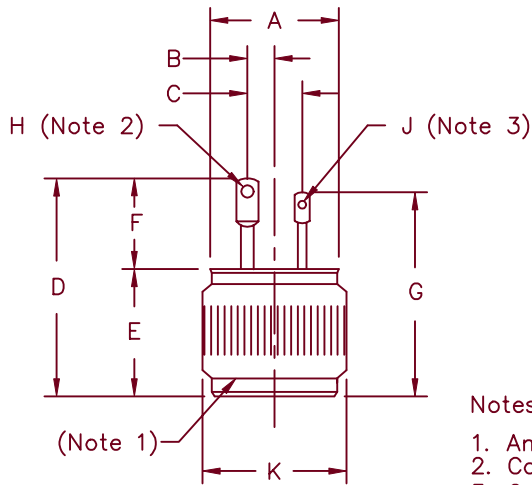


# Silicon Controlled Rectifier Series 023



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

	Dim. Inches		Millimeters		Notes
	Min.	Max.	Min.	Max.	
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

- $dv/dt = 200V/\mu s$
- 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	$T_C = 68^\circ C$ sine wave, $R_{\theta JC} = 1.65^\circ C/W$
Max peak on-state voltage	$V_{FM}$ 1.8 Volts	$I_T = 100A; T_J = 25^\circ C$
Max holding current	$I_H$ 80 mA	
Max peak one cycle surge current	$I_{TSM}$ 300 A	$T_J = 125^\circ C, 8.3ms$ pulse
Max $I^2t$ capability for fusing	$I^2t$ 370 A <sup>2</sup> s	$t = 8.3ms$

## Thermal and Mechanical Characteristics

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

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# Series 023

## 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)	$t_d$	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.	$T_J = 125^\circ\text{C}$

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

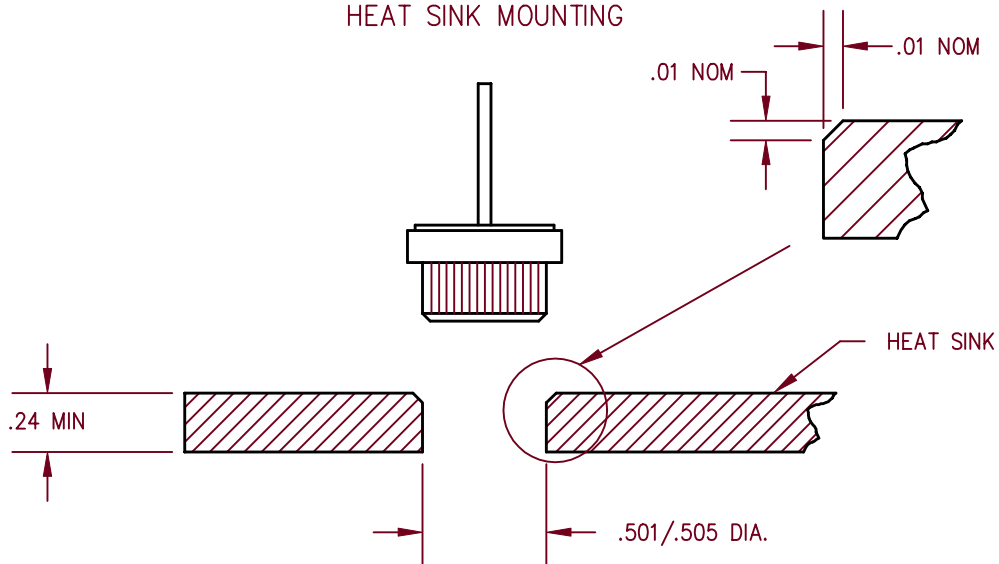
## Triggering

Max. gate trigger voltage	$V_{GT}$	2.0V	$T_J = 125^\circ\text{C}$
Max. nontriggering gate voltage	$V_{GD}$	0.25V	
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	$V_{DRM}$ , $T_J = 25^\circ\text{C}$
Max. reverse leakage current	$I_{RRM}$	10uA	$V_{RRM}$ , $T_J = 25^\circ\text{C}$
Max. forward leakage current	$I_{DRM}$	3.0mA	$V_{DRM}$ , $T_J = 125^\circ\text{C}$
Max. reverse leakage current	$I_{RRM}$	3.0mA	$V_{RRM}$ , $T_J = 125^\circ\text{C}$
Critical rate of rise of off-state voltage	$dv/dt$	200V/usec.	$T_J = 125^\circ\text{C}$

## HEAT SINK MOUNTING



# Series 023

Figure 1  
Typical Forward Characteristics

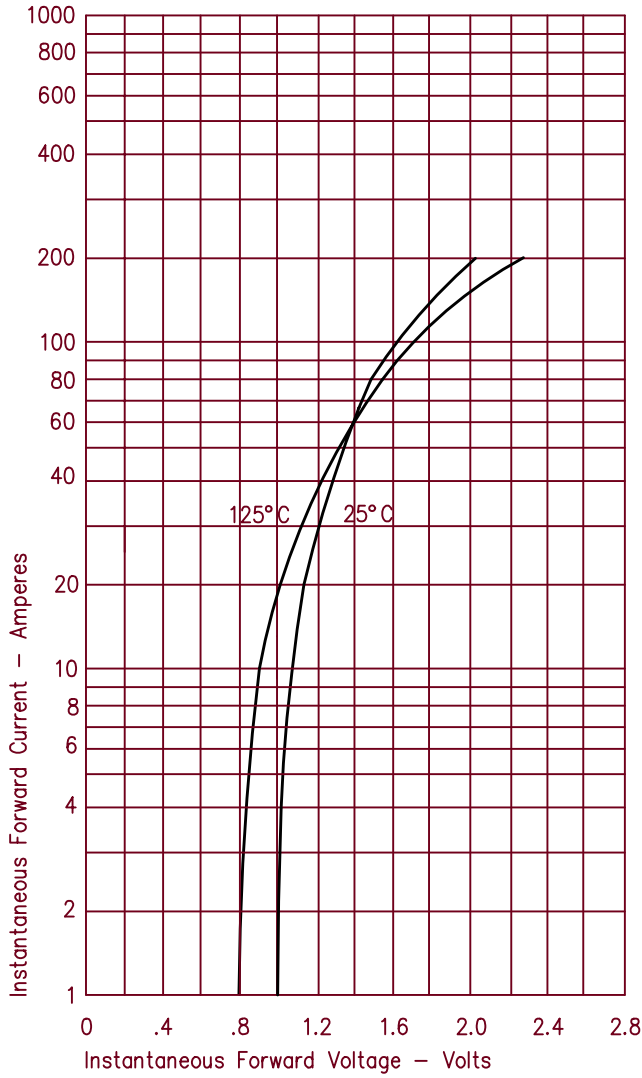


Figure 3  
Maximum Forward Power Dissipation

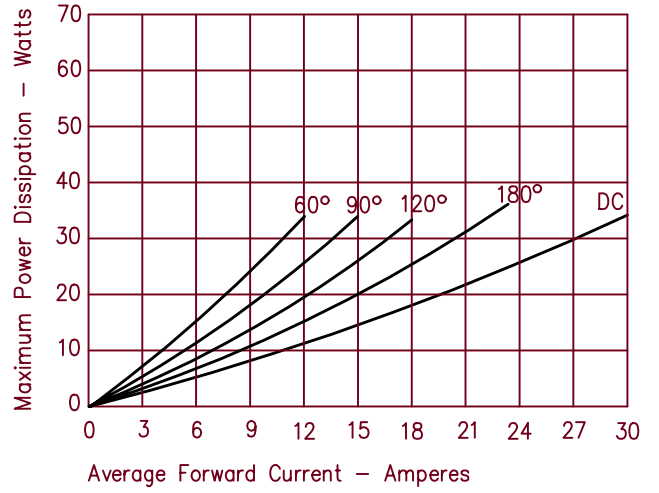
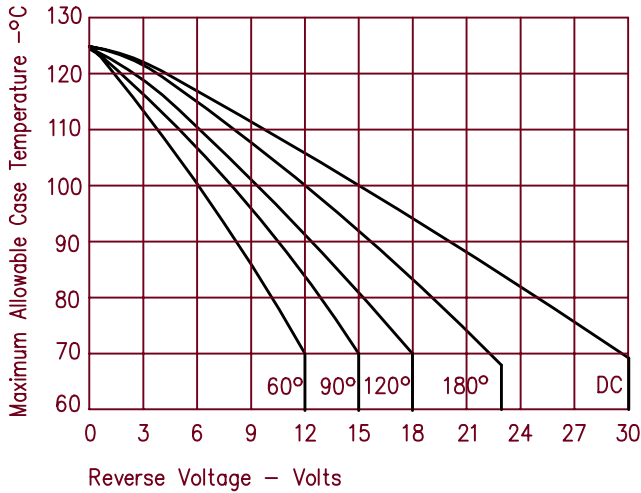


Figure 2  
Forward Current Derating



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