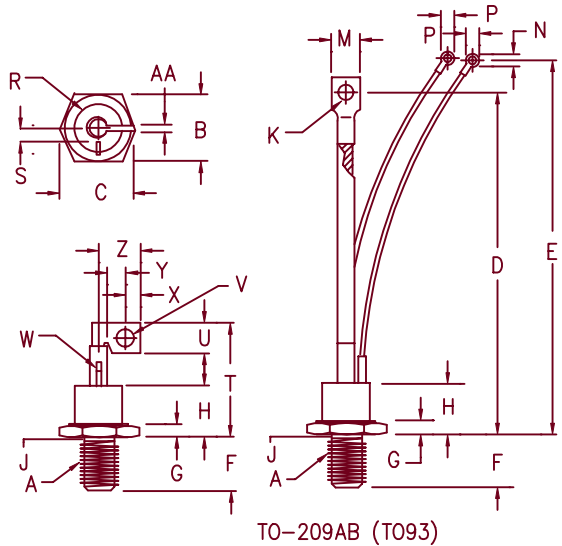


Silicon Controlled Rectifier Series 175C



Notes:

- 3/4-16 UNF-3A
- Full thread within 2 1/2 threads
- For insulated cathode lead, add suffix "IL" to catalog number

| Dim. | Inches | | Millimeter | | Notes |
|------|---------|---------|------------|---------|-------|
| | Minimum | Maximum | Minimum | Maximum | |
| A | --- | --- | --- | --- | 1 |
| B | 1.237 | 1.243 | 31.42 | 31.57 | |
| C | 1.350 | 1.360 | 34.29 | 34.54 | |
| D | 7.428 | 7.671 | 188.67 | 194.84 | |
| E | 7.382 | 8.100 | 187.50 | 205.74 | |
| F | 1.047 | 1.077 | 26.59 | 27.36 | |
| G | .365 | .385 | 9.27 | 9.78 | |
| H | --- | 1.383 | --- | 35.13 | |
| J | .660 | .749 | 16.76 | 19.02 | 2 |
| K | .338 | .348 | 8.59 | 8.84 | Dia. |
| M | .625 | .687 | 15.88 | 17.45 | |
| N | .140 | .150 | 3.56 | 3.81 | |
| P | --- | .295 | --- | 7.49 | |
| R | --- | 1.125 | --- | 28.56 | Dia. |
| S | .295 | .305 | 7.49 | 7.75 | |
| T | --- | 2.550 | --- | 64.77 | |
| U | .620 | .630 | 15.75 | 16.00 | |
| V | .276 | .286 | 7.01 | 7.26 | Dia. |
| W | .065 | .075 | 1.65 | 1.91 | Dia. |
| X | .245 | .255 | 6.22 | 6.48 | |
| Y | .243 | --- | 6.17 | --- | |
| Z | .770 | .790 | 19.56 | 20.07 | |
| AA | .120 | .130 | 3.05 | 3.30 | |

| Microsemi Catalog Number | Forward & Reverse Repetitive Blocking | Reverse Transient Blocking |
|--------------------------|---------------------------------------|----------------------------|
| 175C60B | 600 | 700 |
| 175C80B | 800 | 900 |
| 175C100B | 1000 | 1100 |
| 175C120B | 1200 | 1300 |

Add suffix "F" for flag lead

To specify dv/dt higher than 200V/usec., contact factory.

- High dv/dt—200 V/usec.
- 4000 Amperes surge current capability
- Low forward on-state voltage
- Primarily for line commutated converters
- Economical for general purpose phase control applications

Electrical Characteristics

| | | |
|-----------------------------------|-------------------------------|---------------------------------------|
| Max. RMS on-state current | $I_T(\text{RMS})$ 275 Amps | $T_C = 84^\circ\text{C}$ |
| Max. average on-state cur. | $I_T(\text{AV})$ 175 Amps | $T_C = 84^\circ\text{C}$ |
| Max. peak on-state voltage | V_{TM} 1.5 Volts | $I_{TM} = 500 \text{ A(peak)}$ |
| Max. holding current | I_H 200 mA | |
| Max. peak one cycle surge current | I_{TSM} 4000 A | $T_C = 84^\circ\text{C}, 60\text{Hz}$ |
| Max. I^2t capability for fusing | I^2t 66,000A ² S | $t = 8.3 \text{ ms}$ |

Thermal and Mechanical Characteristics

| | | |
|--------------------------------------|-----------------|----------------------------------|
| Operating junction temp range | T_J | -65°C to 125°C |
| Storage temperature range | T_{STG} | -65°C to 150°C |
| Maximum thermal resistance | $R_{\theta JC}$ | 0.17°C/W Junction to case |
| Typical thermal resistance (greased) | $R_{\theta CS}$ | 0.40°C/W Case to sink |
| Mounting torque | | 250-300 inch pounds |
| Weight | | 7.4 ounces (211.1 grams) typical |

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Switching

| | | | |
|--|---------|------------|---------------------------|
| Critical rate of rise of on-state current (note 1) | di/dt | 100A/usec. | $T_J = 125^\circ\text{C}$ |
| Typical delay time (note 1) | t_d | 3.0 usec. | |
| Typical circuit commuted turn-off time (note 2) | t_q | 100 usec. | $T_J = 125^\circ\text{C}$ |

Note 1: $I_{TM} = 100\text{A}$, $V_D = V_{DRM}$, $V_{GT} = 12\text{V}$ open circuit, 20 ohm-0.1 usec rise time
 Note 2: $I_{TM} = 100\text{A}$, $di/dt = 5\text{A/usec}$, V_R during turn-off interval = 50V min, reappplied $dv/dt = 20\text{V/usec}$., linear to rated V_{DRM} , $V_{GT} = 0\text{V}$

Triggering

| | | | |
|----------------------------------|-------------|-------|---------------------------|
| Max. gate voltage to trigger | V_{GT} | 3.0V | $T_J = 25^\circ\text{C}$ |
| Max. nontriggering gate voltage | V_{GD} | 0.25V | $T_J = 125^\circ\text{C}$ |
| Max. gate current to trigger | I_{GT} | 150mA | $T_J = 25^\circ\text{C}$ |
| Max. peak gate power | P_{GM} | 10W | |
| Average gate power | $P_{G(AV)}$ | 2.0W | |
| Max. peak gate current | I_{GM} | 2.0A | $t_p = 10 \text{ usec.}$ |
| Max. peak gate voltage (forward) | V_{GM} | 10V | |
| Max. peak gate voltage (reverse) | V_{GM} | 5.0V | |

Blocking

| | | | |
|--|-----------|------------|--|
| Max. leakage current | I_{DRM} | 15mA | $T_J = 125^\circ\text{C} \ \& \ V_{DRM}$ |
| Max. reverse leakage | I_{RRM} | 15mA | $T_J = 125^\circ\text{C} \ \& \ V_{RRM}$ |
| Critical rate of rise of off-state voltage | dv/dt | 200V/usec. | $T_J = 125^\circ\text{C}$ |

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Figure 1
Typical Forward On-State Characteristics

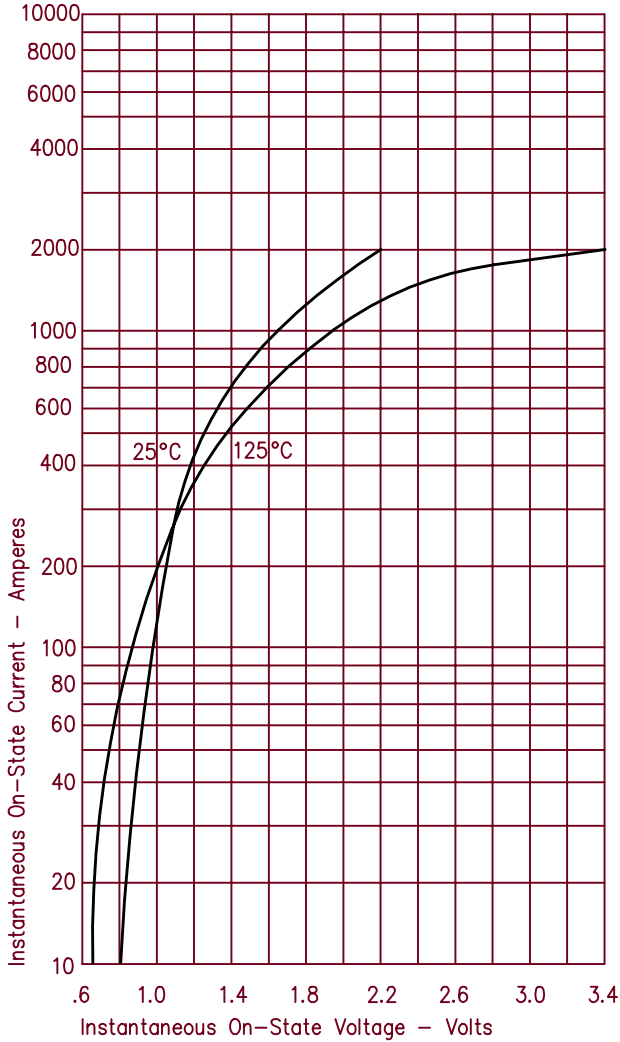


Figure 3
Maximum Power Dissipation

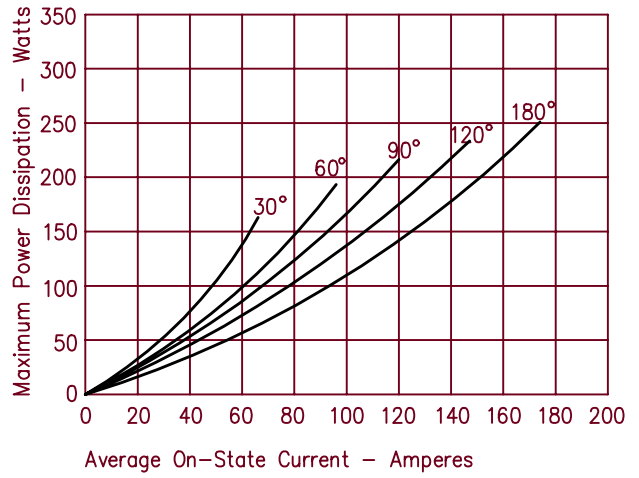


Figure 4
Transient Thermal Impedance

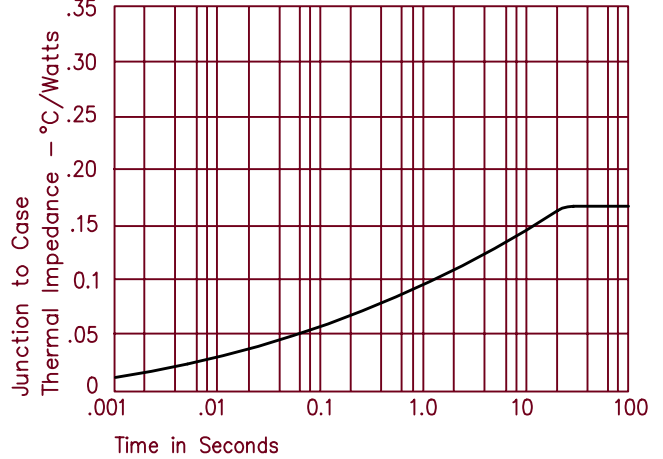


Figure 2
Forward Current Derating

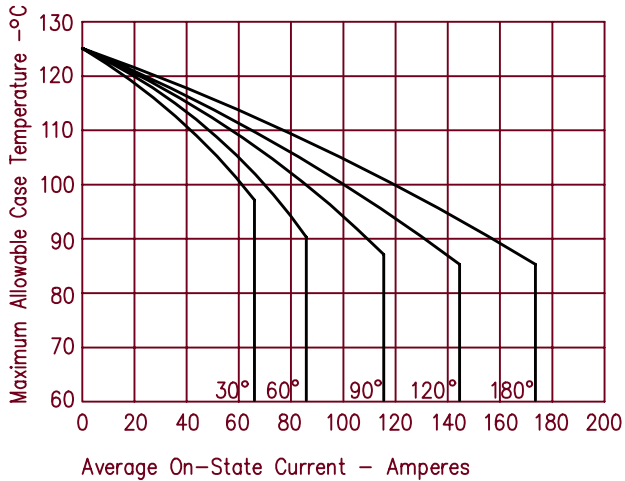
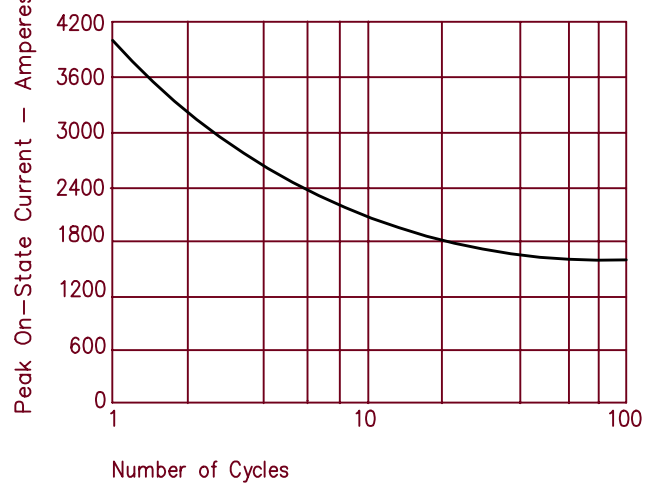


Figure 5
Maximum Nonrepetitive Surge Current





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