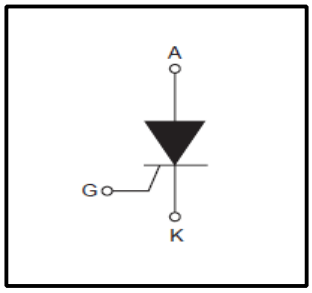
Silicon Controlled Rectifiers

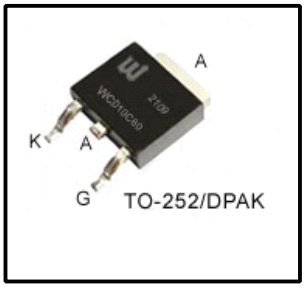
Features

- Repetitive Peak Off-State Voltage:600V
- R.M.S On-State Current ($IT_{(RMS)}$=10A)
- Low On-State Voltage(1.4V(Typ.)@I_{TM})
- Non-isolation Type



General Description

Standard gate triggering SCR is fully isolated package suitable for the application where requiring high bidirectional blocking voltage capability and also suitable for over voltage protection ,motor control circuit in power tool, inrush current limit circuit and heating control system



Absolute Maximum Ratings (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Condition	Value	Units
V_{DRM}	Repetitive Peak Off-State Voltage		600	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave:T_C =111 °C	6.4	A
$I_{T(RMS)}$	R.M.S On-State Current	180°conduction Angle	10	A
I_{TSM}	Surge on-state Current	1/2 Cycle,60Hz,Sine Wave Non-Repetitive	110	A
I^2t	I^2t for Fusing	t=8.3ms	60	A^2s
di/dt	Critical rate of rise of on-state current		50	A/μs
P_{GM}	Forward Peak Gate Power Dissipation		5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation		0.5	W
I_{FGM}	Forward Peak Gate Current		2	A
V_{RGM}	Reverse Peak Gate Voltage		5.0	V
T_J	Operating Junction Temperature		-40~125	°C
T_{STG}	Storage Temperature		-40~150	°C

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min	Typ	Max	
$R_{\theta Jc}$	Thermal Resistance Junction to Case	-	-	1.3	℃/W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	-	-	60	℃/W

Electrical Characteristics (T_C=25℃ ,unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
I_{DRM}	Repetitive Peak Off-State Current	$V_{AK}=V_{DRM}$ T_C=25℃	-	-	10	μA
		T_C=125℃	-	-	200	μA
V_{TM}	Peak On-State Voltage (1)	I_{TM}=20A, tp=380μs	-	1.4	1.6	V
I_{GT}	Gate Trigger Current (2)	V_{AK}=6V(DC),R_L=10Ω T_C=25℃	-	-	15	mA
V_{GT}	Gate Trigger Voltage (2)	V_D=6V(DC),R_L=10Ω T_C=25℃	-	-	1.5	V
V_{GD}	Non-Trigger Gate Voltage (1)	V_{AK}=12V,R_L=100Ω T_C=125℃	0.2			V
dv/dt	Critical Rate of Rise Off-State Voltage	Linear slope up to V_D=67% V_{DRM}, gate open T_J=125℃	200	-	-	V/μs
I_H	Holding Current	I_T=100mA, Gate Open T_C=25℃	-	-	20	mA

***Notes:**

1 Pulse Width ≤1.0ms,Duty cycle≤1%

2 R_{GK} Current is not Included in measurement.

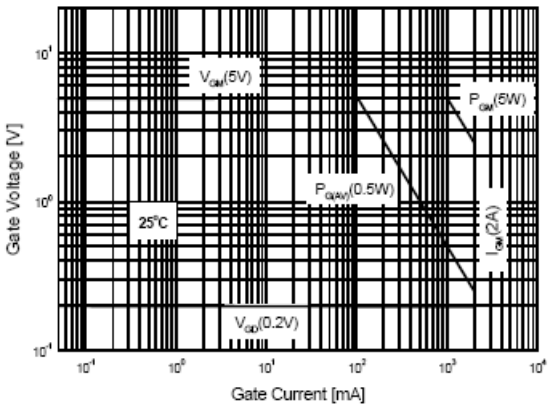


Fig.1Gate Characteristics

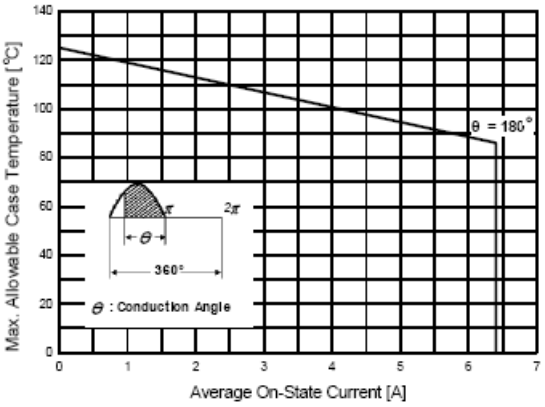


Fig .2 Maximum Case Temperature

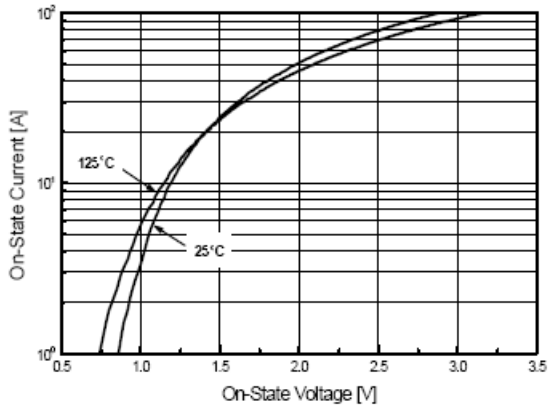


Fig. 3 Typical Forward Voltage

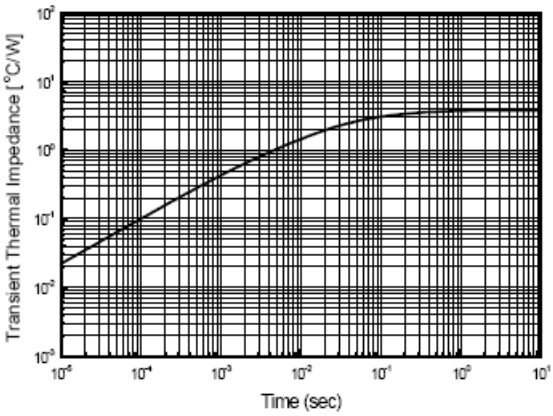


Fig. 4 Thermal Response

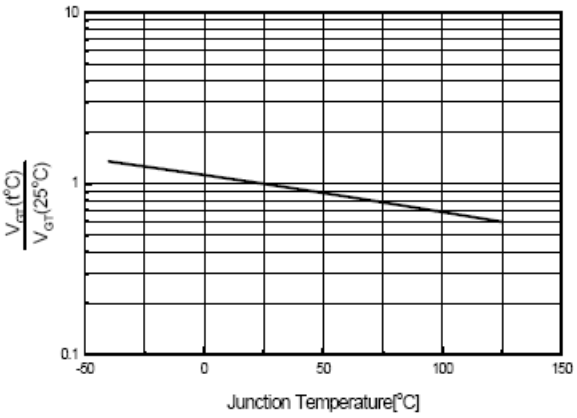


Fig.5Typical Gate Trigger Voltage vs.Junction Temperature

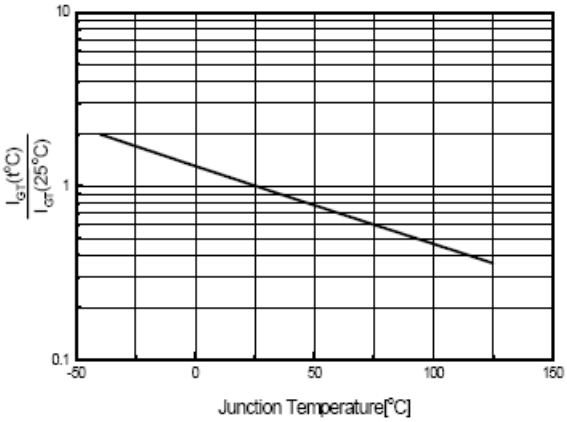


Fig.6Typical Gate Trigger current vs.Junction Temperature

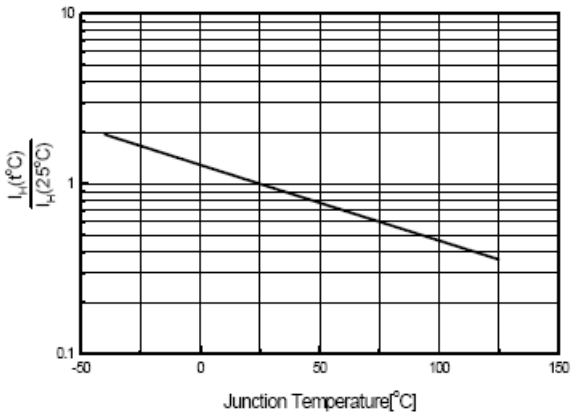


Fig.7 Typical Holding Current

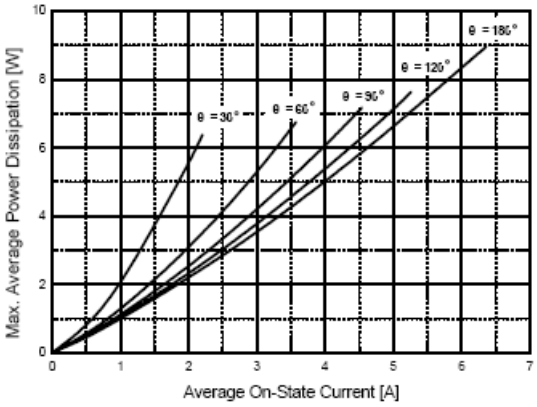


Fig.8 Power Disspation

TO-252 Package Dimension

Unit: mm