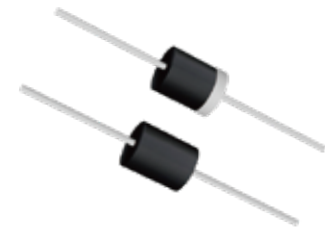


FEATURES

- | Low incremental surge resistance.
- | Excellent clamping capability.
- | Typical IR less than 2 μ A above 30V.
- | Color band denoted cathode except bidirectional.
- | Plastic package has under writers laboratory flammability 94V-0.
- | 15000W peak pulse power capability at 10/1000 μ s waveform.
- | Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- | Terminal: solder plated, solderable per J-STD-002.
- | Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- | IEC61000-4-2 (ESD) \pm 30kV (air), \pm 30kV (contact).


R-6/P-600


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 |
|---|-----------------|-------------|---------------------------|
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +175 | $^\circ\text{C}$ |
| Peak pulse power dissipation at 10/1000 μ s waveform | P_{PP} | 15000 | W |
| Steady state power dissipation at $T_L=75^\circ\text{C}$ | P_D | 8.0 | |
| Peak forward surge current, 8.3ms single half sine-wave for unidirectional only | I_{FSM} | 400 | A |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 8.0 | $^\circ\text{C}/\text{W}$ |
| Typical thermal resistance, junction to ambient | $R_{\theta JA}$ | 40 | |

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

| Part Number | | Marking Code | | V _R | I _R @V _R | V _{BR} @I _T | | I _T | V _C @I _{PP} | I _{PP} ^① |
|-------------|-----------|--------------|-----------|----------------|--------------------------------|---------------------------------|---------|----------------|---------------------------------|------------------------------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Max(μA) | Min(V) | Max (V) | mA | V | A |
| 15KPA17A | 15KPA17CA | 15KPA17A | 15KPA17CA | 17.0 | 5000 | 18.90 | 20.90 | 50 | 29.3 | 515.4 |
| 15KPA18A | 15KPA18CA | 15KPA18A | 15KPA18CA | 18.0 | 5000 | 20.00 | 22.10 | 50 | 30.9 | 488.7 |
| 15KPA20A | 15KPA20CA | 15KPA20A | 15KPA20CA | 20.0 | 1500 | 22.20 | 24.50 | 20 | 34.3 | 440.2 |
| 15KPA22A | 15KPA22CA | 15KPA22A | 15KPA22CA | 22.0 | 500 | 24.40 | 26.90 | 10 | 37.1 | 407.0 |
| 15KPA24A | 15KPA24CA | 15KPA24A | 15KPA24CA | 24.0 | 150 | 26.70 | 29.50 | 5 | 40.7 | 371.0 |
| 15KPA26A | 15KPA26CA | 15KPA26A | 15KPA26CA | 26.0 | 50 | 28.90 | 31.90 | 5 | 44.0 | 343.2 |
| 15KPA28A | 15KPA28CA | 15KPA28A | 15KPA28CA | 28.0 | 25 | 31.10 | 34.40 | 5 | 47.5 | 317.9 |
| 15KPA30A | 15KPA30CA | 15KPA30A | 15KPA30CA | 30.0 | 15 | 33.30 | 36.80 | 5 | 50.7 | 297.8 |
| 15KPA33A | 15KPA33CA | 15KPA33A | 15KPA33CA | 33.0 | 2 | 36.70 | 40.60 | 5 | 54.7 | 276.1 |
| 15KPA36A | 15KPA36CA | 15KPA36A | 15KPA36CA | 36.0 | 2 | 40.00 | 44.20 | 5 | 59.8 | 252.5 |
| 15KPA40A | 15KPA40CA | 15KPA40A | 15KPA40CA | 40.0 | 2 | 44.40 | 49.10 | 5 | 65.8 | 229.5 |
| 15KPA43A | 15KPA43CA | 15KPA43A | 15KPA43CA | 43.0 | 2 | 47.80 | 52.80 | 5 | 69.8 | 216.3 |
| 15KPA45A | 15KPA45CA | 15KPA45A | 15KPA45CA | 45.0 | 2 | 50.00 | 55.30 | 5 | 72.8 | 207.4 |
| 15KPA48A | 15KPA48CA | 15KPA48A | 15KPA48CA | 48.0 | 2 | 53.30 | 58.90 | 5 | 77.7 | 194.3 |
| 15KPA51A | 15KPA51CA | 15KPA51A | 15KPA51CA | 51.0 | 2 | 56.70 | 62.70 | 5 | 82.9 | 182.1 |
| 15KPA54A | 15KPA54CA | 15KPA54A | 15KPA54CA | 54.0 | 2 | 60.00 | 66.30 | 5 | 87.7 | 172.2 |
| 15KPA58A | 15KPA58CA | 15KPA58A | 15KPA58CA | 58.0 | 2 | 64.40 | 71.20 | 5 | 93.8 | 161.0 |
| 15KPA60A | 15KPA60CA | 15KPA60A | 15KPA60CA | 60.0 | 2 | 66.70 | 73.70 | 5 | 97.4 | 155.0 |
| 15KPA64A | 15KPA64CA | 15KPA64A | 15KPA64CA | 64.0 | 2 | 71.10 | 78.60 | 5 | 104.2 | 144.9 |
| 15KPA70A | 15KPA70CA | 15KPA70A | 15KPA70CA | 70.0 | 2 | 77.80 | 86.00 | 5 | 113.6 | 132.9 |
| 15KPA75A | 15KPA75CA | 15KPA75A | 15KPA75CA | 75.0 | 2 | 83.30 | 92.10 | 5 | 122.0 | 123.8 |
| 15KPA78A | 15KPA78CA | 15KPA78A | 15KPA78CA | 78.0 | 2 | 86.70 | 95.80 | 5 | 126.1 | 119.7 |
| 15KPA85A | 15KPA85CA | 15KPA85A | 15KPA85CA | 85.0 | 2 | 94.40 | 104.0 | 5 | 137.6 | 109.7 |
| 15KPA90A | 15KPA90CA | 15KPA90A | 15KPA90CA | 90.0 | 2 | 100.0 | 111.0 | 5 | 145.6 | 103.7 |

| Part Number | | Marking Code | | V_R | $I_R@V_R$ | $V_{BR}@I_T$ | | I_T | $V_C@I_{PP}$ | $I_{PP}^{①}$ |
|-------------|------------|--------------|------------|-------|---------------|--------------|---------|-------|--------------|--------------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Max(μ A) | Min(V) | Max (V) | mA | V | A |
| 15KPA100A | 15KPA100CA | 15KPA100A | 15KPA100CA | 100.0 | 2 | 111.0 | 123.0 | 5 | 161.3 | 93.6 |
| 15KPA110A | 15KPA110CA | 15KPA110A | 15KPA110CA | 110.0 | 2 | 122.0 | 135.0 | 5 | 178.6 | 84.5 |
| 15KPA120A | 15KPA120CA | 15KPA120A | 15KPA120CA | 120.0 | 2 | 133.0 | 147.0 | 5 | 192.3 | 78.5 |
| 15KPA130A | 15KPA130CA | 15KPA130A | 15KPA130CA | 130.0 | 2 | 144.0 | 159.0 | 5 | 208.3 | 72.5 |
| 15KPA150A | 15KPA150CA | 15KPA150A | 15KPA150CA | 150.0 | 2 | 167.0 | 185.0 | 5 | 241.9 | 62.4 |
| 15KPA160A | 15KPA160CA | 15KPA160A | 15KPA160CA | 160.0 | 2 | 178.0 | 197.0 | 5 | 258.6 | 58.4 |
| 15KPA170A | 15KPA170CA | 15KPA170A | 15KPA170CA | 170.0 | 2 | 189.0 | 209.0 | 5 | 272.7 | 55.4 |
| 15KPA180A | 15KPA180CA | 15KPA180A | 15KPA180CA | 180.0 | 2 | 201.0 | 222.0 | 5 | 288.5 | 52.3 |
| 15KPA200A | 15KPA200CA | 15KPA200A | 15KPA200CA | 200.0 | 2 | 224.0 | 247.0 | 5 | 319.1 | 47.3 |
| 15KPA220A | 15KPA220CA | 15KPA220A | 15KPA220CA | 220.0 | 2 | 246.0 | 272.0 | 5 | 352.5 | 42.8 |
| 15KPA240A | 15KPA240CA | 15KPA240A | 15KPA240CA | 240.0 | 2 | 268.0 | 292.0 | 5 | 384.6 | 39.3 |
| 15KPA260A | 15KPA260CA | 15KPA260A | 15KPA260CA | 260.0 | 2 | 289.0 | 317.0 | 5 | 416.7 | 36.2 |
| 15KPA280A | 15KPA280CA | 15KPA280A | 15KPA280CA | 280.0 | 2 | 311.0 | 341.0 | 5 | 454.5 | 33.2 |

Note:

 ①.Surge waveform:10/1000 μ s

 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

Figure 1: V- I curve characteristics (Uni-directional)

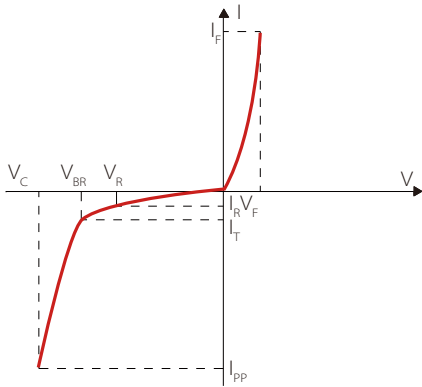


Figure 2: V- I curve characteristics (Bi-directional)

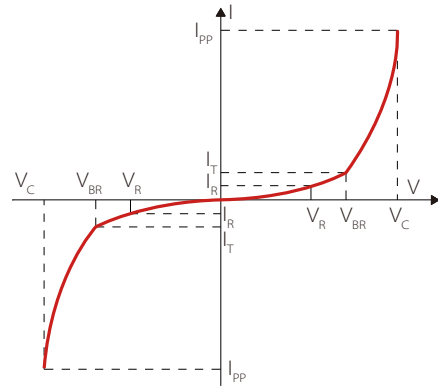


Figure 3: Pulse waveform

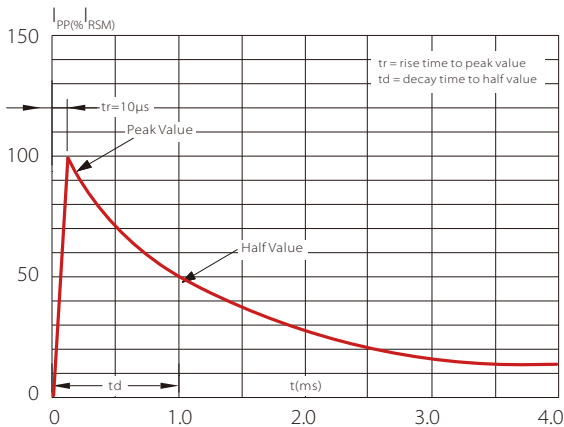


Figure 4: Power derating curve

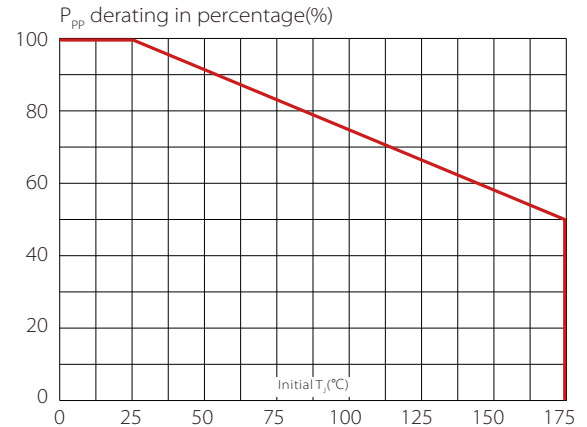


Figure 5: Peak pulse power dissipation vs. pulse width

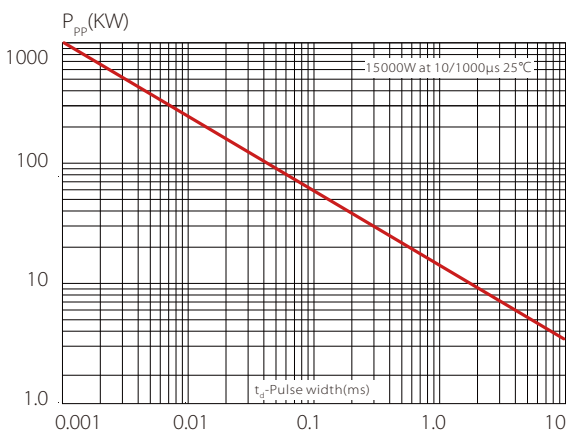


Figure 6: Typical Junction Capacitance

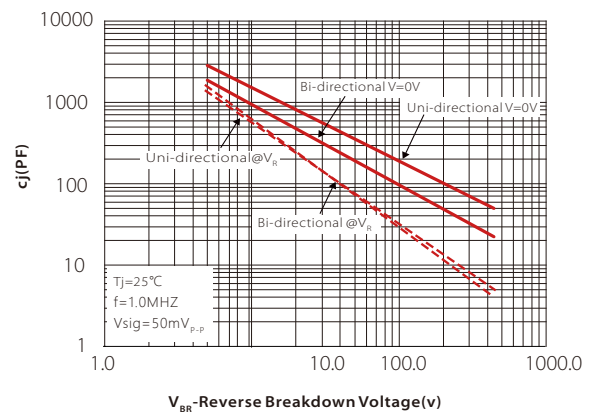
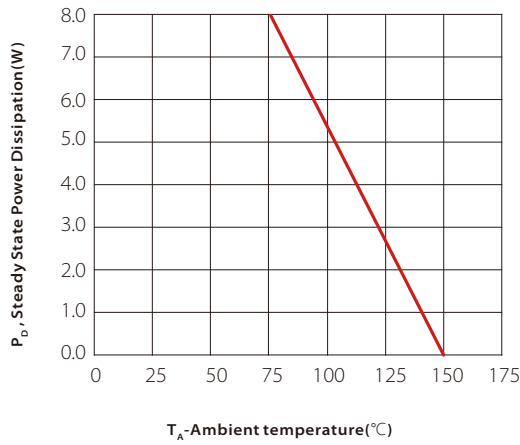
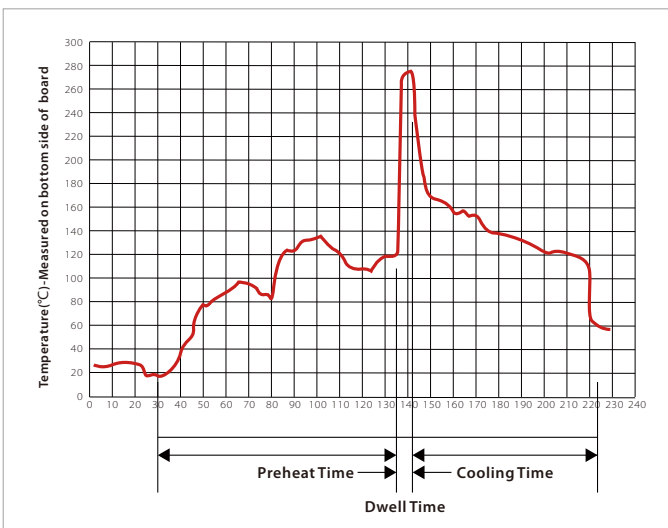


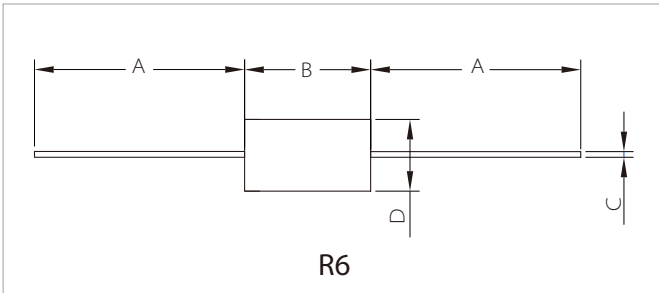
Figure 7: Steady State Power Dissipation Derating Curve


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 |

P600 PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 25.40 | - | 1.000 | - |
| B | 8.60 | 9.40 | 0.339 | 0.370 |
| C | 1.20 | 1.40 | 0.047 | 0.055 |
| D | 8.60 | 9.10 | 0.339 | 0.358 |

ORDERING INFORMATION

| Part Number | Component Package | Per BOX | Per Carton | Description |
|-------------|-------------------|---------|------------|-------------|
| 15KPAxxA/CA | R6/P600 | 300pcs | 3000pcs | Box |

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