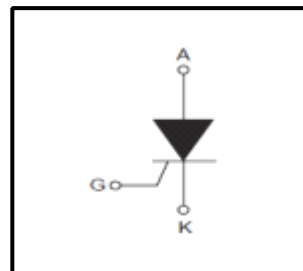


*Silicon Controlled Rectifiers*

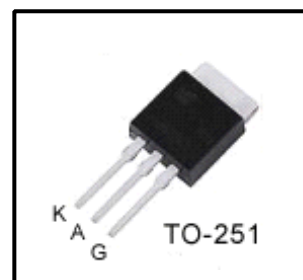
**Features**

- Repetitive Peak Off-State Voltage : 600V
- R.M.S On-State Current (  $I_T(\text{RMS})= 4 \text{ A}$  )
- Low On-State Voltage (1.6V(Typ.) @  $I_{TM}$ )



**General Description**

Sensitive gate triggering SCR is 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<sub>J</sub>= 25°C unless otherwise specified)**

Symbol	Parameter	Condition	Ratings	Units
V <sub>DRM</sub>	Repetitive Peak Off-State Voltage		600	V
I <sub>T(AV)</sub>	Average On-State Current(180° Conduction Angle)	T <sub>i</sub> =60 °C	1.35	A
		T <sub>amb</sub> =25 °C	0.9	
I <sub>T(RMS)</sub>	R.M.S On-State Current(180° Conduction Angle)	T <sub>i</sub> =60 °C	4	A
		T <sub>amb</sub> =25 °C	1.35	
I <sub>TSM</sub>	Surge On-State Current	1/2 Cycle, 60Hz, Sine WaveNon-Repetitive	33	A
I <sup>2</sup> t	I <sup>2</sup> t for Fusing	t =10ms	4.5	A <sup>2</sup> s
di/dt	Critical rate of rise of on-state current	F=60Hz, T <sub>J</sub> =125 °C	50	A/μs
P <sub>GM</sub>	Forward Peak Gate Power Dissipation		0.5	W
P <sub>G(AV)</sub>	Forward Average Gate Power Dissipation	T <sub>J</sub> =125 °C	0.2	W
I <sub>FGM</sub>	Forward Peak Gate Current		1.2A	A
T <sub>J</sub>	Operating Junction Temperature		-40~125 °C	°C
T <sub>STG</sub>	Storage Temperature		-40~150 °C	°C

**Thermal Characteristics**

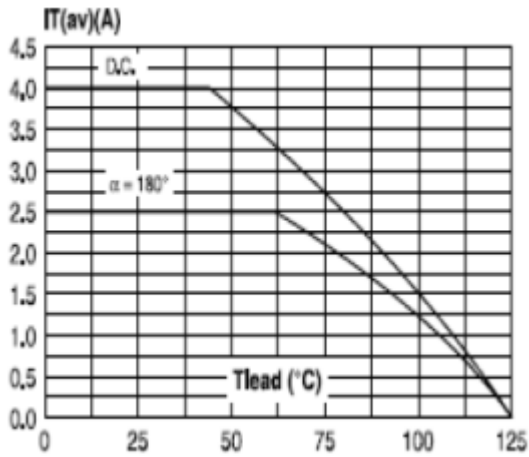
Symbol	Parameter	Value	Units
R <sub>θjc</sub>	Thermal Resistance Junction to Case(DC)	15	°C/W
R <sub>θJA</sub>	Thermal Resistance Junction to Ambient(DC)	100	°C/W

## Electrical Characteristics (T<sub>c</sub>=25°C unless otherwise noted)

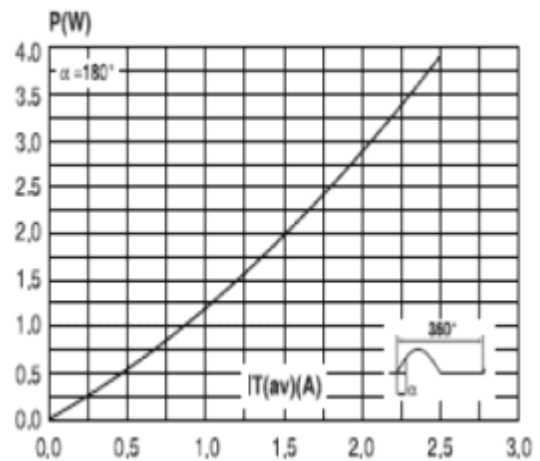
Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
I <sub>DRM</sub>	Repetitive Peak Off-State Current	V <sub>AK</sub> =V <sub>DRM</sub> R <sub>GK</sub> =1KΩ	-	-	5	μA
			-	-	1	mA
V <sub>TM</sub>	Peak On-State Voltage (1)	I <sub>TM</sub> =8A, t <sub>p</sub> =380μs	-	-	1.8	V
I <sub>GT</sub>	Gate Trigger Current (2)	V <sub>D</sub> =12V, R <sub>L</sub> =140	-	-	200	μA
V <sub>GT</sub>	Gate Trigger Voltage (2)		-	-	0.8	V
V <sub>GD</sub>	Non-Trigger Gate Voltage (1)	V <sub>D</sub> =12V, R <sub>L</sub> =3.3KΩ, R <sub>GK</sub> =1 KΩ	0.1			V
dv/dt	Critical Rate of Rise Off-State Voltage	V <sub>D</sub> =67%V <sub>DRM</sub> , R <sub>GK</sub> =1 KΩ	15	-	-	V/μs
I <sub>H</sub>	Holding Current	I <sub>T</sub> =50mA, R <sub>GK</sub> =1 KΩ	-	-	5	mA
I <sub>L</sub>	Latching Current	I <sub>T</sub> =1mA, R <sub>GK</sub> =1 KΩ	6	-	-	mA
R <sub>d</sub>	Dynamic resistance	T <sub>j</sub> =125°C	-	-	100	mΩ

**Note:**

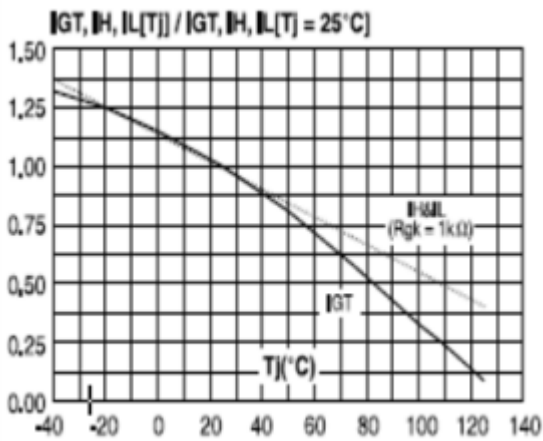
1. Pulse Width = 1.0 ms , Duty cycle ≤ 1%
2. R<sub>GK</sub> Current not Included in measurement



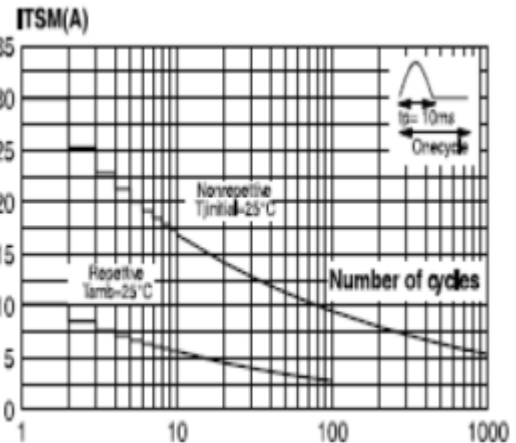
**Fig. 1** Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout)



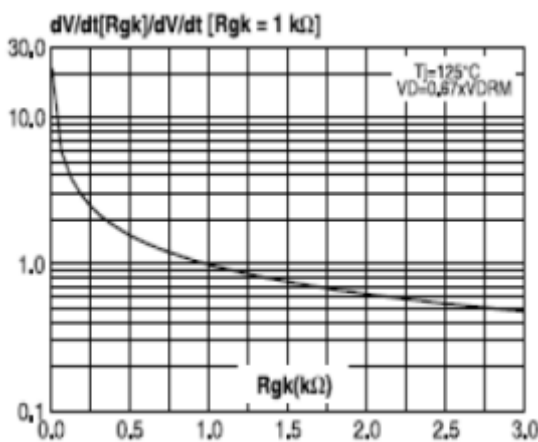
**Fig. 2** Maximum average power dissipation versus average on-state current



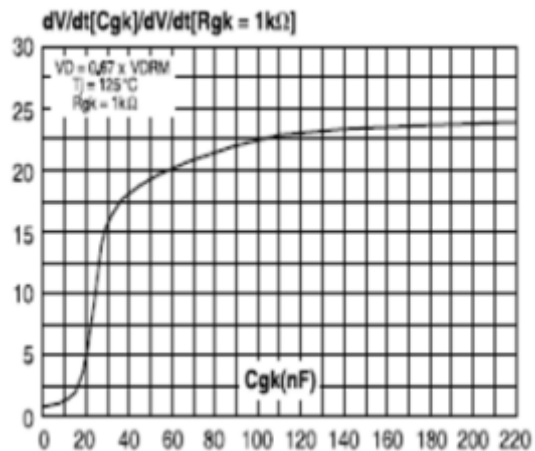
**Fig. 3** Relative variation of gate trigger current and holding current versus junction temperature



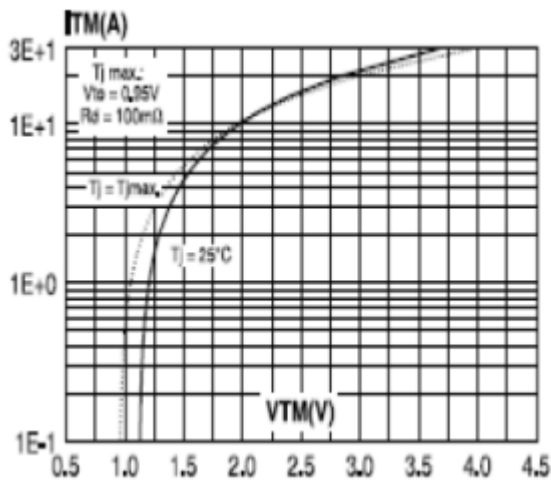
**Fig. 4** Surge peak on-state current versus Number of cycles.



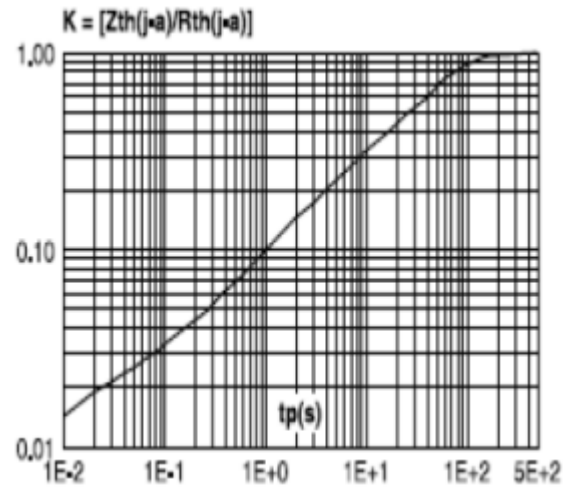
**Fig. 5** Relative variation of  $dV/dt$  immunity versus gate-cathode resistance (typical values)



**Fig. 6** Relative Variation of  $dV/dt$  immunity versus gate-cathode capacitance (typical values)



**Fig.7** On-state Characteristics (maximum values)



**Fig.8** Thermal Resistance junction to ambient Versus copper surface under tab (Epoxy printed Circuit board FR4, copper thickness:35mm)

**TO251 Package Dimension**

