

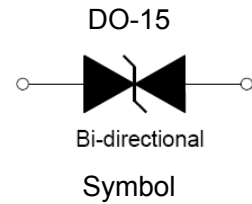
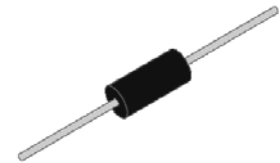


P6KE520CA 600W Transient Voltage Suppressor

Rev.1.2

DESCRIPTION

The P6KE520CA of high current transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.



FEATURES

- ✧ Low incremental surge resistance.
- ✧ Excellent clamping capability.
- ✧ High temperature wave soldering: 265°C/10s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ 600W peak pulse power capability at 10/1000µs 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.
- ✧ UL 497B item recognized. (File No.:E480698).
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------|------|
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +175 | °C |
| Peak pulse power dissipation at 10/1000µs waveform | P_{PP} | 600 | W |
| Steady state power dissipation at $T_L=75^\circ\text{C}$ | $P_{M(AV)}$ | 5.0 | W |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 20 | °C/W |
| Typical thermal resistance junction to ambient | $R_{\theta JA}$ | 75 | °C/W |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}C$)

| Part Number | V_R | $I_R@V_R$ | $V_{BR}@I_T$ | | I_T | $V_C@I_{PP}$ | $I_{PP}^{①}$ |
|-------------|-------|----------------|--------------|--------|-------|--------------|--------------|
| Bi-Polar | V | max(μA) | min(V) | max(V) | mA | max(V) | A |
| P6KE520CA | 445 | 1 | 494 | 546 | 1 | 710 | 0.85 |

① Surge waveform: 10/1000 μs

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

RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^{\circ}C$, unless otherwise noted)

FIG.1: V- I curve characteristics (Bi-directional)

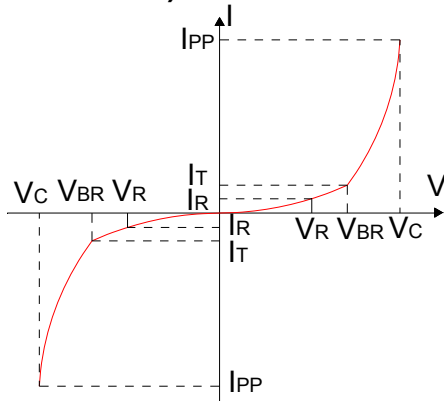


FIG.2: Pulse waveform

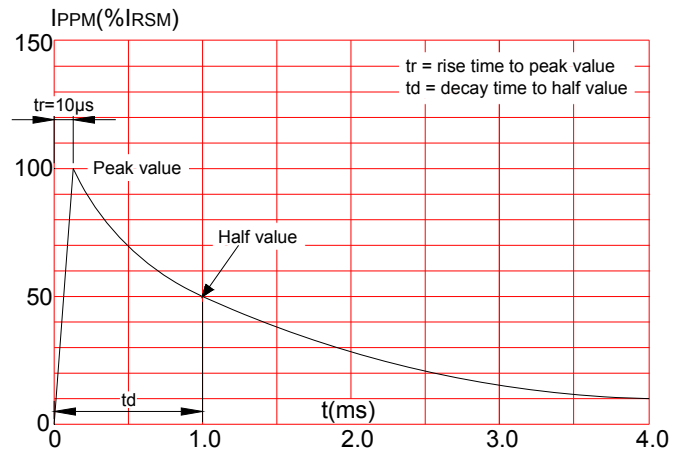
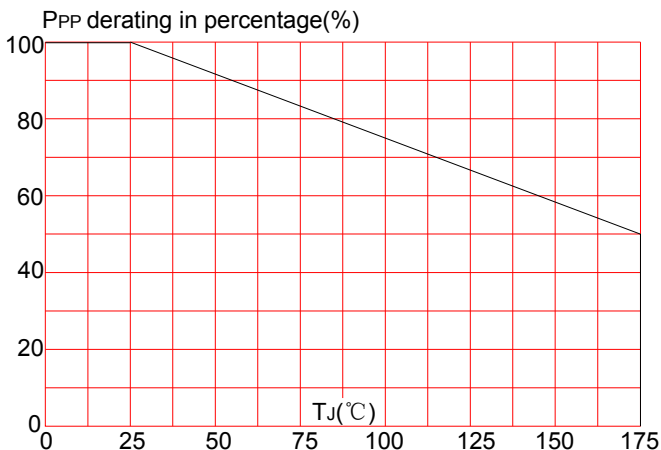
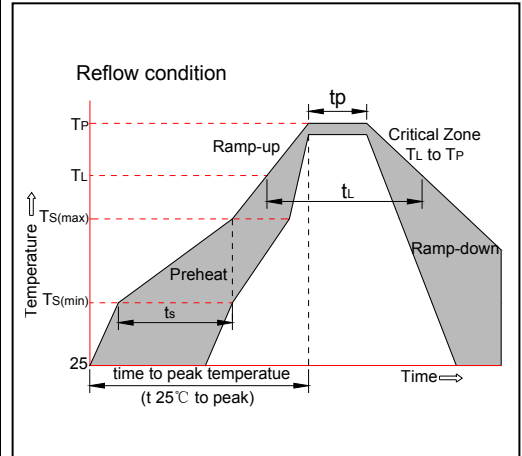


FIG.3: Pulse derating curve



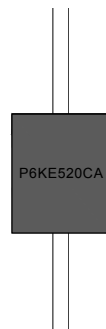
SOLDERING PARAMETERS

| | | |
|---|-----------------------------------|---|
| Reflow Condition | | Pb-Free assembly (see figure at right) |
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (t_s) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T_L)to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L)(Liquidus) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_p) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_p) | | 20-40secs. |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_p) | | 8 min. Max |
| Do not exceed | | +260°C |



| Flow/Wave Soldering(Solder Dipping) | |
|-------------------------------------|---------|
| Peak temperature | 265°C |
| Dipping time | 10 sec. |
| Soldering | 1 time |

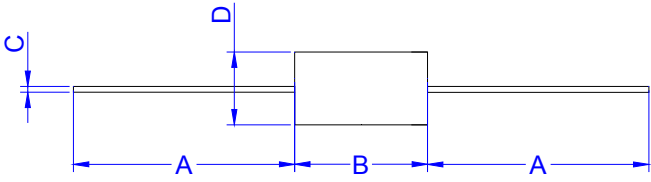
MARKING & ORDERING INFORMATION



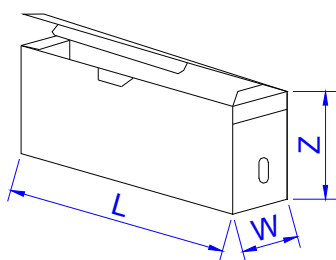
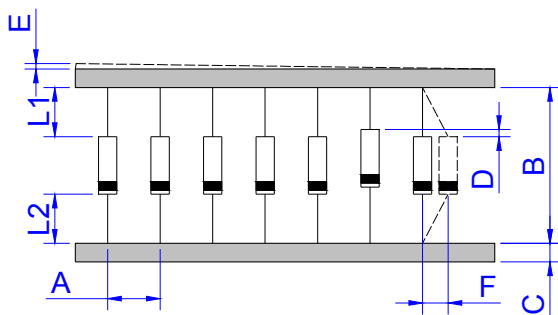
Product Type

- P6KE 520 C A
 (1) (2) (3) (4)
 (1)Series: 600 watts series
 (2) V_{BR} voltage code
 (3)Bi-directional
 (4)5% V_{BR} voltage tolerance

PACKAGE MECHANICAL DATA

|  <p>DO-15</p> | Ref. | Dimensions | | | |
|--|------|-------------|-------|--------|-------|
| | | Millimeters | | Inches | |
| | | Min. | Max. | Min. | Max. |
| | A | 25.40 | - | 1.000 | - |
| | B | 5.80 | 7.62 | 0.228 | 0.300 |
| C | 0.71 | 0.86 | 0.028 | 0.034 | |
| D | 2.60 | 3.60 | 0.102 | 0.142 | |

TAPE AND BOX SPECIFICATION-DO-15



| Ref. | Dimensions | |
|-------|-------------|-------------|
| | Millimeters | Inches |
| A | 5.0±0.5 | 0.197±0.020 |
| B | 53.0±1.5 | 2.087±0.059 |
| C | 6.0±0.5 | 0.236±0.020 |
| D | 1.2(MAX) | 0.047(MAX) |
| E | 0.8(MAX) | 0.031(MAX) |
| F | 1.5(MAX) | 0.059(MAX) |
| L1-L2 | 1.0(MAX) | 0.039(MAX) |
| W | 80±5.0 | 3.150±0.197 |
| L | 250±5.0 | 9.843±0.197 |
| Z | 115±5.0 | 4.528±0.197 |


| PART No. | UNIT WEIGHT (g/PCS) typ. | PER BOX (PCS) | PER CARTON (PCS) | DESCRIPTION |
|-----------|--------------------------|---------------|------------------|-------------|
| P6KE520CA | 0.42 | 2,000 | 20,000 | Box |

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