

SENSITIVE GATE SCR

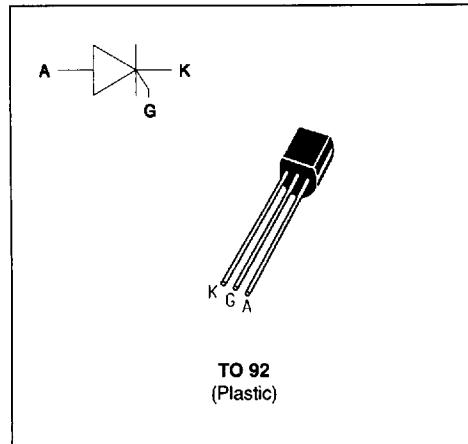
FEATURES

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

DESCRIPTION

The TS08 high voltage series of Silicon Controlled Rectifiers use a high performance planar diffused PNPN, 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
$I_T(RMS)$	RMS on-state current Single phase circuit (180° conduction angle)	0.8	A
$I_T(AV)$	Mean on-state current Single phase circuit (180° conduction angle)	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3 \text{ ms}$	7.5
		$t_p = 10 \text{ ms}$	7
I_{2t}	I_{2t} Value for fusing	0.25	A^2s
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_{stg} T_j	Storage and operating junction temperature range	- 40, + 125 - 40, + 125	$^\circ\text{C}$
T_l	Maximum lead temperature for soldering during 10s	260	$^\circ\text{C}$

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

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-l)	Junction to case for D.C	60	°C/W
R _{th} (j-a)	Junction to ambient	150	

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (tp = 20 μs) P_G (AV) = 100 mW I_{FGM} = 1 A (tp = 20 μs) V_{FGM} = 10 V (tp = 20 μs) V_{RGM} = 5V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions				Value	Unit
I _{GT}	V _D =12V (DC) R _L =140Ω	TS0802-xx	T _j = 25°C	MAX	20	μA
		TS0805-xx			50	
		TS0820-xx			200	
		TS0820-80			200	
V _{GT}	V _D =12V (DC) R _L =140Ω		T _j = 25°C	MAX	0.8	V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ R _{GK} = 1 KΩ		T _j = 125°C	MIN	0.1	V
t _{gd}	V _D =V _{DRM} I _G = 10mA dI _G /dt = 0.15A/μs		T _j = 25°C	MAX	0.5	μs
I _L	I _G =1mA R _{GK} = 1 KΩ		T _j = 25°C	TYP	6	mA
				MAX	8	
I _H	I _T = 50mA R _{GK} = 1 KΩ		T _j = 25°C	TYP	4	mA
				MAX	6	
V _{TM}	I _{TM} = 1.6A tp= 380μs		T _j = 25°C	MAX	1.95	V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	TS08xx-10 to 60	T _j = 125°C	MAX	0.1	mA
		TS0820-80			0.5	
t _q	I _T = 1.6A V _R =35V V _D =67%V _{DRM} dI/dt=30A/μs R _{GK} = 1 KΩ		T _j = 125°C	MAX	200	μs
dV/dt	Linear slope up to V _D =67%V _{DRM}	R _{GK} = 1 KΩ	T _j = 125°C	MIN	50	V/μs
				TYP	150	
				MIN	500	
				TYP	750	

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

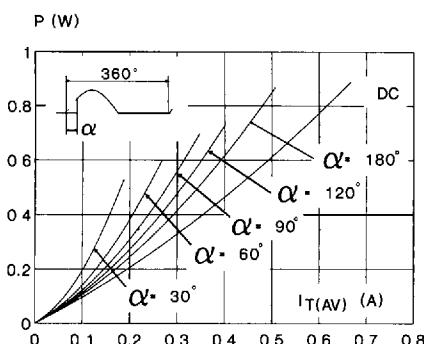


Fig.3 : Average on-state current versus lead temperature.

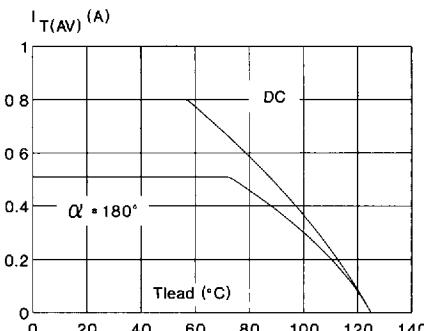


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

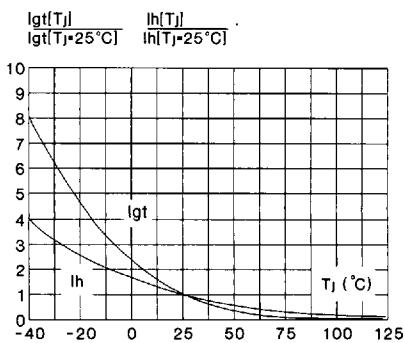


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tlead).

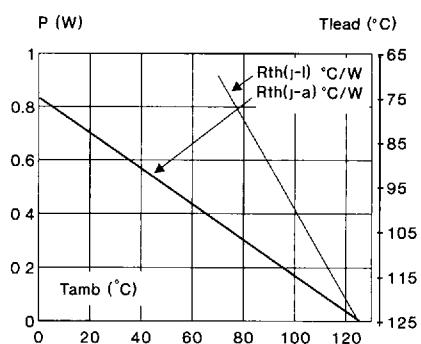


Fig.4 : Relative variation of holding current versus gate-cathode resistance (typical values).

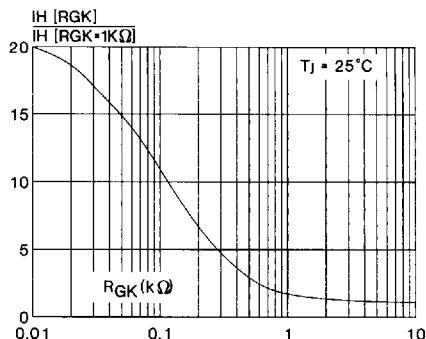


Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.

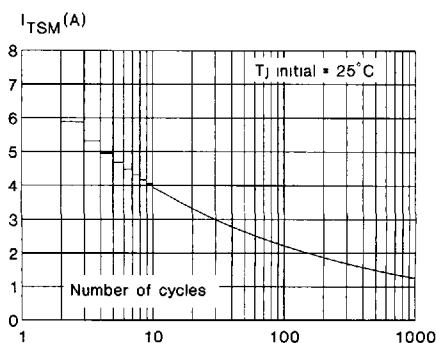


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

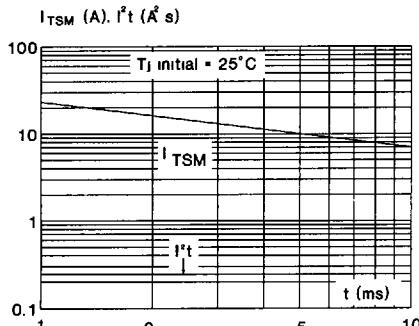


Fig.8 : On-state characteristics (maximum values).

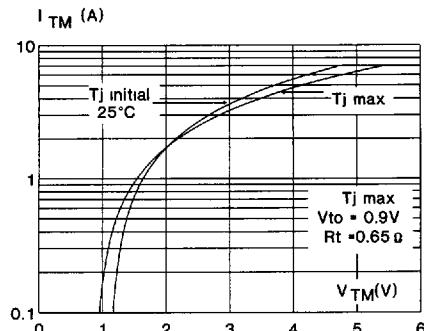
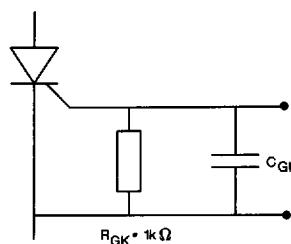
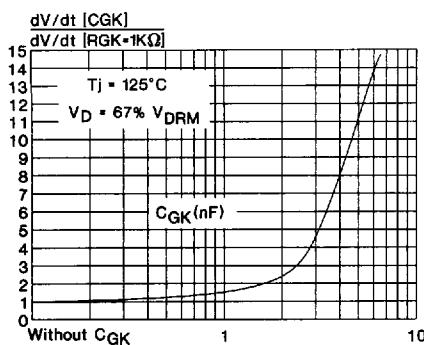
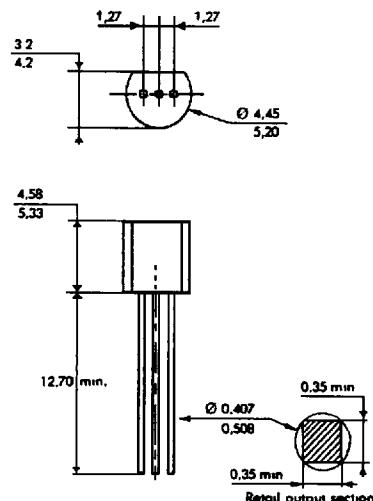


Fig.9 : Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).



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