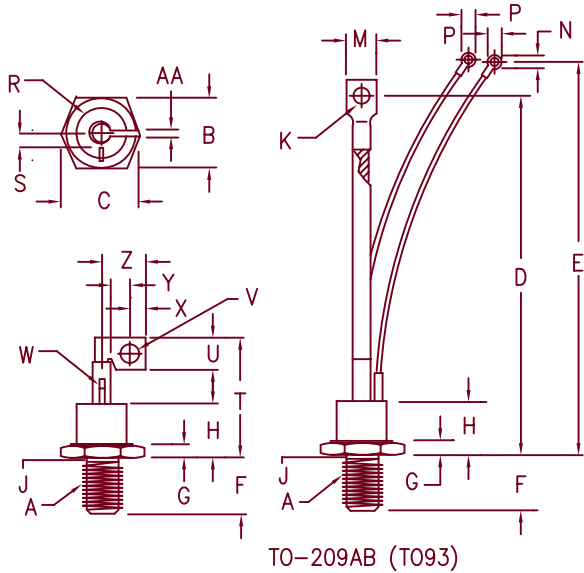


# Silicon Controlled Rectifier Series 175C



**Notes:**

1. 3/4-16 UNF-3A
2. Full thread within 2 1/2 threads
3. 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	$I_T(RMS)$ 275 Amps	$T_C = 84^\circ C$
Max. average on-state cur.	$I_T(AV)$ 175 Amps	$T_C = 84^\circ C$
Max. peak on-state voltage	$V_{TM}$ 1.5 Volts	$I_{TM} = 500$ A(peak)
Max. holding current	$I_H$ 200 mA	
Max. peak one cycle surge current	$I_{TSM}$ 4000 A	$T_C = 84^\circ C, 60Hz$
Max. $I^2t$ capability for fusing	$I^2t$ 66,000A <sup>2</sup> S	$t = 8.3$ 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 internal = 50V min,  
 reapplied  $dv/dt = 20\text{V/usec.}$ , 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

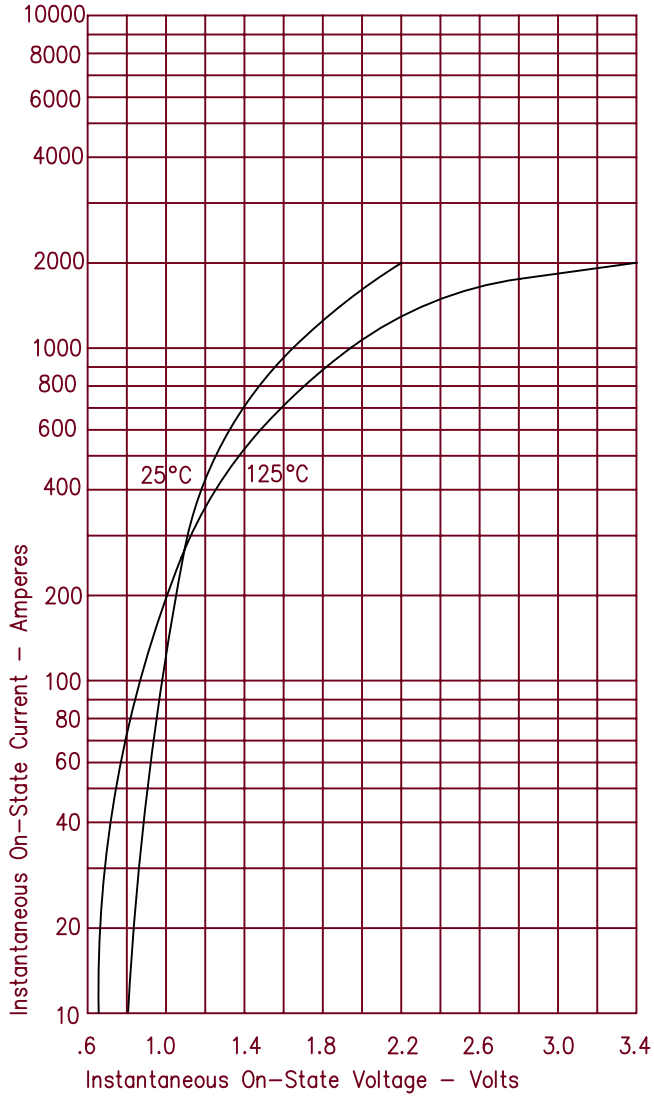


Figure 3  
Maximum Power Dissipation

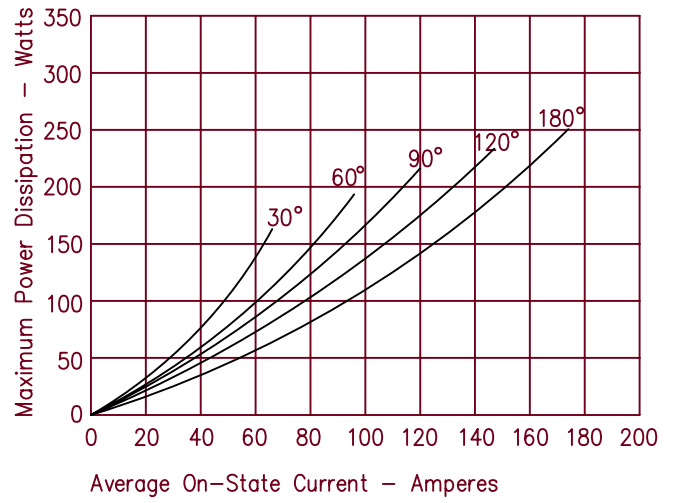


Figure 4  
Transient Thermal Impedance

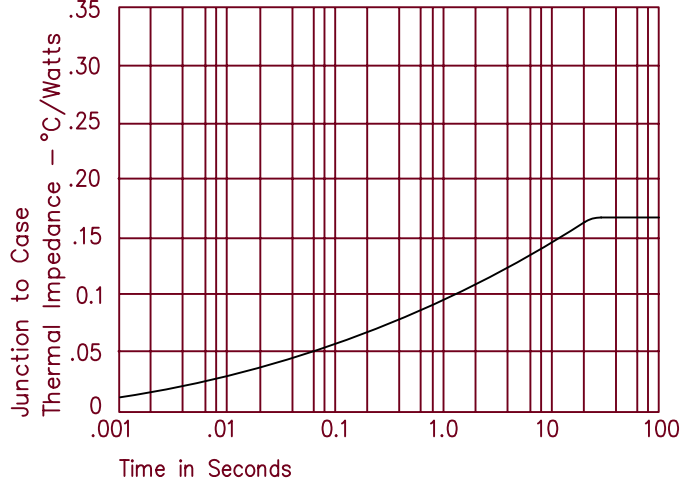


Figure 2  
Forward Current Derating

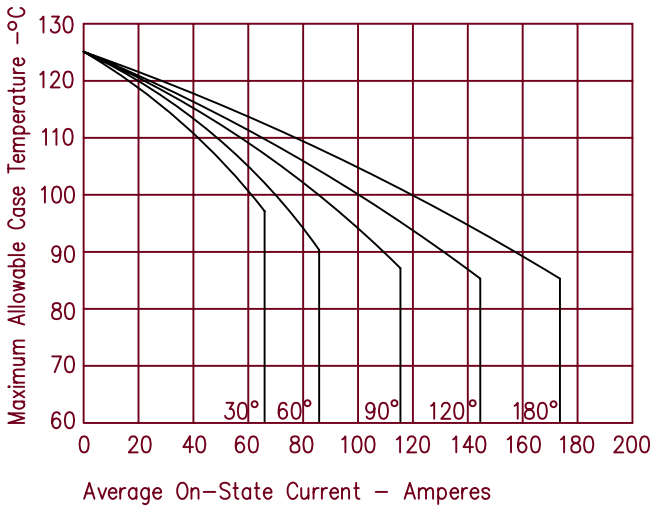


Figure 5  
Maximum Nonrepetitive Surge Current

