

5000W Unidirectional and Bidirectional Load Dump Glass Passivated Automotive T.V.S.

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| <p>Dimensions in mm.</p> <div style="text-align: center;"> </div> <p style="text-align: right;">P-6 (Plastic)</p> <p>Mounting instructions</p> <ol style="list-style-type: none"> 1. Min. distance from body to soldering point, 4 mm. 2. Max. solder temperature, 350 °C. 3. Max. soldering time, 3.5 sec. 4. Do not bend lead at a point closer than 4 mm. to the body. | <ul style="list-style-type: none"> • Developed to suppress transient in the automotive system, protecting mobile transceivers, radios and tape decks from overvoltages (width pulses). <div style="text-align: center; margin: 10px 0;"> </div> <ul style="list-style-type: none"> • Glass passivated junction • Low Capacitance AC signal protection • Response time typically < 1 ns. • Molded case • The plastic material carries U/L recognition 94 V-0 • Terminal: Axial leads |
|---|--|

Maximum Ratings, According to IEC Publication No. 134

| | | |
|-------------|---|------------------|
| P_{pp} | Peak pulse power with 10/1000 μ s exponential pulse | 5000 W |
| $P_{M(AV)}$ | Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Mounted in copper leaf area of 20 mm ² | 5 W |
| I_{FSM} | Non repetitive surge peak forward current (t = 10 msec.) <small>(Note 1)</small> | 500 A |
| T_j | Operating temperature range | - 65 to + 175 °C |
| T_{stg} | Storage temperature range | - 65 to + 175 °C |

Electrical Characteristics at Tamb = 25 °C

| | | |
|-------------|---|---------|
| V_F | Max. forward voltage drop at $I_F = 100$ A <small>(Note 1)</small> | 3.5 V |
| R_{thj-l} | Max. thermal resistance (l = 10 mm.) | 10 °C/W |

Note 1: Valid only for Unidirectional.

Electrical Characteristics ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

| Type | Breakdown Voltage V_{BR} Volts (Note 1) | | @ I_R (mA) | Maximum Reverse Leakage Current | | Maximum Clamping Voltage | | Maximum Temperature Coefficient of V_{BR} (%C) |
|---------|---|-------|-----------------|------------------------------------|--------------|-----------------------------|--------------|--|
| | Min. | Max. | | I_{RM} (μ A) | V_{RM} (V) | V_{CL} (V) (Note 2) | I_{PP} (A) | |
| 5KP7.5 | 8.33 | 10.20 | 5.0 | 250 | 7.5 | 14.3 | 350 | 0.073 |
| 5KP7.5A | 8.33 | 9.21 | 5.0 | 250 | 7.5 | 12.9 | 388 | 0.073 |
| 5KP8.0 | 8.89 | 10.90 | 5.0 | 150 | 8.0 | 15.0 | 333 | 0.075 |
| 5KP8.0A | 8.89 | 9.83 | 5.0 | 150 | 8.0 | 13.6 | 367 | 0.075 |
| 5KP8.5 | 9.44 | 11.50 | 5.0 | 50 | 8.5 | 15.9 | 314 | 0.078 |
| 5KP8.5A | 9.44 | 10.40 | 5.0 | 50 | 8.5 | 14.4 | 347 | 0.078 |
| 5KP9.0 | 10.00 | 12.20 | 5.0 | 20 | 9.0 | 16.9 | 295 | 0.081 |
| 5KP9.0A | 10.00 | 11.10 | 5.0 | 20 | 9.0 | 15.4 | 325 | 0.081 |
| 5KP10 | 11.10 | 13.60 | 5.0 | 15 | 10.0 | 18.8 | 266 | 0.084 |
| 5KP10A | 11.10 | 12.30 | 5.0 | 15 | 10.0 | 17.0 | 294 | 0.084 |
| 5KP11 | 12.20 | 14.90 | 5.0 | 10 | 11.0 | 20.1 | 249 | 0.086 |
| 5KP11A | 12.20 | 13.50 | 5.0 | 10 | 11.0 | 18.2 | 274 | 0.086 |
| 5KP12 | 13.30 | 16.30 | 5.0 | 10 | 12.0 | 22.0 | 227 | 0.088 |
| 5KP12A | 13.30 | 14.70 | 5.0 | 10 | 12.0 | 19.9 | 251 | 0.088 |
| 5KP13 | 14.40 | 17.60 | 5.0 | 10 | 13.0 | 23.8 | 210 | 0.090 |
| 5KP13A | 14.40 | 15.90 | 5.0 | 10 | 13.0 | 21.5 | 232 | 0.090 |
| 5KP14 | 15.60 | 19.10 | 5.0 | 10 | 14.0 | 25.8 | 194 | 0.092 |
| 5KP14A | 15.60 | 17.20 | 5.0 | 10 | 14.0 | 23.2 | 215 | 0.092 |
| 5KP15 | 16.70 | 20.40 | 5.0 | 10 | 15.0 | 26.9 | 188 | 0.094 |
| 5KP15A | 16.70 | 18.50 | 5.0 | 10 | 15.0 | 24.4 | 206 | 0.094 |
| 5KP16 | 17.80 | 21.80 | 5.0 | 10 | 16.0 | 28.8 | 176 | 0.096 |
| 5KP16A | 17.80 | 19.70 | 5.0 | 10 | 16.0 | 26.1 | 191 | 0.096 |
| 5KP17 | 18.90 | 23.10 | 5.0 | 10 | 17.0 | 30.5 | 164 | 0.097 |
| 5KP17A | 18.90 | 20.90 | 5.0 | 10 | 17.0 | 27.6 | 161 | 0.097 |
| 5KP18 | 20.00 | 24.40 | 5.0 | 10 | 18.0 | 32.2 | 155 | 0.098 |
| 5KP18A | 20.00 | 22.10 | 5.0 | 10 | 18.0 | 29.2 | 172 | 0.098 |
| 5KP20 | 22.20 | 27.10 | 5.0 | 10 | 20.0 | 35.8 | 139 | 0.099 |
| 5KP20A | 22.20 | 24.50 | 5.0 | 10 | 20.0 | 32.4 | 154 | 0.099 |
| 5KP22 | 24.40 | 29.80 | 5.0 | 10 | 22.0 | 39.4 | 127 | 0.100 |
| 5KP22A | 24.40 | 26.90 | 5.0 | 10 | 22.0 | 35.5 | 141 | 0.100 |
| 5KP24 | 26.70 | 32.60 | 5.0 | 10 | 24.0 | 43.0 | 116 | 0.101 |
| 5KP24A | 26.70 | 29.50 | 5.0 | 10 | 24.0 | 38.9 | 128 | 0.101 |
| 5KP26 | 28.90 | 35.30 | 5.0 | 10 | 26.0 | 46.6 | 107 | 0.101 |
| 5KP26A | 28.90 | 31.90 | 5.0 | 10 | 26.0 | 42.1 | 119 | 0.101 |
| 5KP28 | 31.10 | 38.00 | 5.0 | 10 | 28.0 | 50.1 | 99 | 0.102 |
| 5KP28A | 31.10 | 34.40 | 5.0 | 10 | 28.0 | 45.4 | 110 | 0.102 |
| 5KP30 | 33.30 | 40.70 | 5.0 | 10 | 30.0 | 53.5 | 93 | 0.103 |
| 5KP30A | 33.30 | 36.80 | 5.0 | 10 | 30.0 | 48.4 | 103 | 0.103 |

NOTES:

1 V_{BR} measured after $I_T =$ Square Wave Pulse or equivalent.

2. Surge Current waveform per Figure (Pulse Waveform) and Derate per Figure (Pulse Derating Curve).

Electrical Characteristics ($T_A = 25\text{ °C}$ unless otherwise noted)

| Type | Breakdown Voltage V_{BR} Volts (Note 1) | | @ I_R (mA) | Maximum Reverse Leakage Current | | Maximum Clamping Voltage | | Maximum Temperature Coefficient of V_{BR} (%C) |
|---------|---|-------|-----------------|------------------------------------|--------------|-----------------------------|--------------|--|
| | Min. | Max. | | I_{RM} (μ A) | V_{RM} (V) | V_{CL} (V) (Note 2) | I_{PP} (A) | |
| 5KP33 | 36.70 | 44.90 | 5.0 | 10 | 33.0 | 59.0 | 85 | 0.104 |
| 5KP33A | 36.70 | 40.60 | 5.0 | 10 | 33.0 | 53.3 | 94 | 0.104 |
| 5KP36 | 40.00 | 48.90 | 5.0 | 10 | 36.0 | 64.3 | 78 | 0.104 |
| 5KP36A | 40.00 | 44.20 | 5.0 | 10 | 36.0 | 58.1 | 85 | 0.104 |
| 5KP40 | 44.40 | 54.30 | 5.0 | 10 | 40.0 | 71.4 | 70 | 0.105 |
| 5KP40A | 44.40 | 49.10 | 5.0 | 10 | 40.0 | 64.5 | 78 | 0.105 |
| 5KP43 | 47.80 | 58.40 | 5.0 | 10 | 43.0 | 76.7 | 65 | 0.105 |
| 5KP43A | 47.80 | 52.80 | 5.0 | 10 | 43.0 | 69.4 | 72 | 0.105 |
| 5KP45 | 50.00 | 61.10 | 5.0 | 10 | 45.0 | 80.3 | 62 | 0.106 |
| 5KP45A | 50.00 | 55.30 | 5.0 | 10 | 45.0 | 72.7 | 69 | 0.106 |
| 5KP48 | 53.30 | 65.20 | 5.0 | 10 | 48.0 | 85.5 | 58 | 0.106 |
| 5KP48A | 53.30 | 58.90 | 5.0 | 10 | 48.0 | 77.4 | 65 | 0.106 |
| 5KP51 | 56.70 | 69.30 | 5.0 | 10 | 51.0 | 91.1 | 55 | 0.107 |
| 5KP51A | 56.70 | 62.70 | 5.0 | 10 | 51.0 | 82.4 | 61 | 0.107 |
| 5KP54 | 60.00 | 73.30 | 5.0 | 10 | 54.0 | 96.3 | 52 | 0.107 |
| 5KP54A | 60.00 | 66.30 | 5.0 | 10 | 54.0 | 87.1 | 57 | 0.107 |
| 5KP58 | 64.40 | 78.70 | 5.0 | 10 | 58.0 | 103 | 49 | 0.107 |
| 5KP58A | 64.40 | 71.20 | 5.0 | 10 | 58.0 | 94 | 53 | 0.107 |
| 5KP60 | 66.70 | 81.50 | 5.0 | 10 | 60.0 | 107 | 47 | 0.108 |
| 5KP60A | 66.70 | 73.70 | 5.0 | 10 | 60.0 | 97 | 52 | 0.108 |
| 5KP64 | 71.10 | 86.90 | 5.0 | 10 | 64.0 | 114 | 44 | 0.108 |
| 5KP64A | 71.10 | 78.60 | 5.0 | 10 | 64.0 | 103 | 49 | 0.108 |
| 5KP70 | 77.80 | 95.10 | 5.0 | 10 | 70.0 | 125 | 40 | 0.108 |
| 5KP70A | 77.80 | 86.00 | 5.0 | 10 | 70.0 | 113 | 44 | 0.108 |
| 5KP75 | 83.30 | 102 | 5.0 | 10 | 75.0 | 134 | 37 | 0.108 |
| 5KP75A | 83.30 | 92.10 | 5.0 | 10 | 75.0 | 121 | 41 | 0.108 |
| 5KP78 | 86.70 | 106 | 5.0 | 10 | 78.0 | 126 | 36 | 0.108 |
| 5KP78A | 86.70 | 95.80 | 5.0 | 10 | 78.0 | 126 | 40 | 0.108 |
| 5KP85 | 94.40 | 115 | 5.0 | 10 | 85.0 | 151 | 33 | 0.108 |
| 5KP85A | 94.40 | 104 | 5.0 | 10 | 85.0 | 137 | 36 | 0.110 |
| 5KP90 | 100 | 122 | 5.0 | 10 | 90.0 | 160 | 31 | 0.110 |
| 5KP90A | 100 | 111 | 5.0 | 10 | 90.0 | 146 | 34 | 0.110 |
| 5KP100 | 111 | 136 | 5.0 | 10 | 100 | 179 | 28 | 0.110 |
| 5KP100A | 111 | 123 | 5.0 | 10 | 100 | 162 | 31 | 0.110 |
| 5KP110 | 122 | 149 | 5.0 | 10 | 110 | 196 | 26 | 0.112 |
| 5KP110A | 122 | 135 | 5.0 | 10 | 110 | 177 | 28 | 0.112 |
| 5KP180 | 200 | 245 | 1.0 | 5 | 180 | 340 | 15 | 0.112 |
| 5KP180A | 200 | 222 | 1.0 | 5 | 180 | 322 | 16 | 0.112 |

NOTES:

1 V_{BR} measured after I_T = Square Wave Pulse or equivalent.

2. Surge Current waveform per Figure (Pulse Waveform) and Derate per Figure (Pulse Derating Curve).

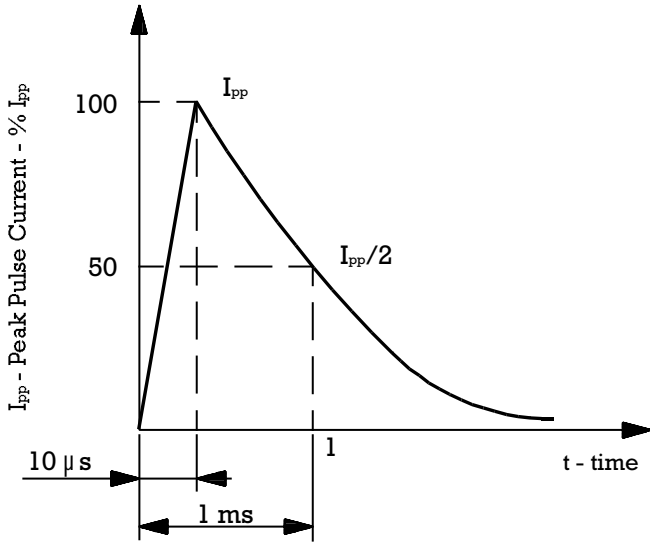
Electrical Characteristics ($T_A = 25\text{ °C}$ unless otherwise noted)

| Type | Breakdown Voltage V_{BR} Volts (Note 1) | | @ I_R (mA) | Maximum Reverse Leakage Current | | Maximum Clamping Voltage | | Maximum Temperature Coefficient of V_{BR} (%C) |
|---------|---|-------|-----------------|------------------------------------|--------------|-----------------------------|--------------|--|
| | Min. | Max. | | I_{RM} (μ A) | V_{RM} (V) | V_{CL} (V) (Note 2) | I_{PP} (A) | |
| 5KP7.5C | 8.33 | 10.20 | 5.0 | 250 | 7.5 | 14.3 | 350 | 0.073 |
| 5KP8.0C | 8.89 | 10.90 | 5.0 | 150 | 8.0 | 15.0 | 333 | 0.075 |
| 5KP8.5C | 9.44 | 11.50 | 5.0 | 50 | 8.5 | 15.9 | 314 | 0.078 |
| 5KP9.0C | 10.00 | 12.20 | 5.0 | 20 | 9.0 | 16.9 | 295 | 0.081 |
| 5KP10C | 11.10 | 13.60 | 5.0 | 15 | 10.0 | 18.8 | 266 | 0.084 |
| 5KP11C | 12.20 | 14.90 | 5.0 | 10 | 11.0 | 20.1 | 249 | 0.086 |
| 5KP12C | 13.30 | 16.30 | 5.0 | 10 | 12.0 | 22.0 | 227 | 0.088 |
| 5KP13C | 14.40 | 17.60 | 5.0 | 10 | 13.0 | 23.8 | 210 | 0.090 |
| 5KP14C | 15.60 | 19.10 | 5.0 | 10 | 14.0 | 25.8 | 194 | 0.092 |
| 5KP15C | 16.70 | 20.40 | 5.0 | 10 | 15.0 | 26.9 | 188 | 0.094 |
| 5KP16C | 17.80 | 21.80 | 5.0 | 10 | 16.0 | 28.8 | 176 | 0.096 |
| 5KP17C | 18.90 | 23.10 | 5.0 | 10 | 17.0 | 30.5 | 164 | 0.097 |
| 5KP18C | 20.00 | 24.40 | 5.0 | 10 | 18.0 | 32.2 | 155 | 0.098 |
| 5KP20C | 22.20 | 27.10 | 5.0 | 10 | 20.0 | 35.8 | 139 | 0.099 |
| 5KP22C | 24.40 | 29.80 | 5.0 | 10 | 22.0 | 39.4 | 127 | 0.100 |
| 5KP24C | 26.70 | 32.60 | 5.0 | 10 | 24.0 | 43.0 | 116 | 0.101 |
| 5KP26C | 28.90 | 35.30 | 5.0 | 10 | 26.0 | 46.6 | 107 | 0.101 |
| 5KP28C | 31.10 | 38.00 | 5.0 | 10 | 28.0 | 50.1 | 99 | 0.102 |
| 5KP30C | 33.30 | 40.70 | 5.0 | 10 | 30.0 | 53.5 | 93 | 0.103 |
| 5KP33C | 36.70 | 44.90 | 5.0 | 10 | 33.0 | 59.0 | 85 | 0.104 |
| 5KP36C | 40.00 | 48.90 | 5.0 | 10 | 36.0 | 64.3 | 78 | 0.104 |
| 5KP40C | 44.40 | 54.30 | 5.0 | 10 | 40.0 | 71.4 | 70 | 0.105 |
| 5KP43C | 47.80 | 58.40 | 5.0 | 10 | 43.0 | 76.7 | 65 | 0.105 |
| 5KP45C | 50.00 | 61.10 | 5.0 | 10 | 45.0 | 80.3 | 62 | 0.106 |
| 5KP48C | 53.30 | 65.20 | 5.0 | 10 | 48.0 | 85.5 | 58 | 0.106 |
| 5KP51C | 56.70 | 69.30 | 5.0 | 10 | 51.0 | 91.1 | 55 | 0.107 |
| 5KP54C | 60.00 | 73.30 | 5.0 | 10 | 54.0 | 96.3 | 52 | 0.107 |
| 5KP58C | 64.40 | 78.70 | 5.0 | 10 | 58.0 | 103 | 49 | 0.107 |
| 5KP60C | 66.70 | 81.50 | 5.0 | 10 | 60.0 | 107 | 47 | 0.108 |
| 5KP64C | 71.10 | 86.90 | 5.0 | 10 | 64.0 | 114 | 44 | 0.108 |
| 5KP70C | 77.80 | 95.10 | 5.0 | 10 | 70.0 | 125 | 40 | 0.108 |
| 5KP75C | 83.30 | 102 | 5.0 | 10 | 75.0 | 134 | 37 | 0.108 |
| 5KP78C | 86.70 | 106 | 5.0 | 10 | 78.0 | 126 | 36 | 0.108 |
| 5KP85C | 94.40 | 115 | 5.0 | 10 | 85.0 | 151 | 33 | 0.108 |
| 5KP90C | 100 | 122 | 5.0 | 10 | 90.0 | 160 | 31 | 0.110 |
| 5KP100C | 111 | 136 | 5.0 | 10 | 100 | 179 | 28 | 0.110 |
| 5KP110C | 122 | 149 | 5.0 | 10 | 110 | 196 | 26 | 0.112 |

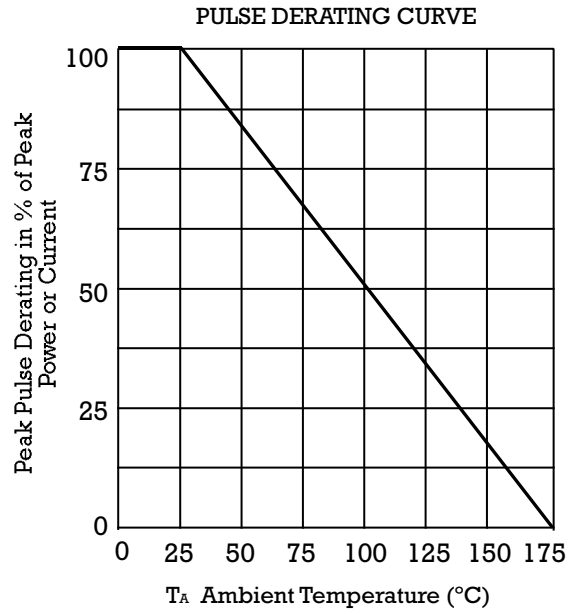
NOTES:

1 V_{BR} measured after $I_T =$ Square Wave Pulse or equivalent.

2. Surge Current waveform per Figure (Pulse Waveform) and Derate per Figure (Pulse Derating Curve).



Pulse wave form 10/1000



PULSE RATING CURVE

