

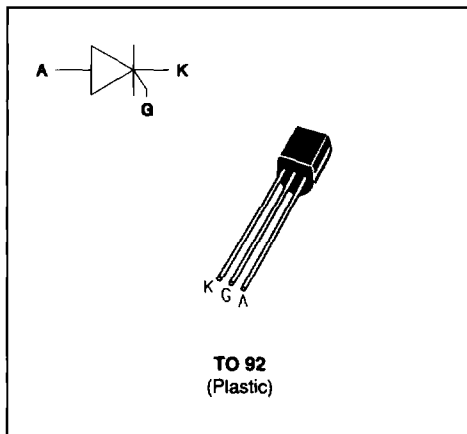
**SENSITIVE GATE SCR**
**FEATURES**

- $I_T(\text{RMS}) = 0.8 \text{ A}$
- $V_{\text{DRM}} = 100 \text{ V to } 800 \text{ V}$
- $I_{\text{GT}} \leq 200 \mu\text{A}$

**DESCRIPTION**

The TS08 high voltage series of Silicon Controlled Rectifiers use a high performance planar diffused PNP, glass passivated sensitive gate technology.

These parts are intended for general purpose switching and phase control applications.


**ABSOLUTE RATINGS (limiting values)**

Symbol	Parameter		Value	Unit
$I_T(\text{RMS})$	RMS on-state current Single phase circuit (180° conduction angle)	$T_I = 70^\circ\text{C}$	0.8	A
$I_T(\text{AV})$	Mean on-state current Single phase circuit (180° conduction angle)	$T_I = 70^\circ\text{C}$	0.5	A
$I_{\text{TSM}}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ\text{C}$ )	$t_p = 8.3 \text{ ms}$	7.5	A
		$t_p = 10 \text{ ms}$	7	
$I_2^t$	$I_2^t$ Value for fusing	$t_p = 10 \text{ ms}$	0.25	$\text{A}^2\text{s}$
$dI/dt$	Critical rate of rise of on-state current $I_G = 10 \text{ mA}$ $dI_G/dt = 0.1 \text{ A}/\mu\text{s}$ .		50	$\text{A}/\mu\text{s}$
$T_{\text{stg}}$ $T_j$	Storage and operating junction temperature range		- 40, + 125 - 40, + 125	$^\circ\text{C}$
$T_I$	Maximum lead temperature for soldering during 10s		260	$^\circ\text{C}$

Symbol	Parameter	TS0802- / TS0805- / TS0820-				TS0820-	Unit
		10	20	40	60	80	
$V_{\text{DRM}}$ $V_{\text{RRM}}$	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$ $R_{\text{GK}} = 1\text{k}\Omega$	100	200	400	-600	-800	V

**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
Rth (j-l)	Junction to case for D.C	60	°C/W
Rth (j-a)	Junction to ambient	150	

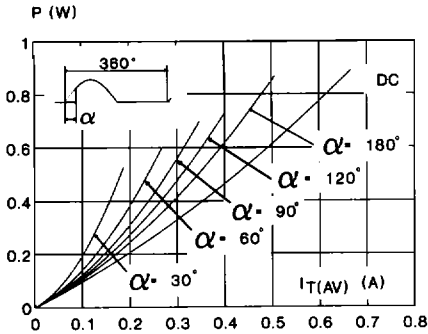
**GATE CHARACTERISTICS (maximum values)**

PGM = 2 W (tp = 20 μs) PG (AV) = 100 mW IFGM = 1 A (tp = 20 μs) VFGM = 10 V (tp = 20 μs) VRGM = 5V.

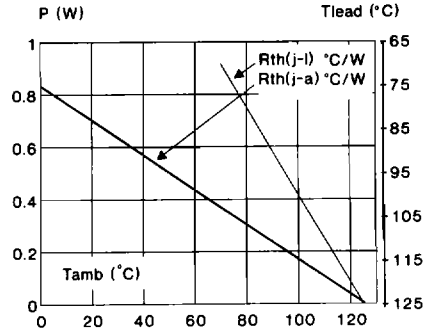
**ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions				Value	Unit
IGT	VD=12V (DC) RL=140Ω	TS0802-xx	Tj= 25°C	MAX	20	μA
		TS0805-xx			50	
		TS0820-xx			200	
		TS0820-80			200	
VGT	VD=12V (DC) RL=140Ω		Tj= 25°C	MAX	0.8	V
VGD	VD=VDRM RL=3.3kΩ RGK = 1 KΩ		Tj= 125°C	MIN	0.1	V
tgD	VD=VDRM IG = 10mA dIG/dt = 0.15A/μs		Tj= 25°C	MAX	0.5	μs
IL	IG=1mA RGK = 1 KΩ		Tj= 25°C	TYP	6	mA
				MAX	8	
IH	IT= 50mA RGK = 1 KΩ		Tj= 25°C	TYP	4	mA
				MAX	6	
VTM	ITM= 1.6A tp= 380μs		Tj= 25°C	MAX	1.95	V
IDRM IRRM	VDRM Rated VRRM Rated	TS08xx- 10 to 60	Tj= 125°C	MAX	0.1	mA
		TS0820-80			0.5	
tq	IT= 1.6A VR=35V VD=67%VDRM dI/dt=30A/μs RGK = 1 KΩ		Tj= 125°C	MAX	200	μs
dV/dt	Linear slope up to VD=67%VDRM	RGK = 1 KΩ	Tj= 125°C	MIN	50	V/μs
				TYP	150	
		MIN		500		
		TYP		750		
		RGK = 1 KΩ CGK=4.7nF				

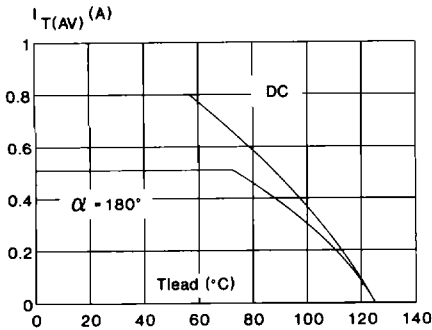
**Fig.1** : Maximum average power dissipation versus average on-state current.



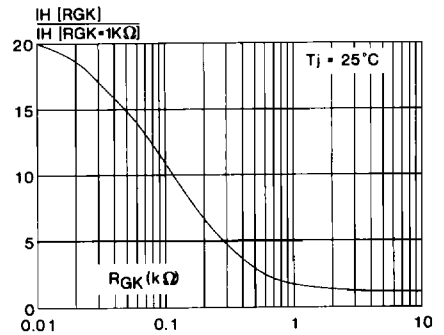
**Fig.2** : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{lead}$ ).



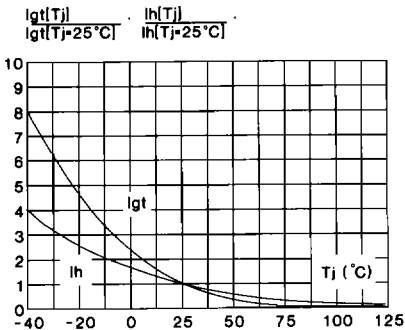
**Fig.3** : Average on-state current versus lead temperature.



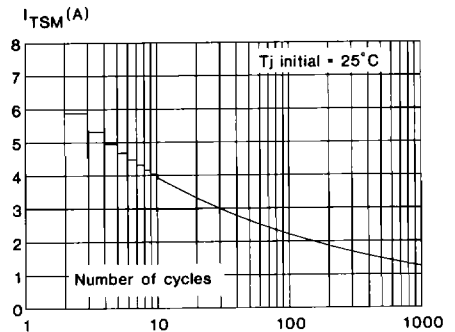
**Fig.4** : Relative variation of holding current versus gate-cathode resistance (typical values).



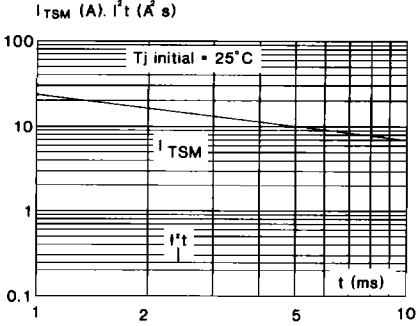
**Fig.5** : Relative variation of gate trigger current and holding current versus junction temperature.



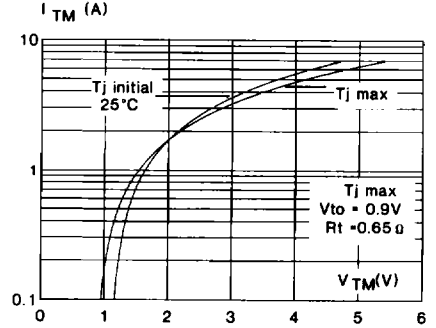
**Fig.6** : Non Repetitive surge peak on-state current versus number of cycles.



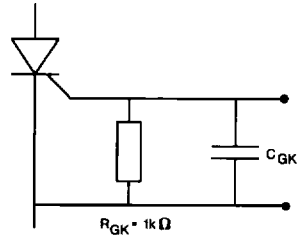
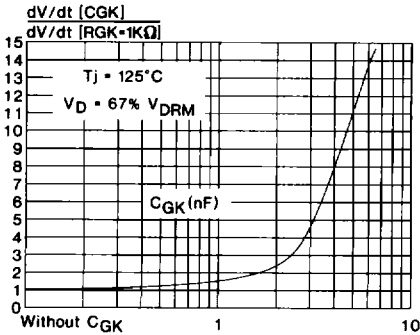
**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**Fig.8 :** On-state characteristics (maximum values).

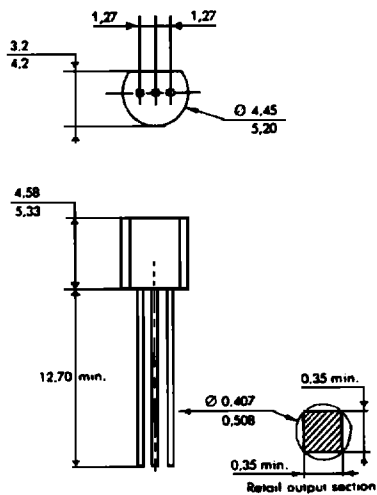


**Fig.9 :** Relative variation of  $dV/dt$  immunity versus gate-cathode capacitance (typical values).



## PACKAGE MECHANICAL DATA (in millimeters)

T0 92 Plastic



Cooling method : C  
 Marking : Type number  
 Weight : 0.2 g  
 Polarity : N A  
 Stud torque : N A