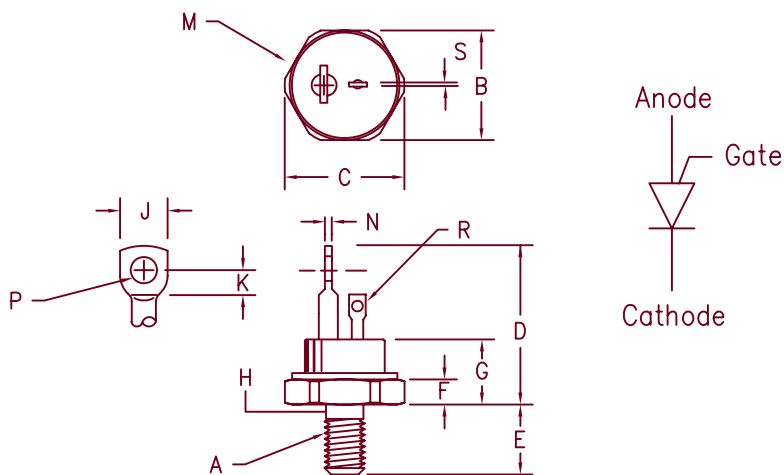


Anode Gate Silicon Controlled Rectifier Series 050R



Note 1: 1/4-28 UNF-3A

Note 2: Full thread within 2 1/2 threads

| Dim. | Inches | | Millimeter | | Notes |
|------|---------|---------|------------|---------|-------|
| | Minimum | Maximum | Minimum | Maximum | |
| 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 | |

TO-208AC (TO-65)

Microsemi
Catalog Number

050R02GOF
050R04GOF
050R06GOF
050R08GOF
050R10GOF
050R12GOF

Forward & Reverse
Repetitive Blocking
VDRM, VRRM

200
400
600
800
1000
1200

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
Max. average on-state cur.
Max. peak on-state voltage
Max. holding current
Max. peak one cycle surge current
Max. I^2t capability for fusing

$I_{T(RMS)}$ 80 Amps
 $I_{T(AV)}$ 50 Amps
 V_{TM} 1.5 Volts
 I_H 200 mA
 I_{TSM} 1200 Amps
 I^2t 6000A²S

$T_C = 94^\circ\text{C}$
 $T_C = 94^\circ\text{C}$
 $I_{TM} = 200 \text{ A(peak)}$
 $T_C = 94^\circ\text{C } 60\text{Hz}$
 $t = 8.3 \text{ ms}$

Thermal and Mechanical Characteristics

Operating junction temp range
Storage temperature range
Maximum thermal resistance
Typical thermal resistance (greased)
Mounting torque
Weight

T_J
 T_{STG}
 $R_{\theta JC}$
 $R_{\theta CS}$

-65°C to 125°C
-65°C to 150°C
0.35°C/W Junction to case
0.20°C/W Case to sink
25-30 inch pounds
0.56 ounces (16 grams) typical



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04-24-07 Rev. 3

050R

$T_J = 25^\circ\text{C}$ unless otherwise indicated

Switching

| | | | |
|--|---------|------------|---------------------------|
| Critical rate of rise of on-state current (note 1) | di/dt | 200A/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: $I_{TM} = 50\text{A}$, $V_D = V_{DRM}$. $V_{GT} = 12\text{V}$ open circuit, 20 ohm-0.1 usec. rise time

Note 2: $I_{TM} = 50\text{A}$, $di/dt = 5\text{A/usec.}$, V_R during turn-off interval = 50V min.,
reapplied $dv/dt = 20\text{V/usec.}$, linear to rated V_{DRM} , $V_{GT} = 0\text{V}$

Triggering – Third Quadrant

| | | | |
|---------------------------------|-------------|--------|---------------------------|
| Max. gate voltage to trigger | V_{GT} | -3.0V | $T_J = 125^\circ\text{C}$ |
| Max. nontriggering gate voltage | V_{GD} | -0.25V | |
| 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. |

NOTE: Triggering in the third quadrant requires a series gate current limiting resistor for 200mA and diode protection.

Blocking

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

050R

Figure 1
Typical Forward On-State Characteristics

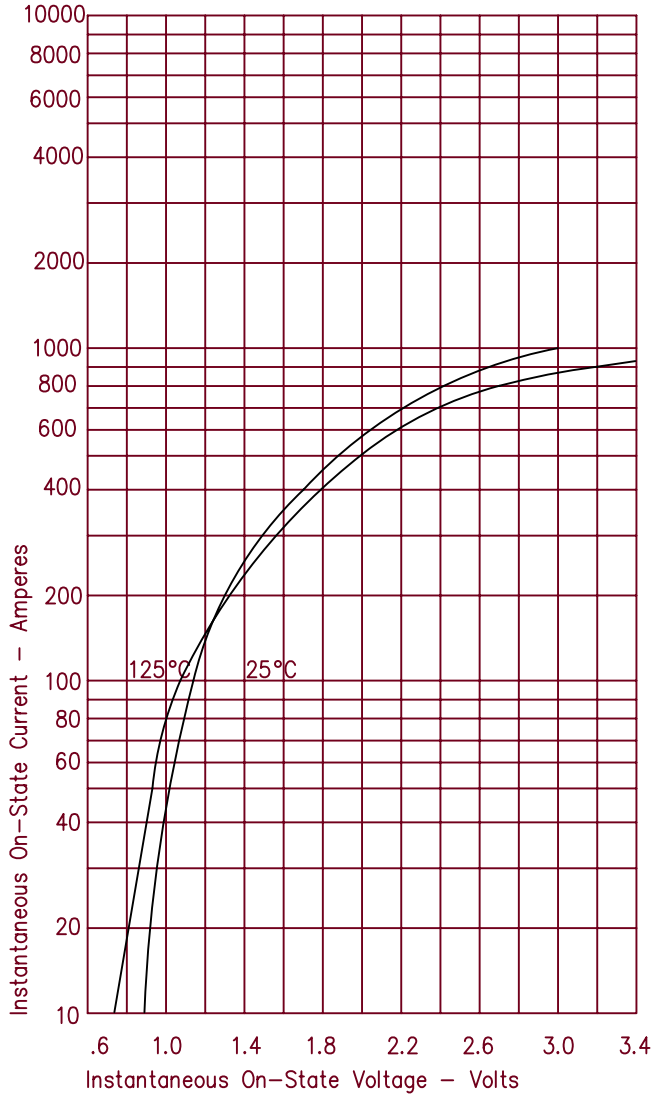


Figure 3
Maximum Power Dissipation

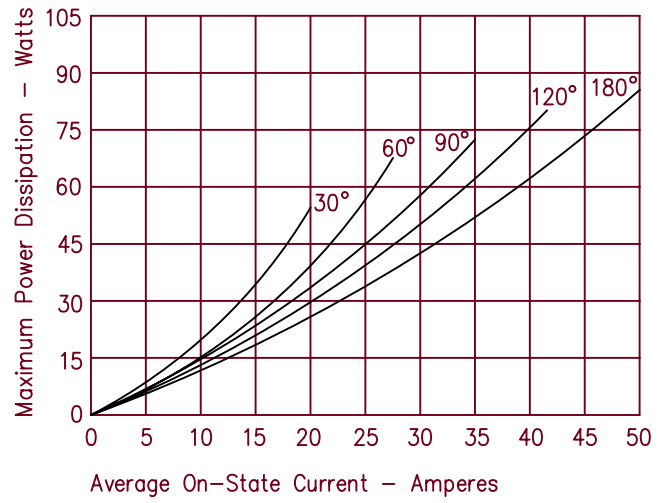


Figure 4
Transient Thermal Impedance

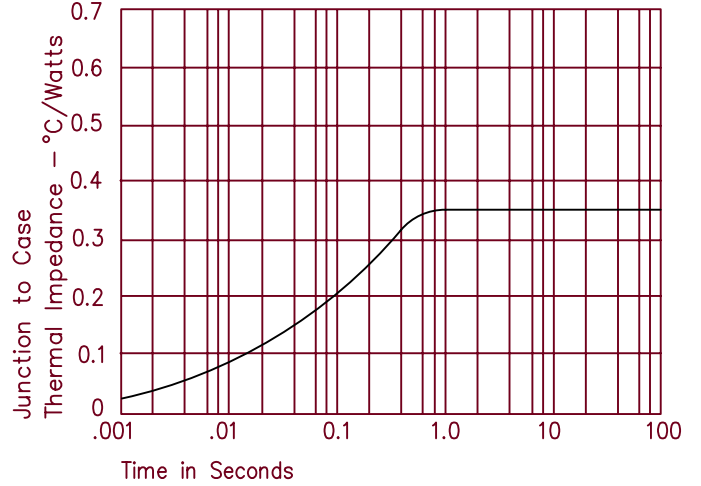


Figure 2
Forward Current Derating

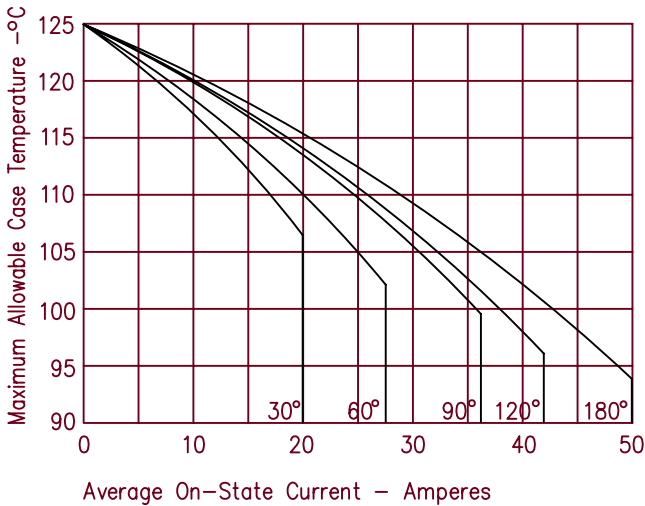


Figure 5
Maximum Nonrepetitive Surge Current

