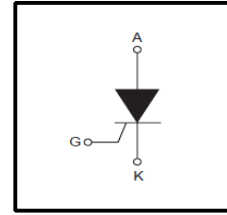


## Silicon Controlled Rectifiers

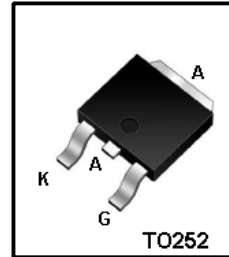
### Features

- ◆ 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 ( $T_J= 25^\circ\text{C}$ unless otherwise specified)

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

### Thermal Characteristics

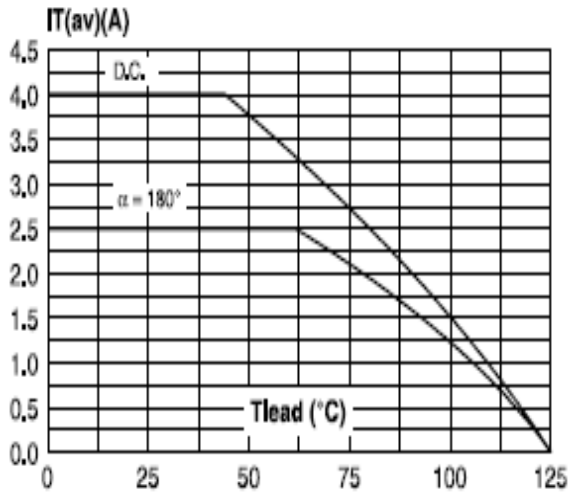
Symbol	Parameter	Value	Units
$R_{\theta\text{Jc}}$	Thermal Resistance Junction to Case(DC)	15	°C/W
$R_{\theta\text{JA}}$	Thermal Resistance Junction to Ambient(DC)	100	°C/W

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

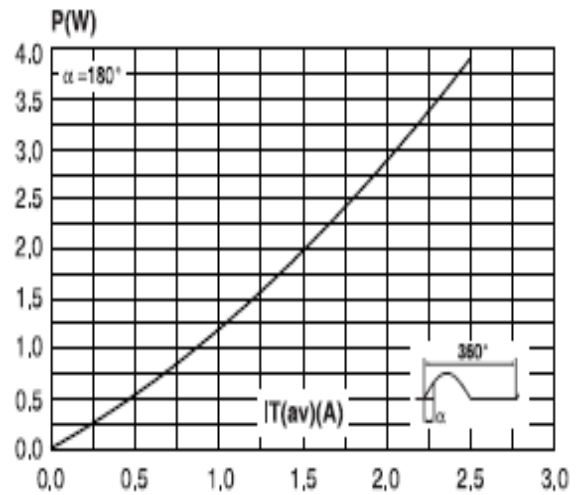
Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
I <sub>DRM</sub>	Repetitive Peak Off-State Current	VAK=VDRM RGK=1KΩ	-	-	5	μA
			-	-	1	mA
V <sub>TM</sub>	Peak On-State Voltage (1)	ITM=8A, tp=380μs	-	-	1.8	V
I <sub>GT</sub>	Gate Trigger Current (2)	VD=12V,RL=140	20	-	80	μA
V <sub>GT</sub>	Gate Trigger Voltage (2)		-	-	0.8	V
V <sub>GD</sub>	Non-Trigger Gate Voltage (1)	VD=12V,RL=3.3KΩ, RGK=1 KΩ	0.1			V
dv/dt	Critical Rate of Rise Off-State Voltage	VD=67%V <sub>DRM</sub> , RGK=1 KΩ	15	-	-	V/μs
I <sub>H</sub>	Holding Current	IT=50mA, RGK=1 KΩ	-	-	5	mA
I <sub>L</sub>	Latching Current	IT=1mA, RGK=1 KΩ	6	-	-	mA
R <sub>d</sub>	Dynamic resistance	T <sub>j</sub> =125°C	-	-	100	mΩ

### Note:

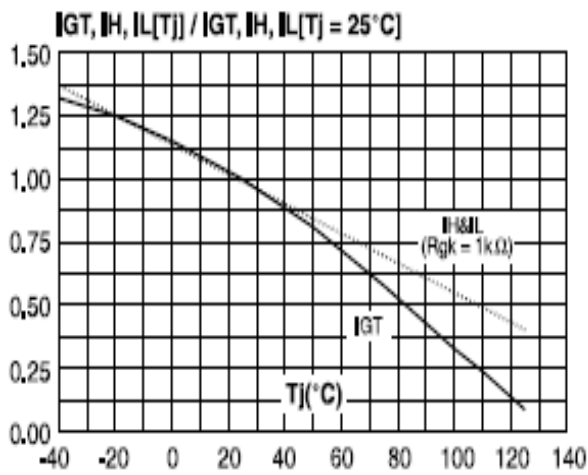
1. Pulse Width = 1.0 ms , Duty cycle ≤ 1%
2. R<sub>GK</sub> Current not Included in measurement



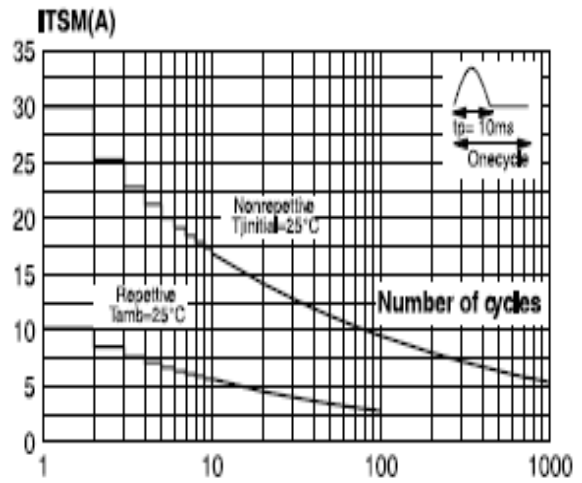
**Fig. 1**  $I_{T(AV)}(DC)$  vs lead Temperature



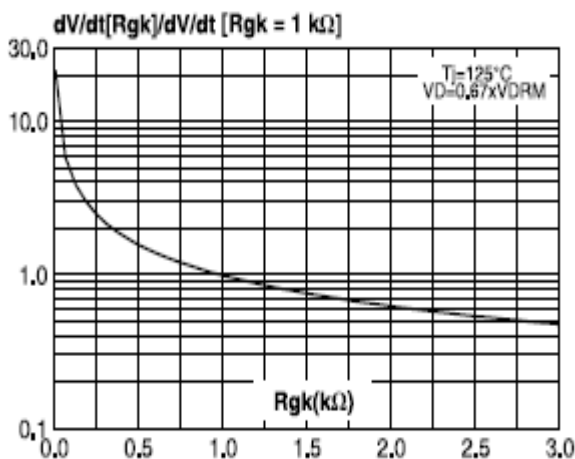
**Fig. 2**  $P_{D(AV)}$  VS  $I_{T(AV)}$



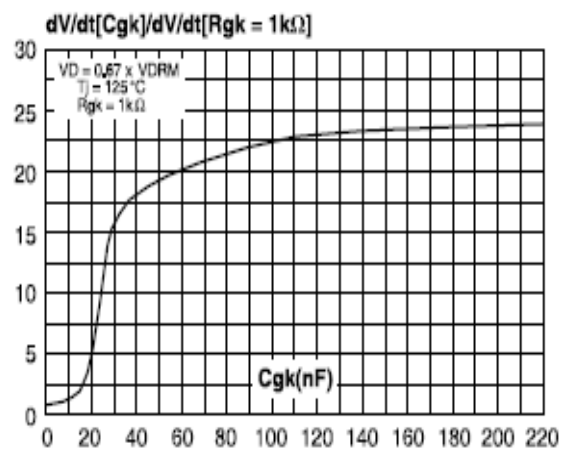
**Fig. 3**  $I_{GT, IH, IL}$  Temperature Characteristics



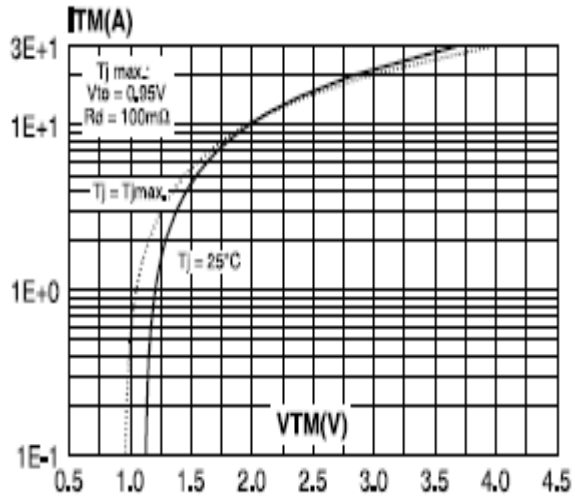
**Fig. 4**  $I_{TSM}$  VS Number of cycles



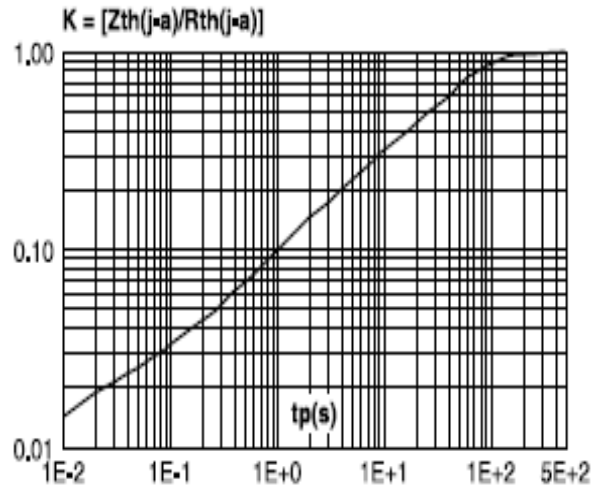
**Fig.5**  $dv/dt$  VS  $R_{GK}$



**Fig.6**  $dv/dt$  VS  $C_{GK}$



**Fig.7 On-state Characteristics**



**Fig.8  $R_{\theta JA}$  VS Pulse duration**

**TO252 Package Dimension**

