V | A | Max(μA) |
| P6KE68A | P6KE68CA | P6KE68A | P6KE68CA | 58.1 | 64.6 | 71.4 | 1.0 | 92.0 | 6.6 | 1.0 |
| P6KE75A | P6KE75CA | P6KE75A | P6KE75CA | 64.1 | 71.3 | 78.8 | 1.0 | 103.0 | 5.9 | 1.0 |
| P6KE82A | P6KE82CA | P6KE82A | P6KE82CA | 70.1 | 77.9 | 86.1 | 1.0 | 113.0 | 5.4 | 1.0 |
| P6KE91A | P6KE91CA | P6KE91A | P6KE91CA | 77.8 | 86.5 | 95.5 | 1.0 | 125.0 | 4.9 | 1.0 |
| P6KE100A | P6KE100CA | P6KE100A | P6KE100CA | 85.5 | 95.0 | 105.0 | 1.0 | 137.0 | 4.5 | 1.0 |
| P6KE110A | P6KE110CA | P6KE110A | P6KE110CA | 94.0 | 105.0 | 116.0 | 1.0 | 152.0 | 4.0 | 1.0 |
| P6KE120A | P6KE120CA | P6KE120A | P6KE120CA | 102.0 | 114.0 | 126.0 | 1.0 | 165.0 | 3.7 | 1.0 |
| P6KE150A | P6KE150CA | P6KE150A | P6KE150CA | 128.0 | 143.0 | 158.0 | 1.0 | 207.0 | 2.9 | 1.0 |
| P6KE160A | P6KE160CA | P6KE160A | P6KE160CA | 136.0 | 152.0 | 168.0 | 1.0 | 219.0 | 2.8 | 1.0 |
| P6KE170A | P6KE170CA | P6KE170A | P6KE170CA | 145.0 | 162.0 | 179.0 | 1.0 | 234.0 | 2.6 | 1.0 |
| P6KE180A | P6KE180CA | P6KE180A | P6KE180CA | 154.0 | 171.0 | 189.0 | 1.0 | 246.0 | 2.5 | 1.0 |
| P6KE200A | P6KE200CA | P6KE200A | P6KE200CA | 171.0 | 190.0 | 210.0 | 1.0 | 274.0 | 2.2 | 1.0 |
| P6KE220A | P6KE220CA | P6KE220A | P6KE220CA | 185.0 | 209.0 | 231.0 | 1.0 | 328.0 | 1.9 | 1.0 |
| P6KE250A | P6KE250CA | P6KE250A | P6KE250CA | 214.0 | 237.0 | 263.0 | 1.0 | 344.0 | 1.8 | 1.0 |
| P6KE300A | P6KE300CA | P6KE300A | P6KE300CA | 256.0 | 285.0 | 315.0 | 1.0 | 414.0 | 1.5 | 1.0 |
| P6KE350A | P6KE350CA | P6KE350A | P6KE350CA | 300.0 | 332.0 | 368.0 | 1.0 | 482.0 | 1.3 | 1.0 |
| P6KE400A | P6KE400CA | P6KE400A | P6KE400CA | 342.0 | 380.0 | 420.0 | 1.0 | 548.0 | 1.1 | 1.0 |
| P6KE440A | P6KE440CA | P6KE440A | P6KE440CA | 376.0 | 418.0 | 462.0 | 1.0 | 602.0 | 1.0 | 1.0 |
| P6KE480A | P6KE480CA | P6KE480A | P6KE480CA | 408.0 | 456.0 | 504.0 | 1.0 | 658.0 | 0.9 | 1.0 |
| P6KE510A | P6KE510CA | P6KE510A | P6KE510CA | 434.0 | 485.0 | 535.0 | 1.0 | 698.0 | 0.9 | 1.0 |
| P6KE520A | P6KE520CA | P6KE520A | P6KE520CA | 442.0 | 494.0 | 546.0 | 1.0 | 698.0 | 0.9 | 1.0 |
| P6KE530A | P6KE530CA | P6KE530A | P6KE530CA | 451.0 | 503.5 | 557.0 | 1.0 | 725.0 | 0.8 | 1.0 |
| P6KE540A | P6KE540CA | P6KE540A | P6KE540CA | 459.0 | 513.0 | 567.0 | 1.0 | 740.0 | 0.8 | 1.0 |
| P6KE550A | P6KE550CA | P6KE550A | P6KE550CA | 467.0 | 522.5 | 578.0 | 1.0 | 760.0 | 0.8 | 1.0 |
| P6KE600A | P6KE600CA | P6KE600A | P6KE600CA | 510.0 | 570.0 | 630.0 | 1.0 | 828.0 | 0.75 | 1.0 |

Note:

① Surge waveform:10/1000μs

 V_R : Stand-off voltage -- Maximum voltage that can be applied

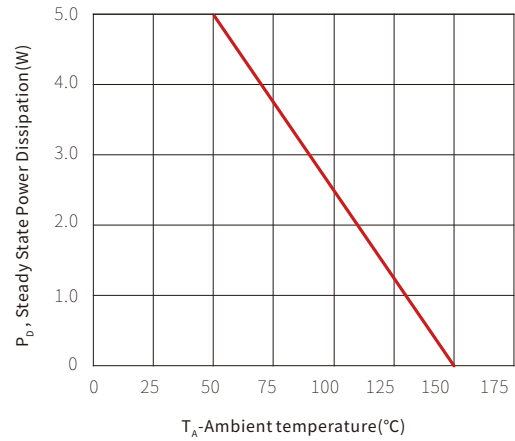
 V_{BR} : Breakdown voltage

 V_C : Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}
 I_R : Reverse leakage current

CHARACTERISTIC CURVES



Typical Junction Capacitance

Steady State Power Dissipation Derating Curve


WAVE SOLDERING



| Wave Parameter | | Lead-free assembly |
|------------------------|------------------|--------------------|
| Pre Heat | Temperature Min | 100°C |
| | Temperature Max | 150°C |
| | Time(min to max) | 60 – 180 secs |
| Solder pot Temperature | | 280°C Max |
| Solder Dwell Time | | 2-5 seconds |

DO-15 PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 5.80 | 7.60 | 0.230 | 0.300 |
| B | 2.60 | 3.60 | 0.104 | 0.140 |
| C | 0.70 | 0.90 | 0.026 | 0.034 |
| D | 25.40 | - | 1.000 | - |

ORDERING INFORMATION

| Part Number | Component Package | Per Carton | Description |
|-------------|-------------------|------------|-------------|
| P6KExxA/CA | DO-15 | 2000pcs | Box |

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