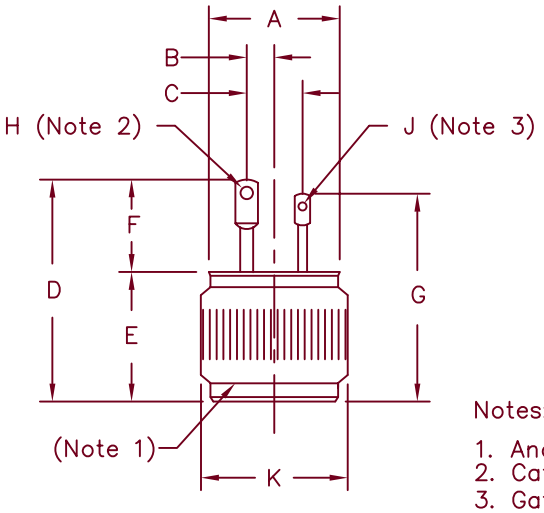
# Silicon Controlled Rectifier
# Series 023




Notes:

1. Anode connected to case
2. Cathode terminal
3. Gate terminal

| Dim. | Inches | | Millimeters | | |
|---|---|---|---|---|---|
| | Min. | Max. | Min. | Max. | Notes |
| A | 0.495 | 0.505 | 12.57 | 12.83 | |
| B | 0.068 | 0.080 | 1.73 | 2.03 | |
| C | 0.150 | 0.160 | 3.81 | 4.06 | |
| D | 0.705 | 0.754 | 17.91 | 19.15 | |
| E | 0.350 | 0.374 | 8.89 | 9.50 | |
| F | 0.345 | 0.380 | 8.76 | 9.65 | |
| G | 0.600 | 0.714 | 15.24 | 18.14 | |
| H | 0.070 | 0.087 | 1.78 | 2.21 | Dia. |
| J | 0.050 | 0.065 | 1.27 | 1.65 | Dia. |
| K | 0.500 | 0.503 | 12.54 | 12.78 | Dia. |

| Microsemi Catalog Number | Forward & Reverse Repetitive Blocking | Reverse Transient Blocking |
|---|---|---|
| 0230200L | 200V | 200V |
| 0230300L | 300V | 300V |
| 0230400L | 400V | 400V |
| 0230500L | 500V | 500V |
| 0230600L | 600V | 600V |

- dv/dt – 200V/μS
- 300 Amperes surge current
- Low forward on–state voltage
- Economical for medium power applications
- $V_{DRM}$/ $V_{RRM}$ 200V to 600V

## Electrical Characteristics

| | | | |
|---|---|---|---|
| Max average on–state current | $I_{T(AV)}$ | 23 Amps | $T_C$ = 68°C sine wave, $R_{\theta JC}$ = 1.65°C/W |
| Max peak on–state voltage | $V_{FM}$ | 1.8 Volts | $I_T$ = 100A: $T_J$ = 25°C |
| Max holding current | $I_H$ | 80 mA | |
| Max peak one cycle surge current | $I_{TSM}$ | 300 A | $T_J$ = 125°C, 8.3mS pulse |
| Max $I^2t$ capability for fusing | $I^2t$ | 370 $A^2s$ | t = 8.3mS |

## Thermal and Mechanical Characteristics

| | | |
|---|---|---|
| Storage temp range | $T_{STG}$ | –55°C to 125°C |
| Operating junction temp range | $T_J$ | –55°C to 125°C |
| Max thermal resistance | $R_{\theta JC}$ | 1.65°C/W junction to case |
| Typical thermal resistance | $R_{\theta CS}$ | 1.0°C/W case to sink |
| Weight | | 0.255 ounces (7.23 grams) typical |

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04–24–07 Rev.4

# Series 023

## Switching

| | | | |
|---|---|---|---|
| Critical rate of rise of on-state current (note 1) | di/dt | 100A/usec. | $T_J$ = 125°C |
| Typical delay time (note 1) | $t_d$ | 0.5 usec. | |
| Typical rise time (note 1) | $t_r$ | 3.0 usec. | |
| Typical turn-on time | $t_o$ | 3.5 usec. | |
| Typical circuit commuted turn-off time (note 2) | $t_q$ | 50 usec. | $T_J$ = 125°C |

Note 1: $I_{TM}$ = 20A, $V_D$ = $V_{DRM}$. $V_{GT}$ = 12V open circuit, 20 ohm-0.1 usec. rise time
Note 2: $I_{TM}$ = 20A, di/dt = 5A/usec., $V_R$ = 50V, dv/dt = 20V/usec., Rated $V_{DRM}$

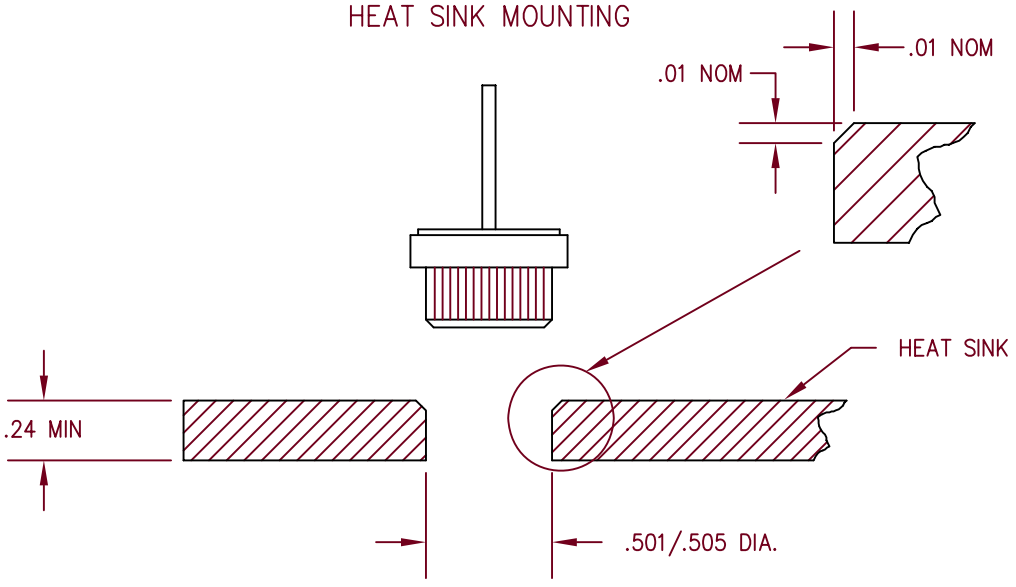
## Triggering

| | | | |
|---|---|---|---|
| Max. gate trigger voltage | $V_{GT}$ | 2.0V | |
| Max. nontriggering gate voltage | $V_{GD}$ | 0.25V | $T_J$ = 125°C |
| Max. gate trigger current | $I_{GT}$ | 40mA | |
| Max. peak gate power | $P_{GM}$ | 5.0W | |
| Average gate power | $P_{G(AV)}$ | 0.5W | |
| Max. peak gate current | $I_{GM}$ | 3.0A | |
| Max. peak gate voltage (forward) | $V_{GM}$ | 10.0V | |
| Max. peak gate voltage (reverse) | $V_{GM}$ | 5.0V | |

## Blocking

| | | | |
|---|---|---|---|
| Max. forward leakage current | $I_{DRM}$ | 10uA | $V_{DRM}$, $T_J$ =25° C |
| Max. reverse leakage current | $I_{RRM}$ | 10uA | $V_{RRM}$, $T_J$ =25° C |
| Max. forward leakage current | $I_{DRM}$ | 3.0mA | $V_{DRM}$, $T_J$ =125° C |
| Max. reverse leakage current | $I_{RRM}$ | 3.0mA | $V_{RRM}$, $T_J$ =125° C |
| Critical rate of rise of off-state voltage | dv/dt | 200V/usec. | $T_J$ =125° C |

HEAT SINK MOUNTING



# Series 023

Figure 1
Typical Forward Characteristics

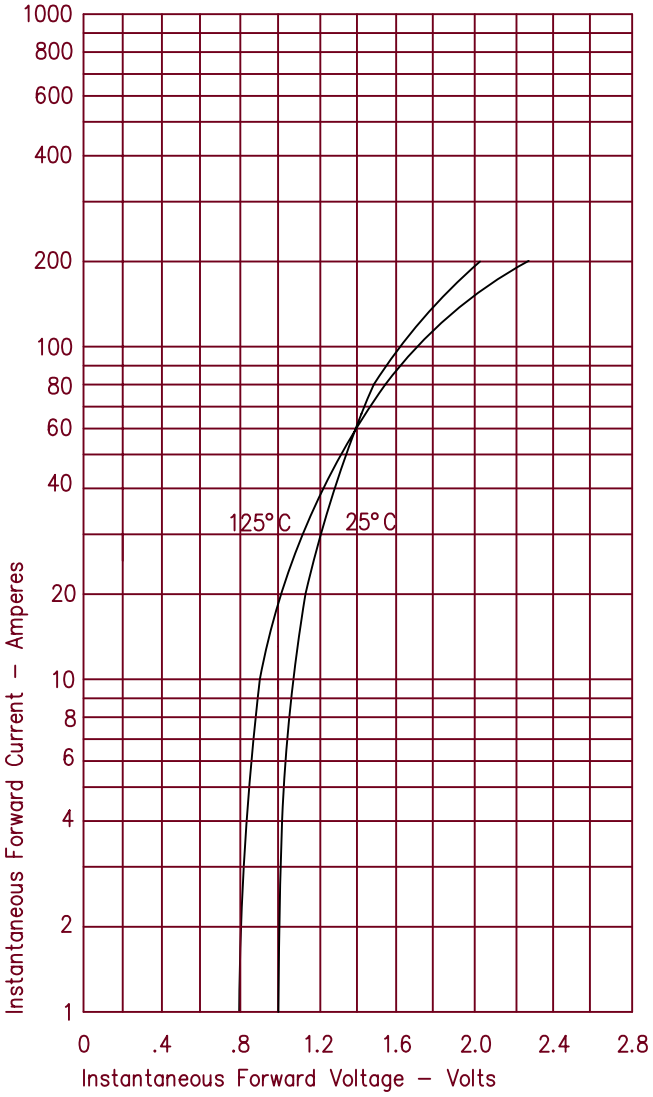



Figure 2
Forward Current Derating

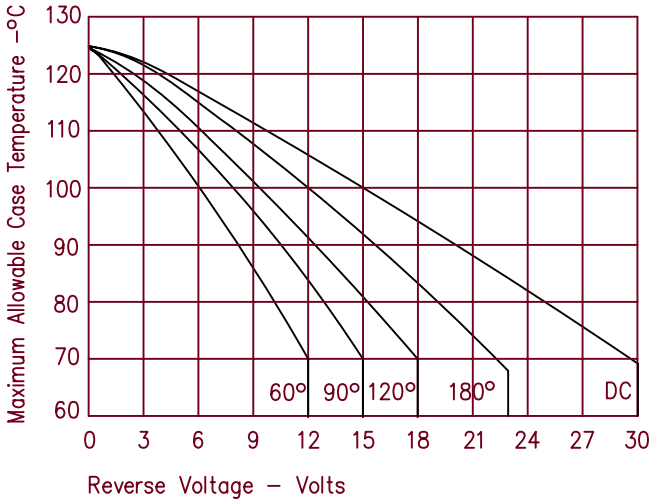



Figure 3
Maximum Forward Power Dissipation

