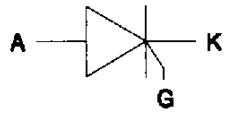
SGS-THOMSON MICROELECTRONICS

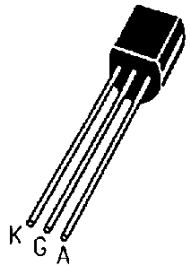
TS08

SENSITIVE GATE SCR

FEATURES

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





TO 92
(Plastic)

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)	Tl= 70°C	0.8	A
$I_{T(AV)}$	Mean on-state current Single phase circuit (180° conduction angle)	Tl= 70°C	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	7.5	A
		tp = 10 ms	7	
I^2t	I^2t Value for fusing	tp = 10 ms	0.25	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 10 mA di_G/dt = 0.1 A/µs.		50	A/µs
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 125 - 40, + 125	°C
Tl	Maximum lead temperature for soldering during 10s		260	°C

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

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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)

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	Tj= 25°C	MAX	20	µA
		TS0805-xx			50	
		TS0820-xx			200	
		TS0820-80			200	
V_{GT}	V_D=12V (DC) R_L=140Ω		Tj= 25°C	MAX	0.8	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ R_{GK} = 1 KΩ		Tj= 125°C	MIN	0.1	V
tgd	V_D=V_{DRM} I_G = 10mA dI_G/dt = 0.15A/µs		Tj= 25°C	MAX	0.5	µs
I_L	I_G=1mA R_{GK} = 1 KΩ		Tj= 25°C	TYP	6	mA
				MAX	8	
I_H	I_T= 50mA R_{GK} = 1 KΩ		Tj= 25°C	TYP	4	mA
				MAX	6	
V_{TM}	I_{TM}= 1.6A tp= 380µs		Tj= 25°C	MAX	1.95	V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated	TS08xx-10 to 60	Tj= 125°C	MAX	0.1	mA
		TS0820-80			0.5	
tq	I_T= 1.6A V_R=35V V_D=67%V_{DRM} dI/dt=30A/µs R_{GK} = 1 KΩ		Tj= 125°C	MAX	200	µs
dV/dt	Linear slope up to V_D=67%V_{DRM}	R_{GK} = 1 KΩ	Tj= 125°C	MIN	50	V/µs
				TYP	150	
		R_{GK} = 1 KΩ C_{GK}=4.7nF		MIN	500	
				TYP	750	

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

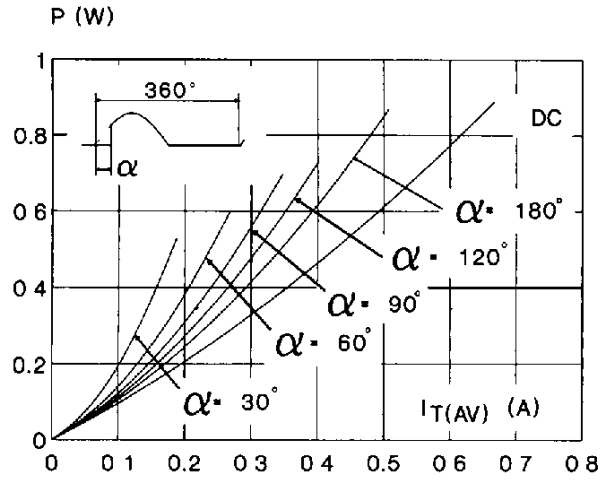

Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tlead).

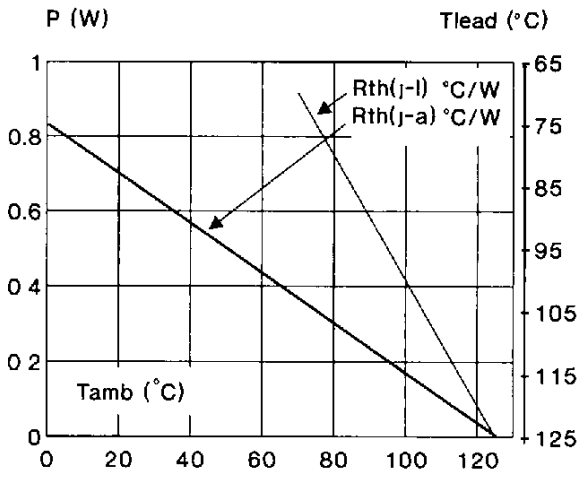

Fig.3 : Average on-state current versus lead temperature.

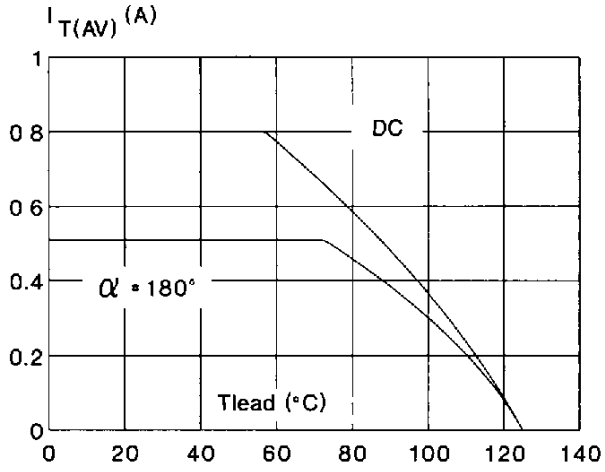

Fig.4 : Relative variation of holding current versus gate-cathode resistance (typical values).

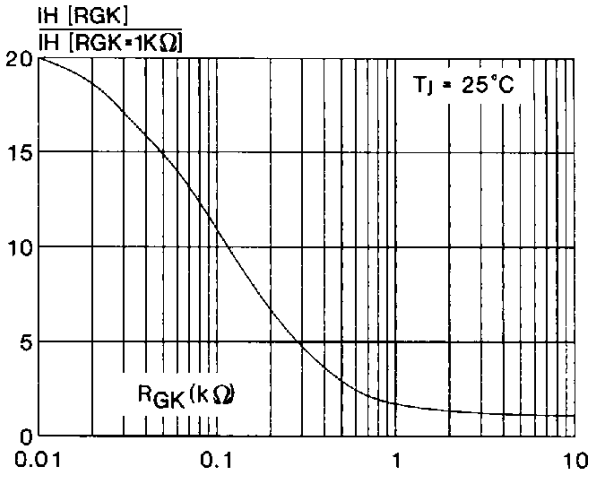

Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

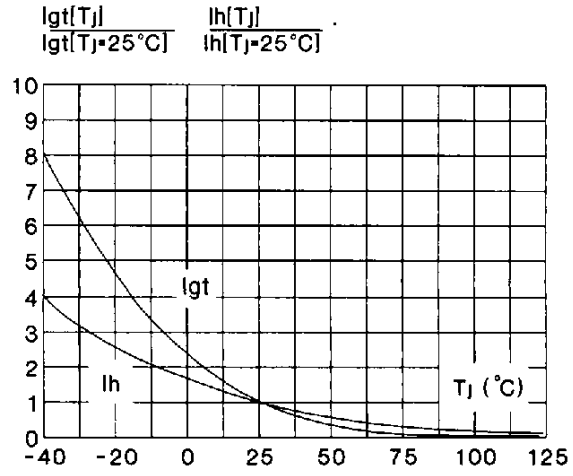

Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.

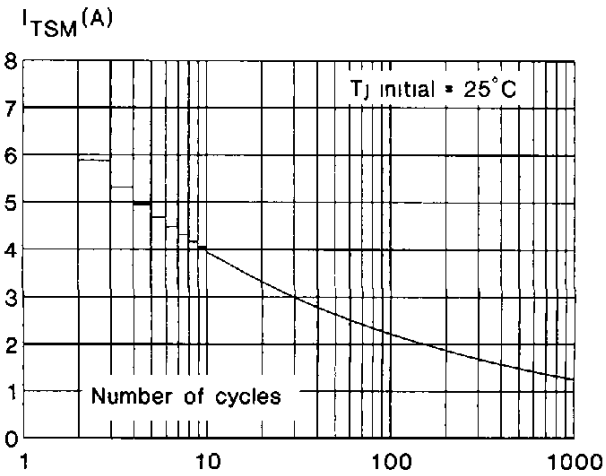

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Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10ms, and corresponding value of I^2t.

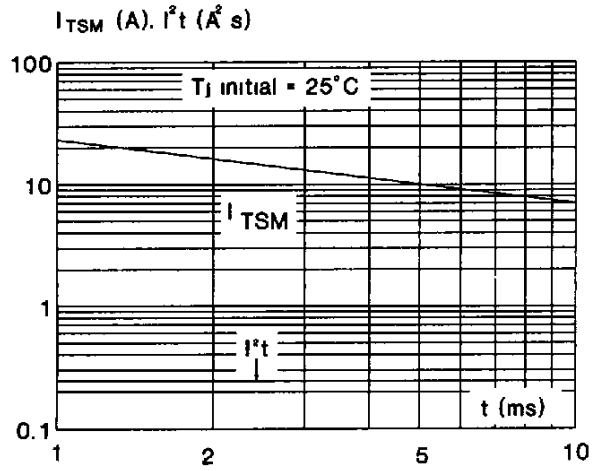


Fig.8 : On-state characteristics (maximum values).

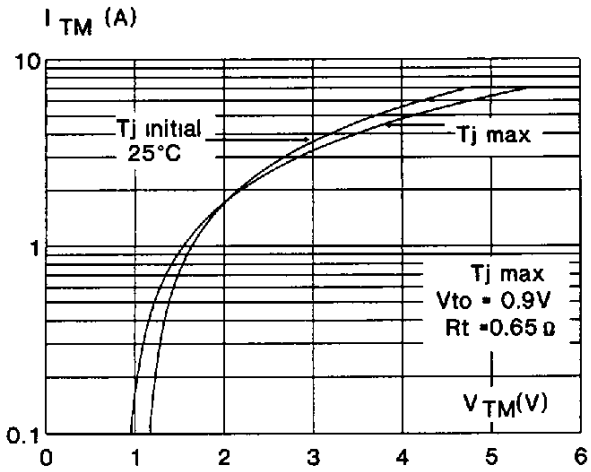
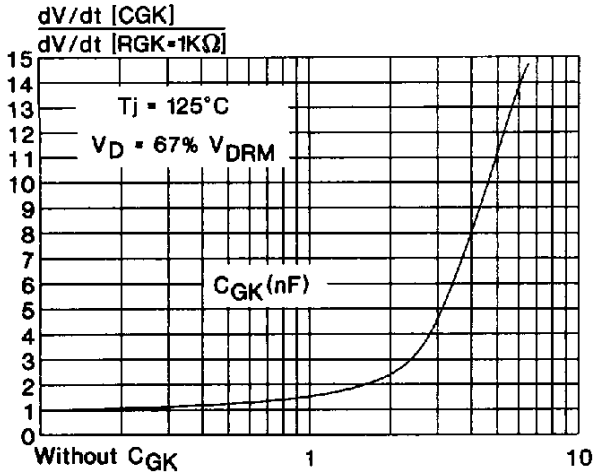
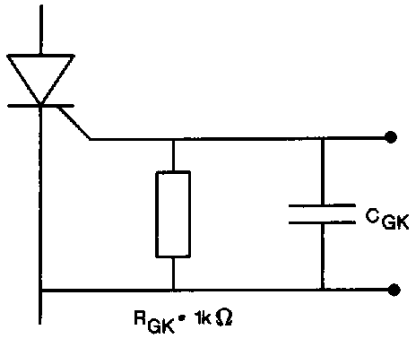


Fig.9 : Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).





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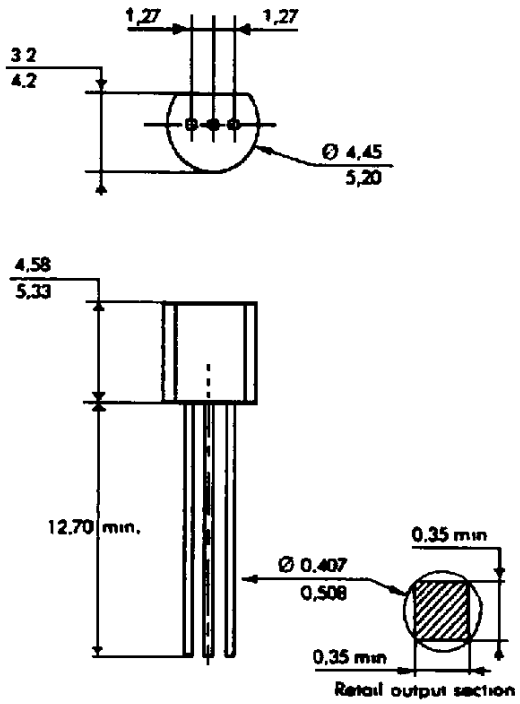
PACKAGE MECHANICAL DATA (in millimeters)

T0 92 Plastic



Cooling method : C
Marking . Type number
Weight : 0 2 g
Polarity : N A
Stud torque : N A

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