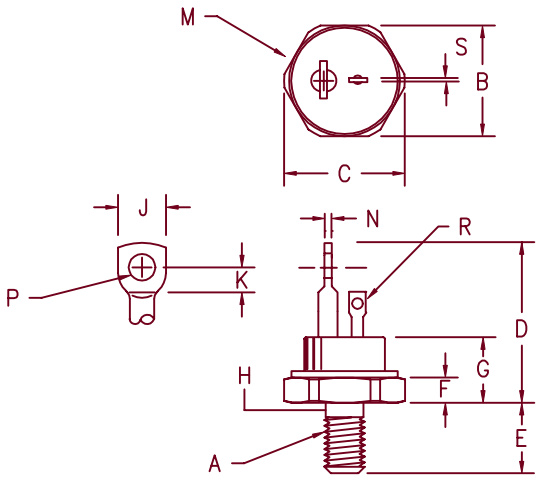
Silicon Controlled Rectifier
Series 050



Dim.	Inches		Millimeter		
	Minimum	Maximum	Minimum	Maximum	Notes
A	---	---	---	---	1
B	.677	.685	17.20	17.40	
C	---	.770	---	19.56	
D	1.200	1.250	30.48	31.75	
E	.427	.447	10.84	11.35	
F	.115	.155	2.92	3.94	
G	---	.515	---	13.08	
H	.220	.249	5.58	6.32	2
J	.200	.300	5.08	7.62	
K	.120	---	3.05	---	
M	---	.667	---	16.94	Dia.
N	.065	.085	1.65	2.15	
P	.145	.155	3.68	3.93	Dia.
R	.055	.065	1.40	1.65	Dia.
S	.025	.030	.64	.76	

Note 1: 1/4-28 UNF-3A
Note 2: Full thread within 2 1/2 threads

TO-208AC (TO-65)

Microsemi Catalog Number	Forward & Reverse Repetitive Blocking VDRM, VRRM	Reverse Transient Blocking
05002G0F	200	300
05004G0F	400	500
05006G0F	600	700
05008G0F	800	900
05010G0F	1000	1100
05012G0F	1200	1300

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

- dv/dt-200 V/usec
- 1200 Amperes surge current
- Economical for medium power applications
- Compact TO-208AC package

Electrical Characteristics

Max. RMS on-state current	$I_{T(RMS)}$	80 Amps	T_C = 94°C
Max. average on-state cur.	$I_{T(AV)}$	50 Amps	T_C = 94°C
Max. peak on-state voltage	V_{TM}	2.3 Volts	I_{TM} = 500 A(peak)
Max. holding current	I_H	200 mA	
Max. peak one cycle surge current	I_{TSM}	1200 Amps	T_C = 94°C 60Hz
Max. I^2t capability for fusing	I^2t	6000A^2S	t = 8.3 ms

Thermal and Mechanical Characteristics

Operating junction temp range	T_J	-65°C to 125°C
Storage temperature range	TSTG	-65°C to 150°C
Maximum thermal resistance	$R_{\theta JC}$	0.35°C/W Junction to case
Typical thermal resistance (greased)	$R_{\theta CS}$	0.20°C/W Case to sink
Mounting torque		25-30 inch pounds
Weight		0.56 ounces (16 grams) typical

8-31-00 Rev. 1

COLORADO Microsemi
800 Hoyt Street
Broomfield, CO. 80020
PH: (303) 469-2161
FAX: (303) 466-3775
www.microsemi.com

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T_J = 25°C unless otherwise indicated

Switching

Critical rate of rise of on-state current (note 1)	di/dt	200A/usec.	T_J = 125°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°C

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

Triggering

Max. gate voltage to trigger	V_{GT}	3.0V	
Max. nontriggering gate voltage	V_{GD}	0.25V	T_J = 125°C
Max. gate current to trigger	I_{GT}	100mA	
Max. peak gate power	P_{GM}	10W	
Average gate power	$P_{G(AV)}$	1.0W	t_p = 10 usec.
Max. peak gate current	I_{GM}	3.0A	
Max. peak gate voltage (forward)	V_{GM}	20V	
Max. peak gate voltage (reverse)	V_{GM}	10V	

Blocking

Max. leakage current	I_{DRM}	6mA	T_J = 125°C & V_{DRM}
Max. reverse leakage	I_{RRM}	6mA	T_J = 125°C & V_{RRM}
Critical rate of rise of off-state voltage	dv/dt	200V/usec.	T_J = 125°C

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Figure 1
Typical Forward On-State Characteristics

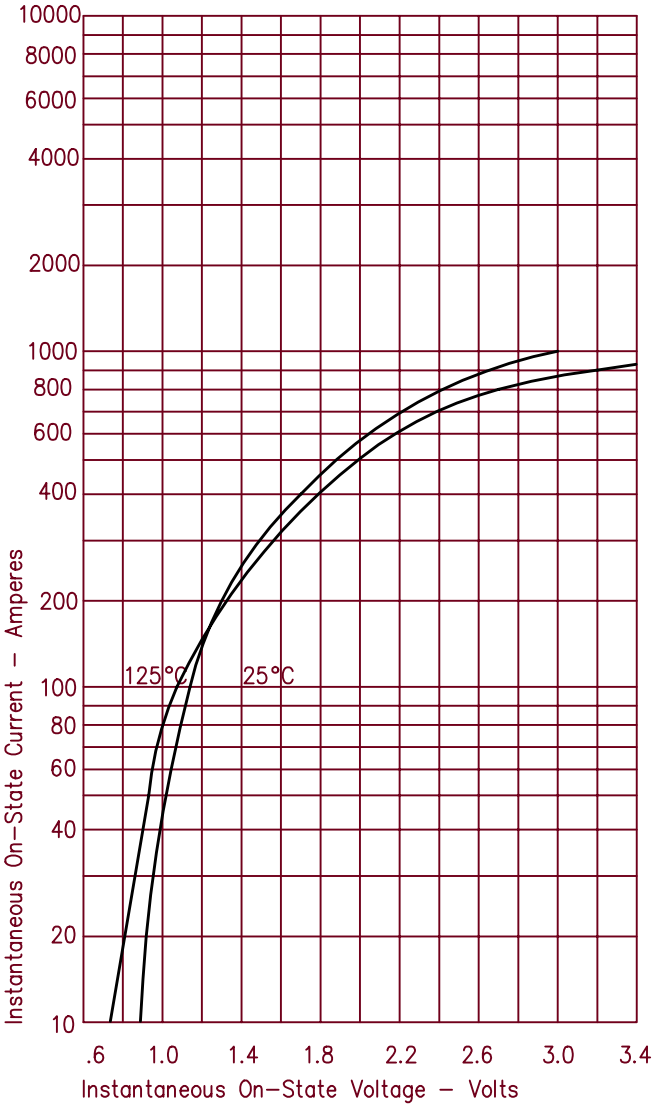

Figure 2
Forward Current Derating

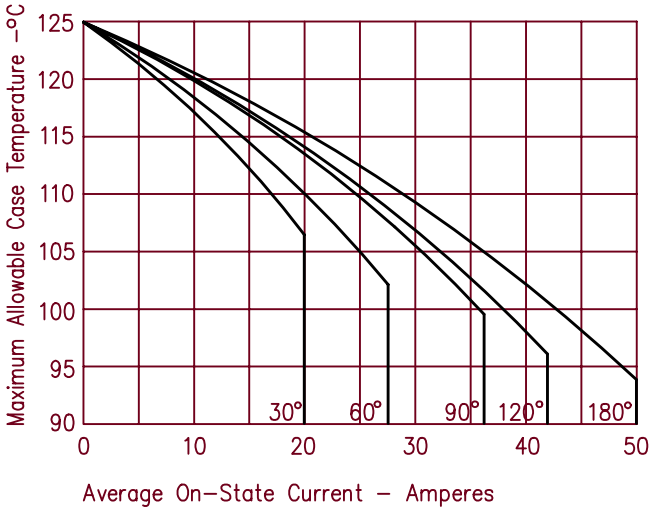

Figure 3
Maximum Power Dissipation

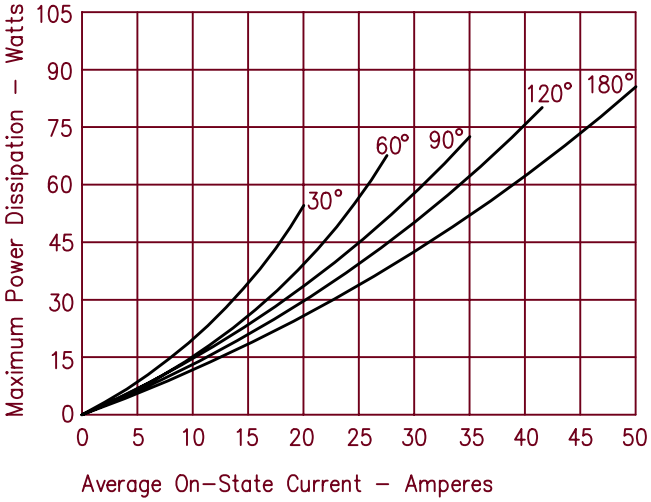

Figure 4
Transient Thermal Impedance

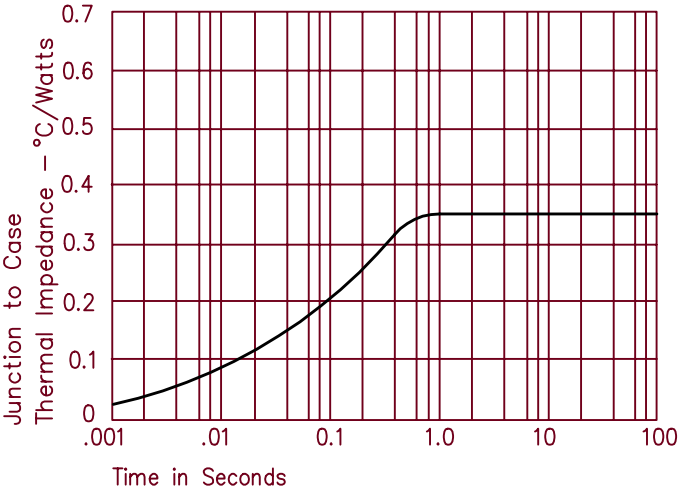

Figure 5
Maximum Nonrepetitive Surge Current