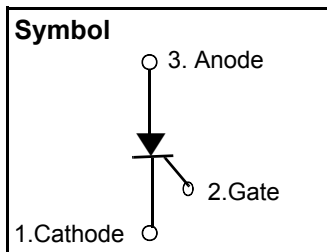


Sensitive Gate Silicon Controlled Rectifiers

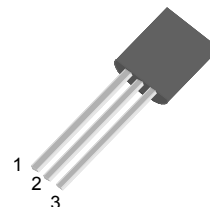


$$BV_{\text{DRM}} = 600\text{V}$$

$$I_{\text{T(RMS)}} = 1.0\text{A}$$

$$I_{\text{TSM}} = 10\text{A}$$

TO-92



Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{\text{T(RMS)}} = 1.0\text{ A}$)
- ◆ Low On-State Voltage (1.3V(Typ.))

General Description

Sensitive-gate triggering thyristor is suit able for the application where gate current limited such as small motor control, gate driver for large thyristor, sensing and detecting circuits.

This device may substitute for MCR100-6, MCR100-8 series.

Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Condition	Ratings	Units
V_{DRM}	Repetitive Peak Off-State Voltage	sine wave, 50 to 60Hz	600	V
$I_{\text{T(AV)}}$	Average On-State Current	half sine wave : $T_C = 83^\circ\text{C}$	0.5	A
$I_{\text{T(RMS)}}$	R.M.S On-State Current	All Conduction Angle	1.0	A
I_{TSM}	Surge On-State Current	1/2 Cycle, 60Hz, sine wave non-repetitive , $t = 8.3\text{ms}$	10	A
I^2t	I^2t for Fusing	$t = 8.3\text{ms}$	0.415	A^2s
P_{GM}	Forward Peak Gate Power Dissipation	$T_A = 25^\circ\text{C}$, pulse width $\leq 1.0\mu\text{s}$	2	W
$P_{\text{G(AV)}}$	Forward Average Gate Power Dissipation	$T_A = 25^\circ\text{C}$, $t = 8.3\text{ms}$	0.1	W
I_{FGM}	Forward Peak Gate Current	$T_A = 25^\circ\text{C}$, pulse width $\leq 1.0\mu\text{s}$	1	A
V_{RGM}	Reverse Peak Gate Voltage	$T_A = 25^\circ\text{C}$, pulse width $\leq 1.0\mu\text{s}$	5.0	V
T_J	Operating Junction Temperature		- 40 ~ 110	$^\circ\text{C}$
T_{STG}	Storage Temperature		- 40 ~ 150	$^\circ\text{C}$



CR100-8

Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Items	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive Peak Off-State Current	$V_{\text{AK}} = V_{\text{DRM}}$ or V_{RRM} ; $R_{\text{GK}} = 1000\ \Omega$ $T_{\text{C}} = 25^\circ\text{C}$ $T_{\text{C}} = 110^\circ\text{C}$	— —	— —	10 100	μA
V_{TM}	Peak On-State Voltage (1)	($I_{\text{TM}} = 1\ \text{A}$, Peak)	—	1.3	1.7	V
I_{GT}	Gate Trigger Current (2)	$V_{\text{AK}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$	—	--	200	μA
V_{GT}	Gate Trigger Voltage (2)	$V_{\text{D}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$	--	--	0.8	V
V_{GD}	Non-Trigger Gate Voltage (1)	$V_{\text{AK}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$ $T_j = 125^\circ\text{C}$	0.2	—	—	V
dv/dt	Critical Rate of Rise Off-State Voltage		10	--	--	$\text{V}/\mu\text{s}$
di/dt	Critical Rate of Rise On-State Voltage	$I_{\text{TM}} = 2\ \text{A}$; $I_{\text{g}} = 10\ \text{mA}$	—	—	50	$\text{A}/\mu\text{s}$
I_{H}	Holding Current	$V_{\text{AK}} = 12\ \text{V}$, Gate Open Initiating Current = 20mA	---	0.8	10	mA
$R_{\text{th(j-c)}}$	Thermal Impedance	Junction to case	—	—	60	$^\circ\text{C}/\text{W}$
$R_{\text{th(j-a)}}$	Thermal Impedance	Junction to Ambient	—	—	150	$^\circ\text{C}/\text{W}$



Fig 1. Gate Characteristics

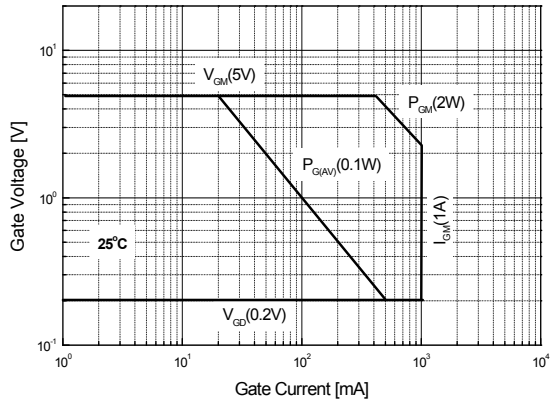


Fig 2. Maximum Case Temperature

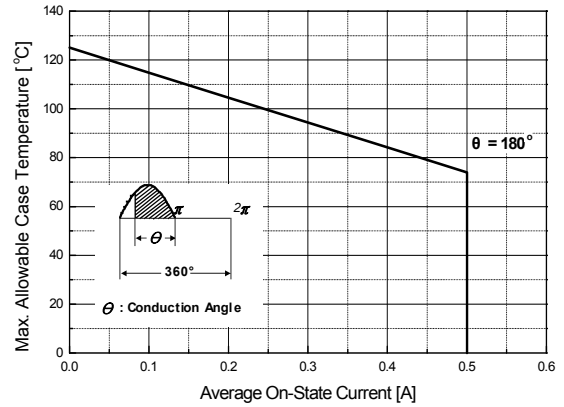


Fig 3. Typical Forward Voltage

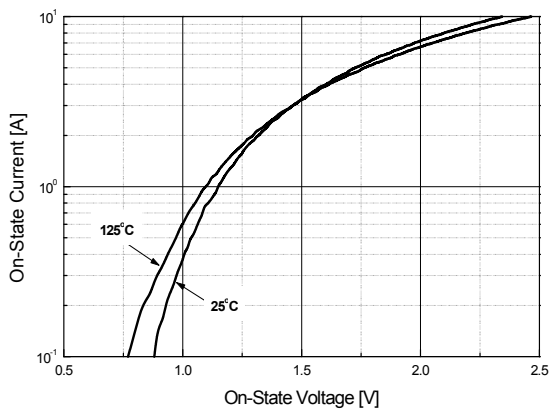


Fig 4. Thermal Response

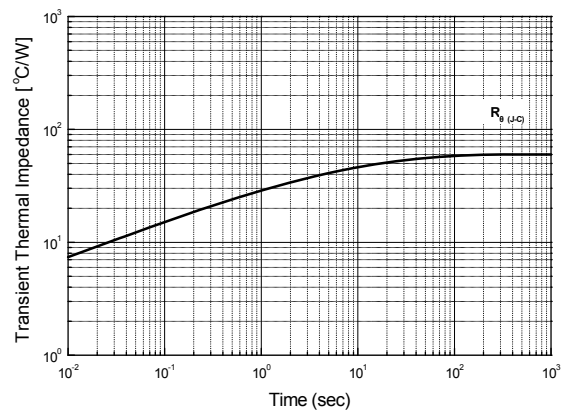


Fig 5. Typical Gate Trigger Voltage vs.

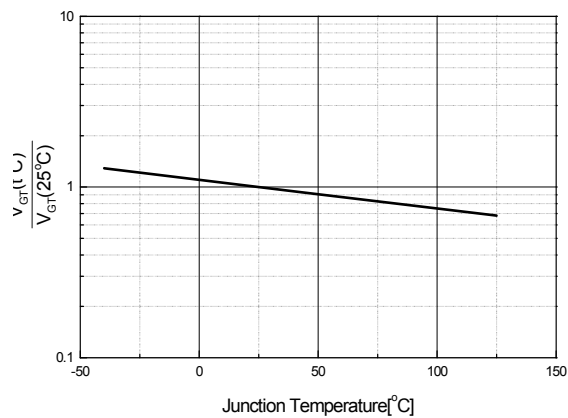
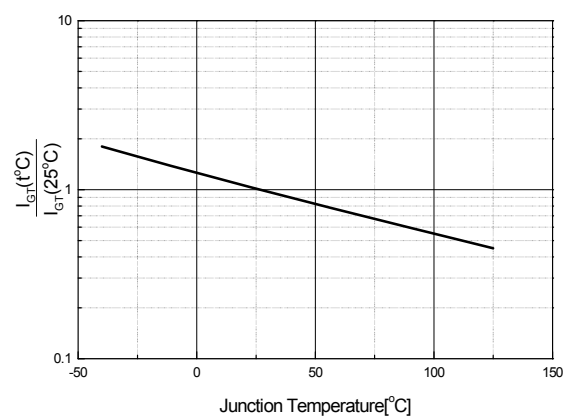


Fig 6. Typical Gate Trigger Current vs. Junction Temperature





CR100-8

Fig 7. Typical Holding Current

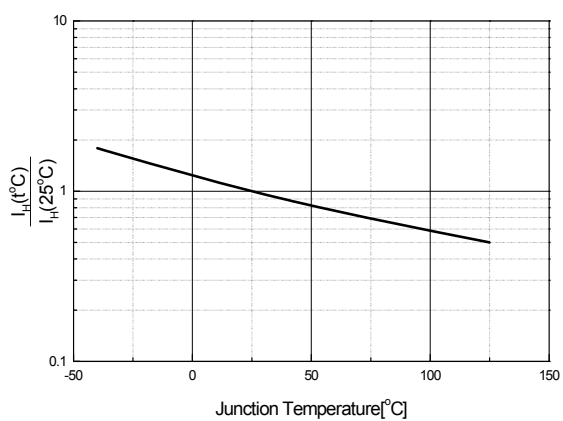
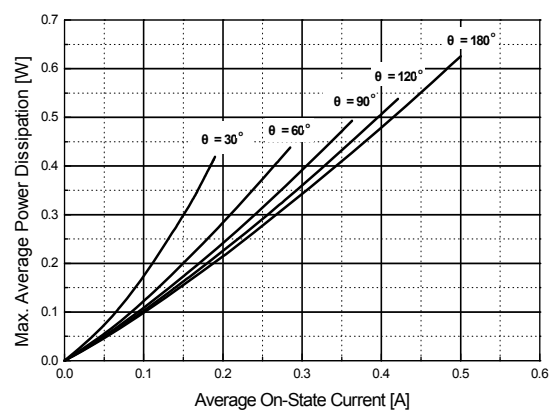


Fig 8. Power Dissipation





CR100-8

TO-92 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		4.2			0.165	
B			3.7			0.146
C	4.43		4.83	0.174		0.190
D	14.07		14.87	0.554		0.585
E			0.4			0.016
F	4.43		4.83	0.174		0.190
G			0.45			0.017
H		2.54			0.100	
I		2.54			0.100	
J	0.33		0.48	0.013		0.019

