



3KP SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 3000 Watt

STAND-OFF VOLTAGE

5 to 220 Volt

P-600

Unit : inch(mm)

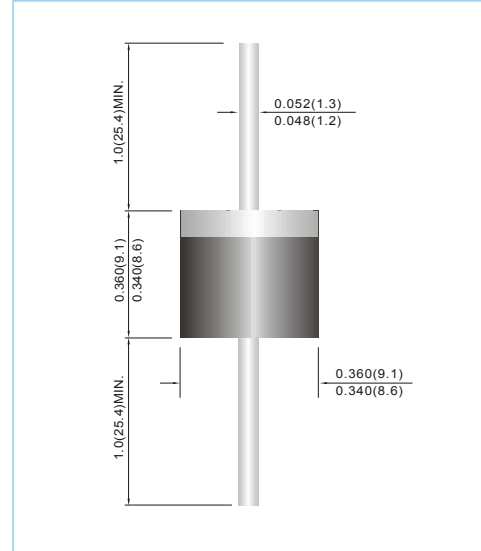
Recongized File # E210467

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction in P-600 package
- 3000W Peak Pulse Power capability at on $t_p=10/1000\mu s$ waveform
- Excellent clamping capability
- Low zener impedance
- Repetition rate(Duty Cycle) : 0.05%
- Fast response time: typically less than 1 ps from 0 volts to BV min
- High temperature soldering guaranteed : 260°C/10 seconds/0.375", (9.5mm) lead length/5lbs., (2.3kg) tension
- ESD IEC-61000-4-2 Air $\pm 30kV$, Contact $\pm 30kV$
- Lead free in compliance with EU RoHS 2011/65/EU directive

MECHANICAL DATA

- Case: JEDEC P-600 molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.072 ounce, 2.04 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 3KP5.0 thru types 3KP220
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Units |
|--|-----------------|----------------------|----------------|
| Peak Power Dissipation at $T_A=25^\circ C$, $T_p=1ms$ (Notes 1) | P_{PP} | 3000 | Watts |
| Typical Thermal Resistance Junction to Air Lead Lengths 0.375", (9.5mm) (Notes 2) | $R_{\theta JA}$ | 15 | $^\circ C / W$ |
| Peak Pulse Current on $T_p=10/1000\mu s$ waveform (Notes 1) | I_{PPM} | see Table | Amps |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3) | I_{FSM} | 300 | Amps |
| ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact) | V_{ESD} | ± 30 ± 30 | kV |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +175 | $^\circ C$ |

NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ C$ per Fig. 2.
2. Mounted on Copper Leaf area of $0.79in^2(20mm^2)$.
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.
4. A transient suppressor is selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level.



3KP SERIES

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000µs | Peak Pulse Current 10/1000µs | Marking Code | |
|------------------------------------|----------|---------------------------|----------------------------------|-------|--------------|-----------------------------------|------|---------------------------------|---------------------------------|--------------|----------|
| | | | V _{BR} @ I _T | | | I _R @ V _{RWM} | | | | | |
| | | | Min. | Max. | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI |
| 3000W Transient Voltage Suppressor | | | | | | | | | | | |
| 3KP5.0 | 3KP5.0C | 5 | 6.4 | 7.55 | 10 | 1000 | 2000 | 9.6 | 312.5 | 3KP5.0 | 3KP5.0C |
| 3KP5.0A | 3KP5.0CA | 5 | 6.4 | 7.25 | 10 | 1000 | 2000 | 9.2 | 326 | 3KP5.0A | 3KP5.0CA |
| 3KP6.0 | 3KP6.0C | 6 | 6.67 | 8.45 | 10 | 1000 | 2000 | 11.4 | 263.2 | 3KP6.0 | 3KP6.0C |
| 3KP6.0A | 3KP6.0CA | 6 | 6.67 | 7.67 | 10 | 1000 | 2000 | 10.3 | 291.3 | 3KP6.0A | 3KP6.0CA |
| 3KP6.5 | 3KP6.5C | 6.5 | 7.22 | 9.14 | 10 | 500 | 1000 | 12.3 | 243.9 | 3KP6.5 | 3KP6.5C |
| 3KP6.5A | 3KP6.5CA | 6.5 | 7.22 | 8.3 | 10 | 500 | 1000 | 11.2 | 267.9 | 3KP6.5A | 3KP6.5CA |
| 3KP7.0 | 3KP7.0C | 7 | 7.78 | 9.86 | 10 | 200 | 400 | 13.3 | 225.6 | 3KP7.0 | 3KP7.0C |
| 3KP7.0A | 3KP7.0CA | 7 | 7.78 | 8.95 | 10 | 200 | 400 | 12 | 250 | 3KP7.0A | 3KP7.0CA |
| 3KP7.5 | 3KP7.5C | 7.5 | 8.33 | 10.67 | 1 | 100 | 200 | 14.3 | 209.8 | 3KP7.5 | 3KP7.5C |
| 3KP7.5A | 3KP7.5CA | 7.5 | 8.33 | 9.58 | 1 | 100 | 200 | 12.9 | 232.6 | 3KP7.5A | 3KP7.5CA |
| 3KP8.0 | 3KP8.0C | 8 | 8.89 | 11.3 | 1 | 50 | 100 | 15 | 220 | 3KP8.0 | 3KP8.0C |
| 3KP8.0A | 3KP8.0CA | 8 | 8.89 | 10.23 | 1 | 50 | 100 | 13.6 | 220.6 | 3KP8.0A | 3KP8.0CA |
| 3KP8.5 | 3KP8.5C | 8.5 | 9.44 | 11.92 | 1 | 25 | 50 | 15.9 | 188.8 | 3KP8.5 | 3KP8.5C |
| 3KP8.5A | 3KP8.5CA | 8.5 | 9.44 | 10.82 | 1 | 25 | 50 | 14.4 | 208.4 | 3KP8.5A | 3KP8.5CA |
| 3KP9.0 | 3KP9.0C | 9 | 10 | 12.6 | 1 | 10 | 20 | 16.9 | 177.4 | 3KP9.0 | 3KP9.0C |
| 3KP9.0A | 3KP9.0CA | 9 | 10 | 11.5 | 1 | 10 | 20 | 15.4 | 194.8 | 3KP9.0A | 3KP9.0CA |
| 3KP10 | 3KP10C | 10 | 11.1 | 14.1 | 1 | 3 | 3 | 18.8 | 159.6 | 3KP10 | 3KP10C |
| 3KP10A | 3KP10CA | 10 | 11.1 | 12.8 | 1 | 3 | 3 | 17 | 176.4 | 3KP10A | 3KP10CA |
| 3KP11 | 3KP11C | 11 | 12.2 | 15.4 | 1 | 3 | 3 | 20.1 | 149.2 | 3KP11 | 3KP11C |
| 3KP11A | 3KP11CA | 11 | 12.2 | 14 | 1 | 3 | 3 | 18.2 | 184.8 | 3KP11A | 3KP11CA |
| 3KP12 | 3KP12C | 12 | 13.3 | 16.9 | 1 | 3 | 3 | 22 | 136.4 | 3KP12 | 3KP12C |
| 3KP12A | 3KP12CA | 12 | 13.3 | 15.3 | 1 | 3 | 3 | 19.9 | 150.6 | 3KP12A | 3KP12CA |
| 3KP13 | 3KP13C | 13 | 14.4 | 18.2 | 1 | 3 | 3 | 23.8 | 126 | 3KP13 | 3KP13C |
| 3KP13A | 3KP13CA | 13 | 14.4 | 16.5 | 1 | 3 | 3 | 21.5 | 139.4 | 3KP13A | 3KP13CA |
| 3KP14 | 3KP14C | 14 | 15.6 | 19.8 | 1 | 3 | 3 | 25.8 | 116.2 | 3KP14 | 3KP14C |
| 3KP14A | 3KP14CA | 14 | 15.6 | 17.9 | 1 | 3 | 3 | 23.2 | 129.4 | 3KP14A | 3KP14CA |
| 3KP15 | 3KP15C | 15 | 16.7 | 21.1 | 1 | 3 | 3 | 26.9 | 111.6 | 3KP15 | 3KP15C |
| 3KP15A | 3KP15CA | 15 | 16.7 | 19.2 | 1 | 3 | 3 | 24.4 | 123 | 3KP15A | 3KP15CA |
| 3KP16 | 3KP16C | 16 | 17.8 | 22.6 | 1 | 3 | 3 | 28.8 | 104.2 | 3KP16 | 3KP16C |
| 3KP16A | 3KP16CA | 16 | 17.8 | 20.5 | 1 | 3 | 3 | 26 | 115.4 | 3KP16A | 3KP16CA |
| 3KPJ17 | 3KPJ17C | 17 | 18.9 | 23.9 | 1 | 3 | 3 | 30.5 | 98.4 | 3KPJ17 | 3KPJ17C |
| 3KP17A | 3KP17CA | 17 | 18.9 | 21.7 | 1 | 3 | 3 | 27.6 | 106.6 | 3KP17A | 3KP17CA |
| 3KP18 | 3KP18C | 18 | 20 | 25.3 | 1 | 3 | 3 | 32.2 | 93.2 | 3KP18 | 3KP18C |
| 3KP18A | 3KP18CA | 18 | 20 | 23.3 | 1 | 3 | 3 | 29.2 | 102.8 | 3KP18A | 3KP18CA |
| 3KP20 | 3KP20C | 20 | 22.2 | 28.1 | 1 | 3 | 3 | 35.8 | 83.8 | 3KP20 | 3KP20C |
| 3KP20A | 3KP20CA | 20 | 22.2 | 25.5 | 1 | 3 | 3 | 32.4 | 92.6 | 3KP20A | 3KP20CA |
| 3KP22 | 3KP22C | 22 | 24.4 | 30.9 | 1 | 3 | 3 | 39.4 | 76.2 | 3KP22 | 3KP22C |
| 3KP22A | 3KP22CA | 22 | 24.4 | 28 | 1 | 3 | 3 | 35.5 | 84.4 | 3KP22A | 3KP22CA |
| 3KP24 | 3KP24C | 24 | 26.7 | 33.8 | 1 | 3 | 3 | 43 | 69.8 | 3KP24 | 3KP24C |
| 3KP24A | 3KP24CA | 24 | 26.7 | 30.7 | 1 | 3 | 3 | 38.9 | 77.2 | 3KP24A | 3KP24CA |
| 3KP26 | 3KP26C | 26 | 28.9 | 36.6 | 1 | 3 | 3 | 46.6 | 64.4 | 3KP26 | 3KP26C |
| 3KP26A | 3KP26CA | 26 | 28.9 | 33.2 | 1 | 3 | 3 | 42.1 | 71.2 | 3KP26A | 3KP26CA |
| 3KP28 | 3KP28C | 28 | 31.1 | 39.4 | 1 | 3 | 3 | 50 | 60 | 3KP28 | 3KP28C |
| 3KP28A | 3KP28CA | 28 | 31.1 | 35.8 | 1 | 3 | 3 | 45.4 | 66 | 3KP28A | 3KP28CA |
| 3KP30 | 3KP30C | 30 | 33.3 | 42.2 | 1 | 3 | 3 | 53.5 | 56 | 3KP30 | 3KP30C |
| 3KP30A | 3KP30CA | 30 | 33.3 | 38.3 | 1 | 3 | 3 | 48.4 | 62 | 3KP30A | 3KP30CA |
| 3KP33 | 3KP33C | 33 | 36.7 | 46.5 | 1 | 3 | 3 | 59 | 50.4 | 3KP33 | 3KP33C |
| 3KP33A | 3KP33CA | 33 | 36.7 | 42.2 | 1 | 3 | 3 | 53.3 | 56.2 | 3KP33A | 3KP33CA |
| 3KP36 | 3KP36C | 36 | 40 | 50.7 | 1 | 3 | 3 | 64.3 | 46.6 | 3KP36 | 3KP36C |
| 3KP36A | 3KP36CA | 36 | 40 | 46 | 1 | 3 | 3 | 58.1 | 51.6 | 3KP36A | 3KP36CA |
| 3KP40 | 3KP40C | 40 | 44.4 | 56.3 | 1 | 3 | 3 | 71.4 | 42 | 3KP40 | 3KP40C |



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| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000µs | Peak Pulse Current 10/1000µs | Marking Code | |
|------------------------------------|----------|---------------------------|----------------------------------|--------|--------------|-----------------------------------|----------|---------------------------------|---------------------------------|--------------|----------|
| | | | V _{BR} @ I _T | | | I _R @ V _{RWM} | | | | | |
| UNI | BI | V | Min. V | Max. V | mA | UNI µA | BI µA | V | A | UNI | BI |
| 3000W Transient Voltage Suppressor | | | | | | | | | | | |
| 3KP40A | 3KP40CA | 40 | 44.4 | 51.1 | 1 | 3 | 3 | 64.5 | 46.4 | 3KP40A | 3KP40CA |
| 3KP43 | 3KP43C | 43.00 | 47.8 | 60.5 | 1 | 3 | 3 | 76.7 | 39.2 | 3KP43 | 3KP43C |
| 3KP43A | 3KP43CA | 43 | 47.8 | 54.9 | 1 | 3 | 3 | 69.4 | 43.2 | 3KP43A | 3KP43CA |
| 3KP45 | 3KP45C | 45 | 50 | 63.3 | 1 | 3 | 3 | 80.3 | 37.4 | 3KP45 | 3KP45C |
| 3KP45A | 3KP45CA | 45 | 50 | 57.5 | 1 | 3 | 3 | 72.7 | 41.2 | 3KP45A | 3KP45CA |
| 3KP48 | 3KP48C | 48 | 53.3 | 67.5 | 1 | 3 | 3 | 85.5 | 35 | 3KP48 | 3KP48C |
| 3KP48A | 3KP48CA | 48 | 53.3 | 61.3 | 1 | 3 | 3 | 77.4 | 38.8 | 3KP48A | 3KP48CA |
| 3KP51 | 3KP51C | 51 | 56.7 | 71.8 | 1 | 3 | 3 | 91.1 | 37 | 3KP51 | 3KP51C |
| 3KP51A | 3KP51CA | 51 | 56.7 | 65.2 | 1 | 3 | 3 | 82.4 | 36.4 | 3KP51A | 3KP51CA |
| 3KP54 | 3KP54C | 54 | 60 | 76 | 1 | 3 | 3 | 96.3 | 31.2 | 3KP54 | 3KP54C |
| 3KP54A | 3KP54CA | 54 | 60 | 69 | 1 | 3 | 3 | 87.1 | 34.4 | 3KP54A | 3KP54CA |
| 3KP58 | 3KP58C | 58 | 64.4 | 81.6 | 1 | 3 | 3 | 103 | 29.2 | 3KP58 | 3KP58C |
| 3KP58A | 3KP58CA | 58 | 64.4 | 74.1 | 1 | 3 | 3 | 93.6 | 32 | 3KP58A | 3KP58CA |
| 3KP60 | 3KP60C | 60 | 66.7 | 84.5 | 1 | 3 | 3 | 107 | 28 | 3KP60 | 3KP60C |
| 3KP60A | 3KP60CA | 60 | 66.7 | 76.7 | 1 | 3 | 3 | 96.8 | 31 | 3KP60A | 3KP60CA |
| 3KP64 | 3KP64C | 64 | 71.1 | 90.1 | 1 | 3 | 3 | 114 | 26.4 | 3KP64 | 3KP64C |
| 3KP64A | 3KP64CA | 64 | 71.1 | 81.8 | 1 | 3 | 3 | 103 | 29.2 | 3KP64A | 3KP64CA |
| 3KP70 | 3KP70C | 70 | 77.8 | 98.6 | 1 | 3 | 3 | 125 | 24 | 3KP70 | 3KP70C |
| 3KP70A | 3KP70CA | 70 | 77.8 | 89.5 | 1 | 3 | 3 | 113 | 26.6 | 3KP70A | 3KP70CA |
| 3KP75 | 3KP75C | 75 | 83.3 | 105.7 | 1 | 3 | 3 | 134 | 22.4 | 3KP75 | 3KP75C |
| 3KP75A | 3KP75CA | 75 | 83.3 | 95.8 | 1 | 3 | 3 | 121 | 24.8 | 3KP75A | 3KP75CA |
| 3KP78 | 3KP78C | 78 | 86.7 | 109.8 | 1 | 3 | 3 | 139 | 21.6 | 3KP78 | 3KP78C |
| 3KP78A | 3KP78CA | 78 | 86.7 | 99.7 | 1 | 3 | 3 | 126 | 22.8 | 3KP78A | 3KP78CA |
| 3KP85 | 3KP85C | 85 | 94.4 | 119.2 | 1 | 3 | 3 | 151 | 19.8 | 3KP85 | 3KP85C |
| 3KP85A | 3KP85CA | 85 | 94.4 | 108.2 | 1 | 3 | 3 | 137 | 20.8 | 3KP85A | 3KP85CA |
| 3KP90 | 3KP90C | 90 | 100 | 126.5 | 1 | 3 | 3 | 160 | 18.8 | 3KP90 | 3KP90C |
| 3KP90A | 3KP90CA | 90 | 100 | 115.5 | 1 | 3 | 3 | 146 | 20.6 | 3KP90A | 3KP90CA |
| 3KP100 | 3KP100C | 100 | 111 | 141 | 1 | 3 | 3 | 179 | 16.6 | 3KP100 | 3KP100C |
| 3KP100A | 3KP100CA | 100 | 111 | 128 | 1 | 3 | 3 | 162 | 18.6 | 3KP100A | 3KP100CA |
| 3KP110 | 3KP110C | 110 | 122 | 154.5 | 1 | 3 | 3 | 196 | 15.4 | 3KP110 | 3KP110C |
| 3KP110A | 3KP110CA | 110 | 122 | 140.5 | 1 | 3 | 3 | 177 | 16.8 | 3KP110A | 3KP110CA |
| 3KP120 | 3KP120C | 120 | 133 | 169 | 1 | 3 | 3 | 214 | 14 | 3KP120 | 3KP120C |
| 3KP120A | 3KP120CA | 120 | 133 | 153 | 1 | 3 | 3 | 193 | 15.6 | 3KP120A | 3KP120CA |
| 3KP130 | 3KP130C | 130 | 144 | 182.5 | 1 | 3 | 3 | 231 | 13 | 3KP130 | 3KP130C |
| 3KP130A | 3KP130CA | 130 | 144 | 165.5 | 1 | 3 | 3 | 209 | 14.4 | 3KP130A | 3KP130CA |
| 3KP150 | 3KP150C | 150 | 167 | 211.5 | 1 | 3 | 3 | 268 | 11.2 | 3KP150 | 3KP150C |
| 3KP150A | 3KP150CA | 150 | 167 | 192.5 | 1 | 3 | 3 | 243 | 12.4 | 3KP150A | 3KP150CA |
| 3KP160 | 3KP160C | 160 | 178 | 226 | 1 | 3 | 3 | 287 | 10.4 | 3KP160 | 3KP160C |
| 3KP160A | 3KP160CA | 160 | 178 | 205 | 1 | 3 | 3 | 259 | 11.6 | 3KP160A | 3KP160CA |
| 3KP170 | 3KP170C | 170 | 189 | 239.5 | 1 | 3 | 3 | 304 | 9.8 | 3KP170 | 3KP170C |
| 3KP170A | 3KP170CA | 170 | 189 | 217.5 | 1 | 3 | 3 | 275 | 11 | 3KP170A | 3KP170CA |
| 3KP180 | 3KP180C | 180 | 198 | 253.8 | 1 | 3 | 3 | 322 | 9.3 | 3KP180 | 3KP180C |
| 3KP180A | 3KP180CA | 180 | 198 | 230.4 | 1 | 3 | 3 | 292 | 10.3 | 3KP180A | 3KP180CA |
| 3KP190 | 3KP190C | 190 | 209 | 267.9 | 1 | 3 | 3 | 340 | 8.8 | 3KP190 | 3KP190C |
| 3KP190A | 3KP190CA | 190 | 209 | 243.2 | 1 | 3 | 3 | 308 | 9.7 | 3KP190A | 3KP190CA |
| 3KP200 | 3KP200C | 200 | 220 | 282 | 1 | 3 | 3 | 358 | 8.4 | 3KP200 | 3KP200C |
| 3KP200A | 3KP200CA | 200 | 220 | 256 | 1 | 3 | 3 | 324 | 9.3 | 3KP200A | 3KP200CA |
| 3KP210 | 3KP210C | 210 | 231 | 296.1 | 1 | 3 | 3 | 376 | 7.8 | 3KP210 | 3KP210C |
| 3KP210A | 3KP210CA | 210 | 231 | 268.8 | 1 | 3 | 3 | 340 | 8.8 | 3KP210A | 3KP210CA |
| 3KP220 | 3KP220C | 220 | 242 | 310.2 | 1 | 3 | 3 | 394 | 7.6 | 3KP220 | 3KP220C |
| 3KP220A | 3KP220CA | 220 | 242 | 281.6 | 1 | 3 | 3 | 356 | 8.4 | 3KP220A | 3KP220CA |



3KP SERIES



Fig. 1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE



Fig. 2 PULSE DERATING CURVE



Fig. 3 PULSE WAVEFORM



Fig. 4 TYPICAL JUNCTION CAPACITANCE



Fig. 5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL



3KP SERIES

Part No_packing code_Version

3KP5.0_AY_00001
 3KP5.0_AY_10001
 3KP5.0_B0_00001
 3KP5.0_B0_10001
 3KP5.0_R2_00001
 3KP5.0_R2_10001

For example :

RB500V-40 **R2** **00001**



| Packing Code XX | | | | Version Code XXXXX | | |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type | 1 st Code | Packing size code | 2 nd Code | HF or RoHS | 1 st Code | 2 nd ~5 th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |



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