

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:

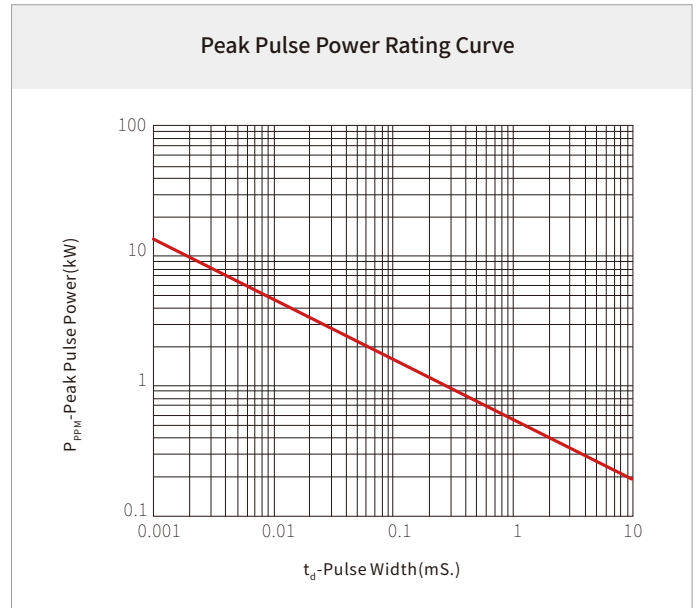
① Surge waveform:10/1000μs

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

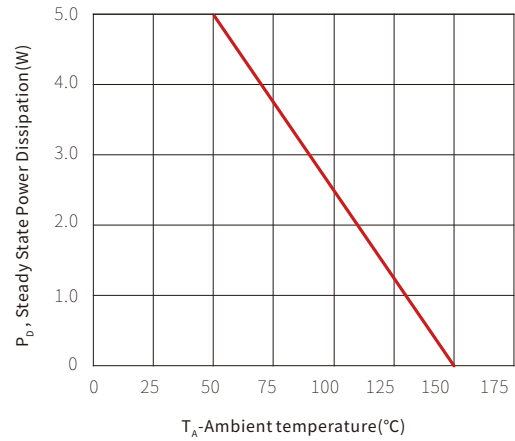
 V_{BR} : Breakdown voltage

 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 |

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

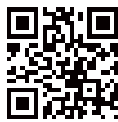
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

Website



Wechat

To find your local partner within Semiware' s global network: www.semiware.com

© 2022 Semiware Semiconductor Inc.

The content of this document has been carefully checked and understood. However, neither Semiware nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiware does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiware. Latest publications and a complete disclaimer can be downloaded from the Semiware website. All trademarks recognized.