

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

| Characteristics | C122F | C122A | C122B | C122C | C122D | C122E | C122M | Units |
|---|-------------|-------|-------|-------|-------|-------|-------|------------------|
| $V_{RRM} \Delta V_{DRM} \Delta$ | 50 | 100 | 200 | 300 | 400 | 500 | 600 | V |
| $I_{T(RMS)}$ ($T_C = 75^\circ\text{C}$, $\theta = 180^\circ$) | 8 | | | | | | | A |
| I_{TSM} for one full cycle of applied principal voltage | | | | | | | | A |
| 400 Hz | 200 | | | | | | | |
| 60 Hz | 100 | | | | | | | |
| 50 Hz | 85 | | | | | | | |
| di/dt $V_D = V_{DRM}$, $I_{GT} = 80\text{mA}$, $t_r = 0.5\mu\text{s}$ | 100 | | | | | | | A/ μs |
| I^2t $T_J = -65$ to $+100^\circ\text{C}$, $t = 1$ to 8.3 ms | 40 | | | | | | | A ² s |
| P_{GM}^* (for 10 μs max) | 16 | | | | | | | W |
| $P_{G(AV)}^*$ (averaging time = 10 ms max) | 0.5 | | | | | | | W |
| T_{stg} | -65 to +150 | | | | | | | $^\circ\text{C}$ |
| T_C | -65 to +100 | | | | | | | $^\circ\text{C}$ |
| T_T During soldering for 10 s maximum | 250 | | | | | | | $^\circ\text{C}$ |

Δ These values do not apply if there is a positive gate signal. Gate must be open or negatively biased.

* Any values of peak gate current or peak gate voltage which result in equal or lower power are permissible.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

| Characteristics | Limits | | | Units |
|---|--------|------|------|---------------------------|
| | Min | Typ | Max | |
| I_{DOM} or I_{ROM} $V_D = V_{DRM}$ or $V_R = V_{RRM}$, $T_C = 100^\circ\text{C}$ | - | 0.1 | 0.5 | mA |
| V_T $I_T = 16\text{A}$, $T_C = 25^\circ\text{C}$ | - | 1.45 | 1.83 | V |
| I_{GT} $V_D = 12\text{V (DC)}$, $R_L = 30\Omega$, $T_C = 25^\circ\text{C}$ | - | 10 | 15 | mA |
| V_{GT} $V_D = 12\text{V (DC)}$, $R_L = 30\Omega$, $T_C = 25^\circ\text{C}$ | - | 1.0 | 1.5 | V |
| I_{HO} $T_C = 25^\circ\text{C}$ | - | 20 | 30 | mA |
| dv/dt $V_D = V_{DRM}$ exponential voltage rise, $T_C = 100^\circ\text{C}$ | 10 | 100 | - | V/ μs |
| t_{gt} $V_D = V_{DRM}$, $I_T = 4.5\text{A}$, $I_T = 2\text{A}$, $I_{GT} = 80\text{mA}$, 0.1 μs rise time, $T_C = 25^\circ\text{C}$ | - | 1.6 | 2.5 | μs |
| t_q $V_D = V_{DRM}$, $I_T = 2\text{A}$, $t_p = 50\mu\text{s}$, $dv/dt = 200\text{V}/\mu\text{s}$, $di/dt = -10\text{A}/\mu\text{s}$, $I_{GT} = 200\text{mA}$ @ t_{ON} , $T_C = 75^\circ\text{C}$ | - | 10 | 35 | μs |
| $R_{\theta JC}$ | - | - | 1.8 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | - | - | 75 | |

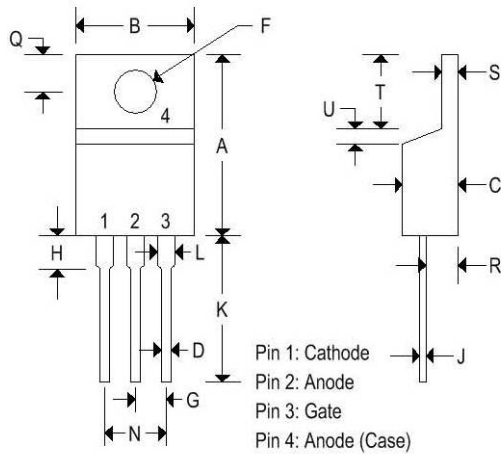
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C122 SERIES

SILICON CONTROLLED RECTIFIERS

MECHANICAL CHARACTERISTICS

| | |
|-----------|-----------------------------|
| Case: | TO-220AB |
| Marking: | Body painted, alpha-numeric |
| Polarity: | Cathode band |



| | TO-220AB | | | |
|---|----------|-------|-------------|--------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| A | 0.575 | 0.620 | 14.600 | 15.750 |
| B | 0.380 | 0.405 | 9.650 | 10.290 |
| C | 0.160 | 0.190 | 4.060 | 4.820 |
| D | 0.025 | 0.035 | 0.640 | 0.890 |
| F | 0.142 | 0.147 | 3.610 | 3.730 |
| G | 0.095 | 0.105 | 2.410 | 2.670 |
| H | 0.110 | 0.155 | 2.790 | 3.930 |
| J | 0.014 | 0.022 | 0.360 | 0.560 |
| K | 0.500 | 0.562 | 12.700 | 14.270 |
| L | 0.045 | 0.055 | 1.140 | 1.390 |
| N | 0.190 | 0.210 | 4.830 | 5.330 |
| Q | 0.100 | 0.120 | 2.540 | 3.040 |
| R | 0.080 | 0.110 | 2.040 | 2.790 |
| S | 0.045 | 0.055 | 1.140 | 1.390 |
| T | 0.235 | 0.255 | 5.970 | 6.480 |
| U | - | 0.050 | - | 1.270 |
| V | 0.045 | - | 1.140 | - |
| Z | - | 0.080 | - | 2.030 |

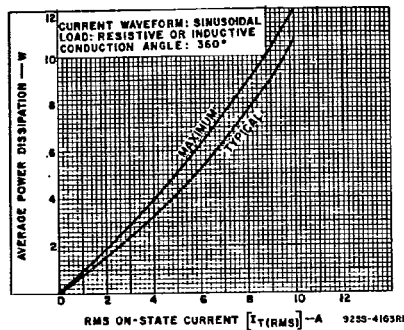


Fig. 1 — Power dissipation vs. on-state current.

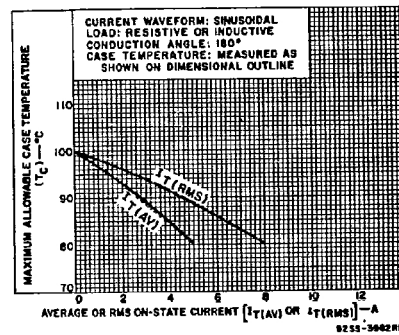


Fig. 2 — Maximum allowable case temperature vs. on-state current.

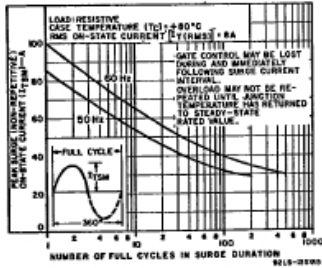


Fig. 3 — Allowable peak surge on-state current vs. surge duration.

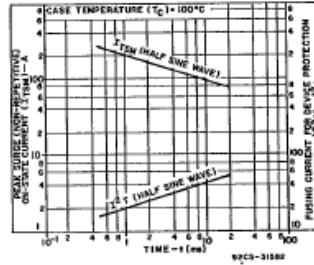


Fig. 4 — Peak surge on-state current and fusing current as a function of time.

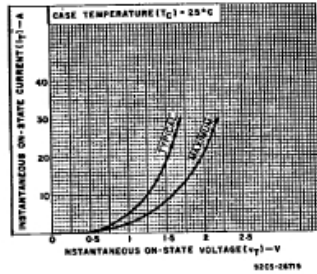


Fig. 5 — Instantaneous on-state current vs. on-state voltage.

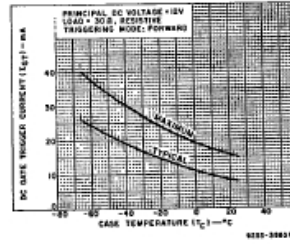


Fig. 6 — DC gate-trigger current vs. case temperature.

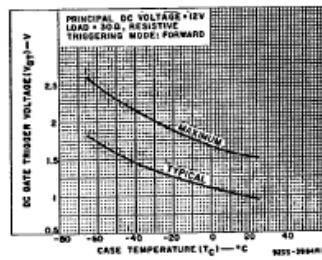


Fig. 7 — DC gate-trigger voltage vs. case temperature.

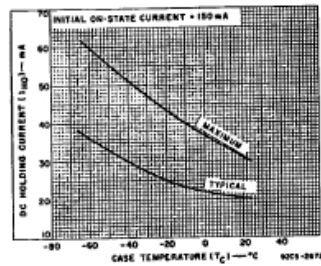


Fig. 8 — Holding current vs. case temperature.

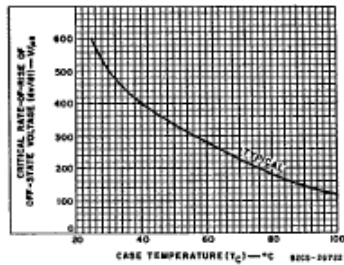


Fig. 9 — Critical rate of rise of off-state voltage vs. case temperature.

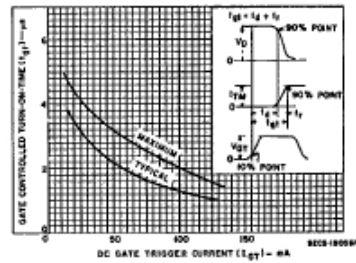


Fig. 10 — Gate-controlled turn-on time vs. gate trigger current.

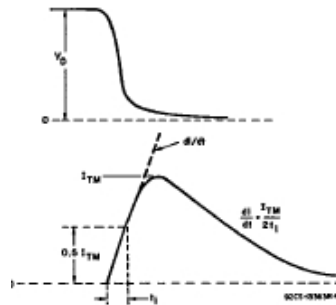


Fig. 11 — Rate of change of on-state current with time (defining dI/dt).

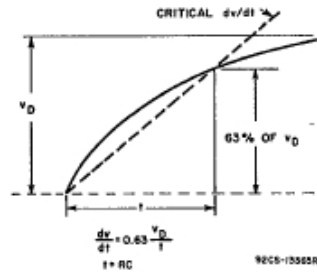


Fig. 12 — Rate of rise of off-state voltage with time (defining critical dv/dt).

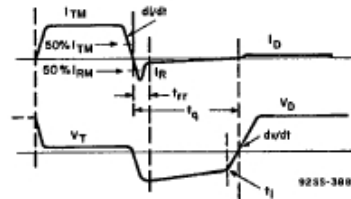


Fig. 13 — Relationship between instantaneous on-state current and voltage, showing reference points for measurement of circuit-commutated turn-off time (t_q).