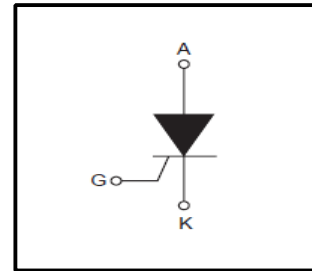


Silicon Controlled Rectifiers

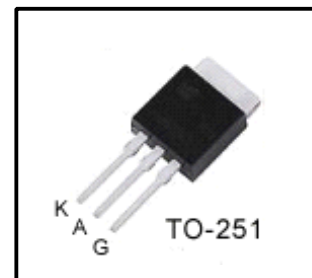
Features

- Repetitive Peak Off-State Voltage : 600V
- R.M.S On-State Current ($I_{T(RMS)}$) = 4 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_J= 25°C unless otherwise specified)

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

Thermal Characteristics

Symbol	Parameter	Value	Units
R _{θJC}	Thermal Resistance Junction to Case(DC)	15	°C/W
R _{θJA}	Thermal Resistance Junction to Ambient(DC)	100	°C/W

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

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
I _{DRM}	Repetitive Peak Off-State Current	V _{AK} =V _{DRM} R _{GK} =1K Ω	-	-	5	μA
			-	-	1	mA
V _{TM}	Peak On-State Voltage (1)	I _{TM} =8A, t _p =380 μs	-	-	1.8	V
I _{GT}	Gate Trigger Current (2)	V _D =12V, R _L =140	20	-	50	μA
V _{GT}	Gate Trigger Voltage (2)		-	-	0.8	V
V _{GD}	Non-Trigger Gate Voltage (1)	V _D =12V, R _L =3.3K Ω , R _{GK} =1 K Ω	0.1			V
dv/dt	Critical Rate of Rise Off-State Voltage	V _D =67%V _{DRM} , R _{GK} =1 K Ω	15	-	-	V/ μs
I _H	Holding Current	I _T =50mA, R _{GK} =1 K Ω	-	-	5	mA
I _L	Latching Current	I _T =1mA, R _{GK} =1 K Ω	6	-	-	mA
R _d	Dynamic resistance	T _J =125 $^\circ\text{C}$	-	-	100	m Ω

Note:

1. Pulse Width = 1.0 ms , Duty cycle \leq 1%
2. R_{GK} Current not Included in measurement

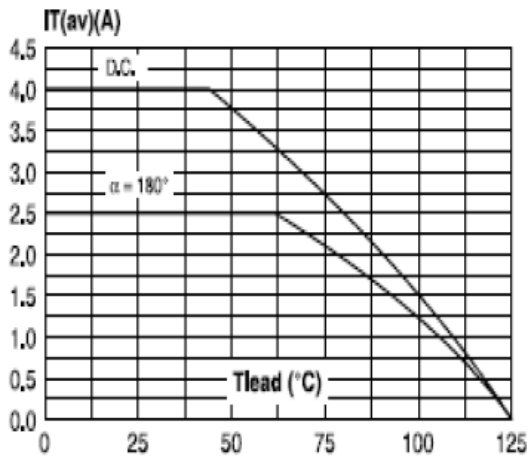


Fig.1 Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout)

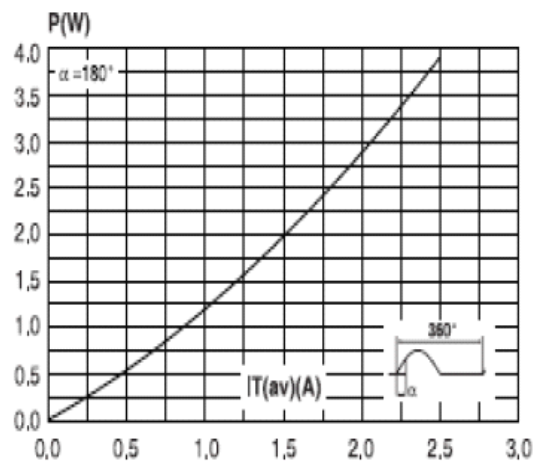


Fig. 2 Maximum average power dissipation versus average on-state current

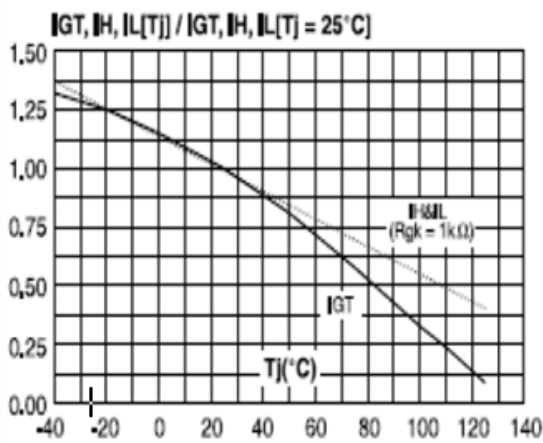


Fig.3 Relative variation of gate trigger current and holding current versus junction temperature

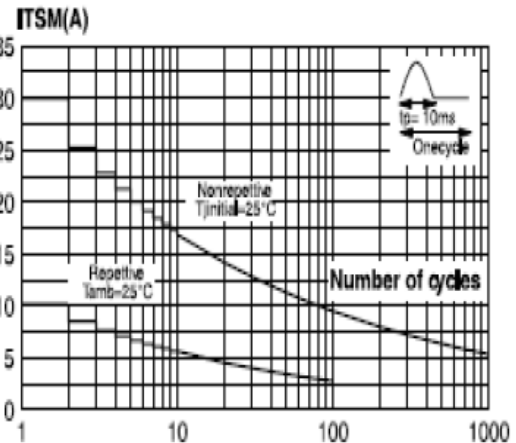


Fig. 4 Surge peak on-state current versus Number of cycles.

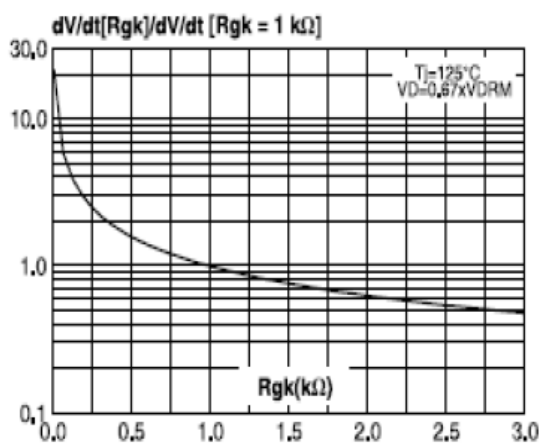


Fig.5 Relative variation of dV/dt immunity versus gate-cathode resistance (typical values)

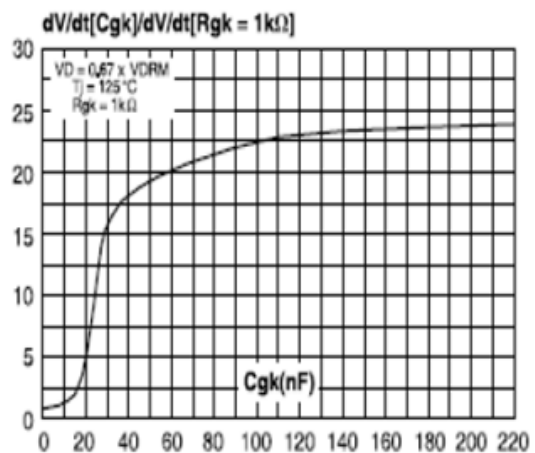


Fig.6 Relative Variation of dV/dt immunity versus gate-cathode capacitance (typical values)

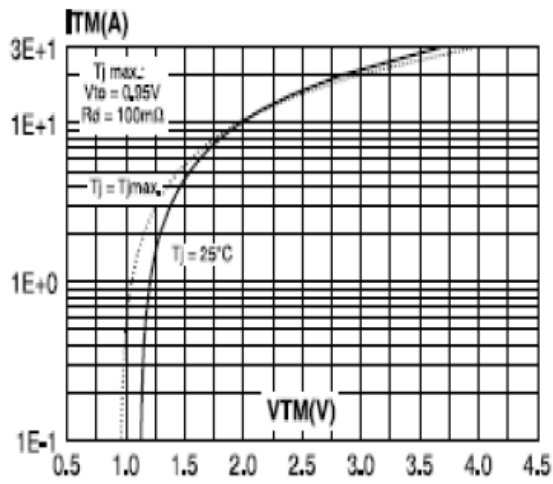


Fig.7 On-state Characteristics (maximum values)

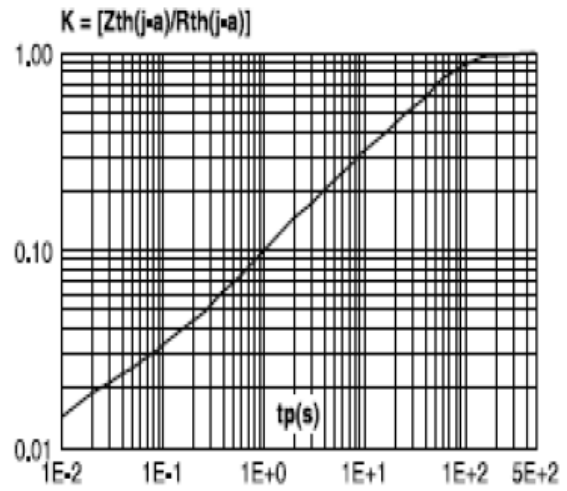


Fig.8 Thermal Resistance junction to ambient Versus copper surface under tab (Epoxy printed Circuit board FR4, copper thickness:35mm)

TO251 Package Dimension

