

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 | Symbol | C180 | Units |
|---|-------------|-------------|------------------|
| RMS on-state current | I_{TRMS} | 235 | A |
| Average on-state current | $I_{T(AV)}$ | 150 | A |
| Peak one-cycle surge (non-repetitive) on-state current (60Hz) | I_{TSM} | 3500 | A |
| Peak one-cycle surge (non-repetitive) on-state current (50Hz) | I_{TSM} | 3200 | A |
| Critical rate of rise of on-state current (non-repetitive) | di/dt | 800 | A/ μ s |
| Critical rate of rise of on-state current (repetitive) | di/dt | 150 | A/ μ s |
| I^2t (for fusing), 8.3 ms | I^2t | 50,800 | A ² s |
| Peak gate power dissipation | P_{GM} | 10 | W |
| Average gate power dissipation | $P_{G(AV)}$ | 2 | W |
| Storage temperature | T_{stg} | -40 to +150 | $^{\circ}$ C |
| Operating temperature | T_J | -40 to +125 | $^{\circ}$ C |
| Mounting torque | | 250 to 300 | In. - Lb |
| Mounting torque | | 28 to 34 | N-m |

VOLTAGE RATINGS

| Characteristics | C180A | C180B | C180C | C180D | C180E | C180N | C180S | C180M | C180T | C180P | C180PB | C180PC |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Working peak reverse voltage | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 |

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

| Characteristics | Symbol | Test Conditions | C180 | Units |
|---|-----------------|---|-------|----------------|
| Voltage – Blocking State Maximums Forward leakage, peak | I_{DRM} | $T_J = 125^{\circ}$ C, $V_{DRM} = \text{Rated}$ | 20 | mA |
| Reverse leakage, peak | I_{RRM} | $T_J = 125^{\circ}$ C, $V_{RRM} = \text{Rated}$ | 20 | mA |
| Current – Conducting State Maximums Peak on-state voltage | V_{TM} | $T_C = 25^{\circ}$ C, $I_{TM} = 1500A$ peak | 2.85 | V |
| Switching Typical turn-off time | t_q | $I_T = 250A$, $T_J = 125^{\circ}$ C, dig/dt = 12.5A/ μ sec, reapplied dv/dt = 20V/ μ sec, linear to 0.8V, $V_R = 50V$ | 100 | μ sec |
| Typical delay time | t_d | $I_T = 100Adc$, $V_{DRM} = \text{Rated}$, gate supply = 10V open circuit, 25 Ω , 0.1 μ sec rise time | 1.0 | μ sec |
| Minimum critical dc/dt exponential to V_{DRM} | dv/dt | $T_J = 125^{\circ}$ C, gate open | 200 | V/ μ sec |
| Thermal Maximum thermal resistance, junction to case | $R_{\theta JC}$ | | 0.14 | $^{\circ}$ C/W |
| Case to sink, lubricated | $R_{\theta CS}$ | | 0.075 | $^{\circ}$ C/W |
| Gate – Maximum Parameter Gate current to trigger | I_{GT} | $T_C = 25^{\circ}$ C, $V_D = 6V$, $R_L = 3\Omega$ | 150 | mA |
| Gate voltage to trigger | V_{GT} | $V_D = 6V$, $T_C = -40$ to $+125^{\circ}$ C, $R_L = 3\Omega$ | 3.0 | Volts |
| Non-triggering gate voltage | V_{GDM} | $T_J = 125^{\circ}$ C, Rated V_{DRM} , $R_L = 1000\Omega$ | 0.15 | V |
| Peak forward gate current | I_{GTM} | | 10 | A |

C180A-C180PC SERIES

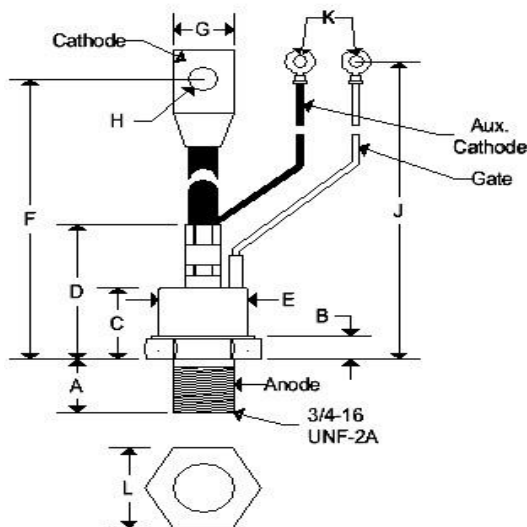
SILICON CONTROLLED RECTIFIERS

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

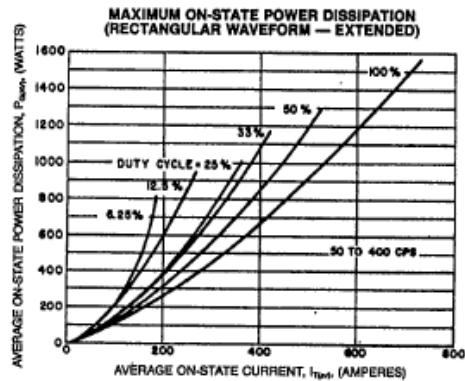
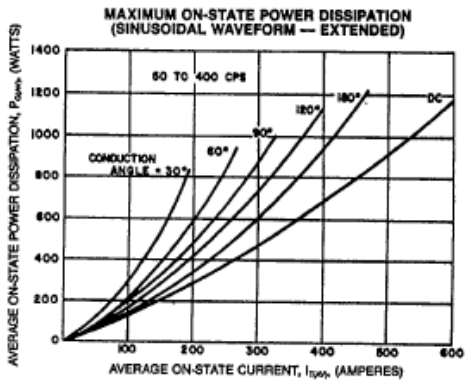
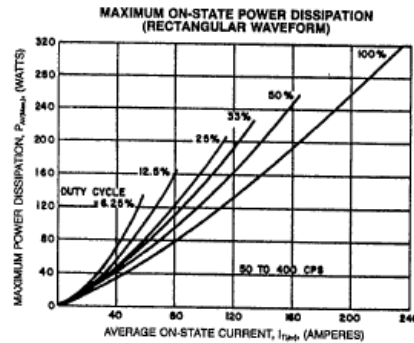
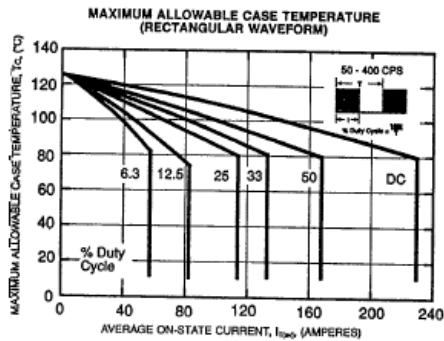
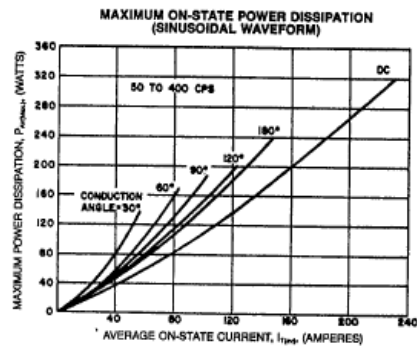
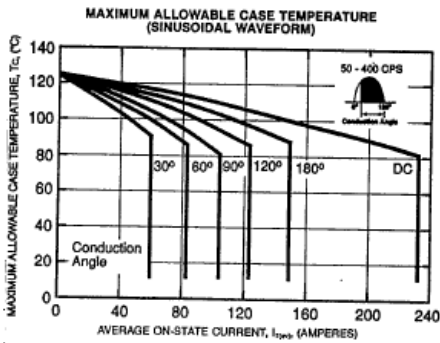
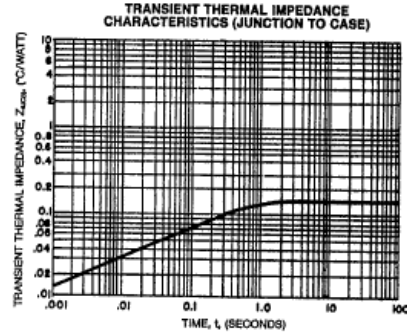
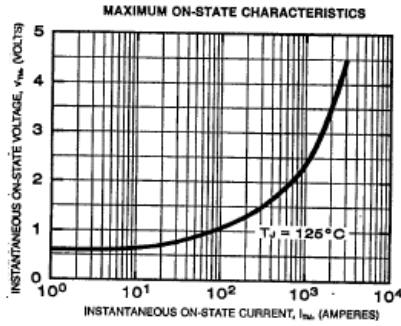
| Characteristics | Symbol | Test Conditions | C180 | Units |
|---------------------------|-----------|-----------------|------|-------|
| Peak reverse gate voltage | V_{GRM} | | 5 | V |

MECHANICAL CHARACTERISTICS

| | |
|-----------|---------------|
| Case: | TO-93 |
| Marking: | Alpha-numeric |
| Polarity: | Cathode band |

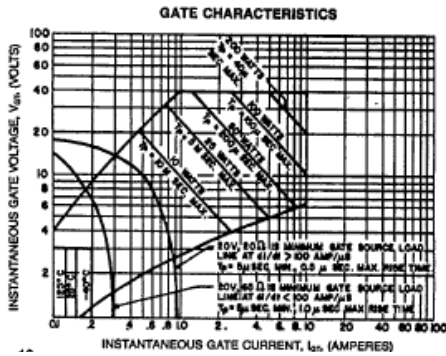
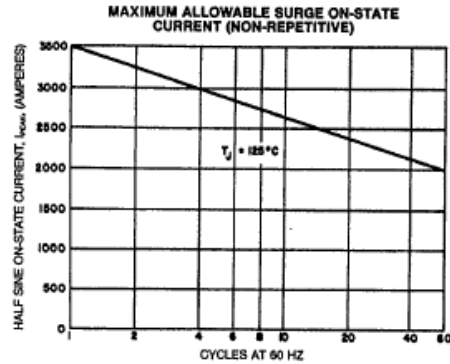
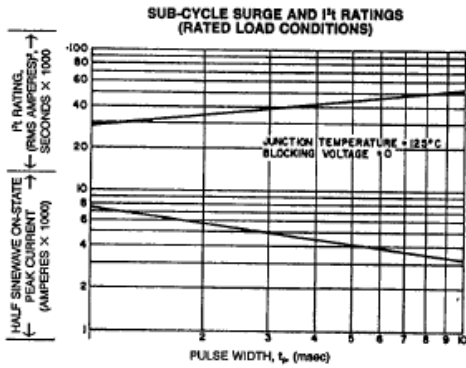


| | TO-93 | |
|---|---------|-------------|
| | Inches | Millimeters |
| | NOMINAL | NOMINAL |
| A | 1.060 | 26.900 |
| B | 0.550 | 14.000 |
| C | 1.500 | 38.100 |
| D | 2.250 | 57.200 |
| E | 1.070 | 27.200 |
| F | 7.910 | 200.900 |
| G | 0.630 | 16.000 |
| H | 0.281 | 7.140 |
| J | 7.910 | 200.900 |
| K | 0.146 | 3.710 |
| L | 1.245 | 31.620 |



C180A-C180PC SERIES

SILICON CONTROLLED RECTIFIERS



NOTES:

1. Maximum allowable average gate dissipation = 5 watts.
2. The locus of possible dc trigger points lie outside the boundaries shown at various case temperatures.
3. T_p = Rectangular gate current pulse width (5μs min. duration; 1.0μs max. rise time for 20V, 85Ω source).
4. 20V - 20Ω is the minimum gate source load line when rate of circuit current rise > 100 Amp/μs or anode rate of current rise > 200 Amps/μs (t_p = 5μs min., 0.5μs max. rise time).

Maximum long-term repetitive anode di/dt = 500 Amps/μs with 20V - 20Ω gate source.