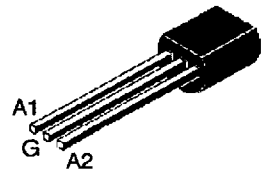
SGS-THOMSON MICROELECTRONICS

Z01xxxA

SENSITIVE GATE TRIACS

FEATURES

- $I_{T(RMS)}$ = 0.8A
- V_{DRM} = 400V to 800V
- $I_{GT} \leq$ 3mA to $\leq$ 25mA



TO92
(Plastic)

DESCRIPTION

The Z01xxxA series of triacs uses a high performance TOP GLASS PNPN technology. These parts are intended for general purpose applications where gate high sensitivity is required.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	Tl= 70 °C	0.8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	8.5	A
		tp = 10 ms	8	
I^2t	I^2t Value for fusing	tp = 10 ms	0.32	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 50 mA di_G/dt = 0.1 A/µs.	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C
Tl	Maximum lead temperature for soldering during 10s at 2mm from case		260	°C

Symbol	Parameter	Voltage				Unit
		D	M	S	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage T_j = 125°C	400	600	700	800	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	150	°C/W
Rth(j-l)	Junction to leads for D.C	80	°C/W
Rth(j-l)	Junction to leads for A.C 360° conduction angle (F=50Hz)	60	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G\ (AV)}$= 0.1 W P_{GM} = 2 W (tp = 20 µs) I_{GM} = 1 A (tp = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity				Unit
					03	07	09	10	
I_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	I-II-III	MAX	3	5	10	25	mA
			IV	MAX	5	7	10	25	
V_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	I-II-III-IV	MAX	1.5				V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj= 125°C	I-II-III-IV	MIN	0.2				V
tgt	V_D=V_{DRM} I_G = 40mA I_T = 1.1A dI_G/dt = 0.5A/µs	Tj= 25°C	I-II-III-IV	TYP	2				µs
I_H *	I_T= 50 mA Gate open	Tj= 25°C		MAX	7	10	10	25	mA
I_L	I_G= 1.2 I_{GT}	Tj= 25°C	I-III-IV	TYP	7	10	10	25	mA
			II	TYP	14	20	20	50	
V_{TM} *	I_{TM}= 1.1A tp= 380µs	Tj= 25°C		MAX	1.5				V
I_{DRM} I_{RRM}	V_D = V_{DRM} V_R = V_{RRM}	Tj= 25°C		MAX	10				µA
		Tj= 110°C		MAX	200				
dV/dt *	VD=67%V_{DRM} Gate open	Tj= 110°C		MIN	10	20	50	100	V/µs
				TYP	20	50	150	400	
(dV/dt)c *	(dI/dt)c = 0.35 A/ms	Tj= 110°C		MIN			2	5	V/µs
				TYP	1	1			

* For either polarity of electrode A_2 voltage with reference to electrode A_1

ORDERING INFORMATION

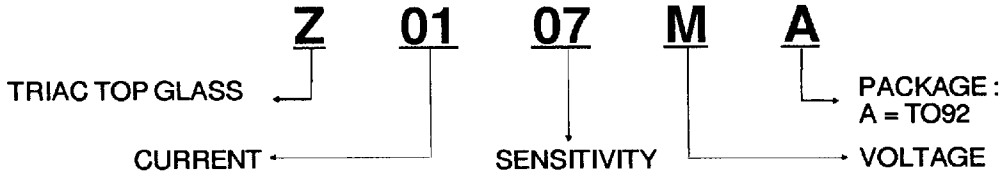


Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

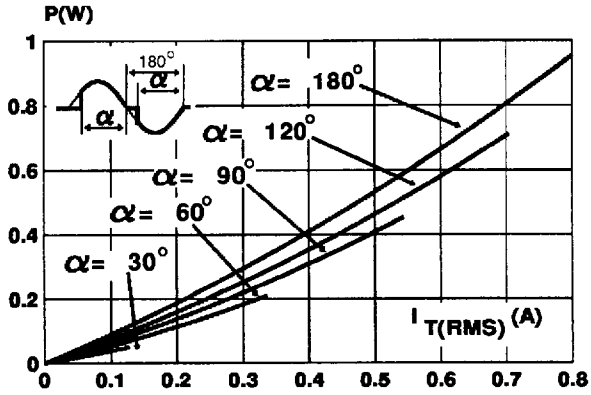


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tlead).

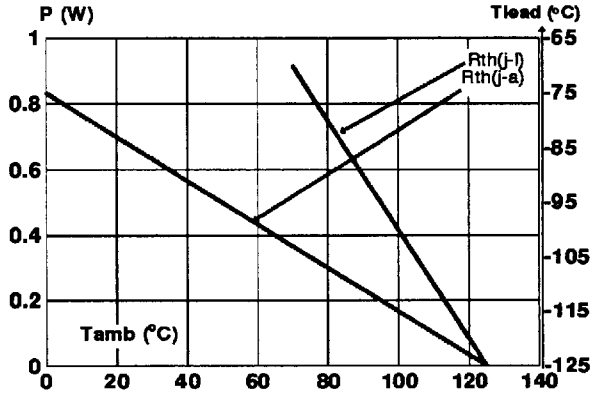


Fig.3 : RMS on-state current versus case temperature.

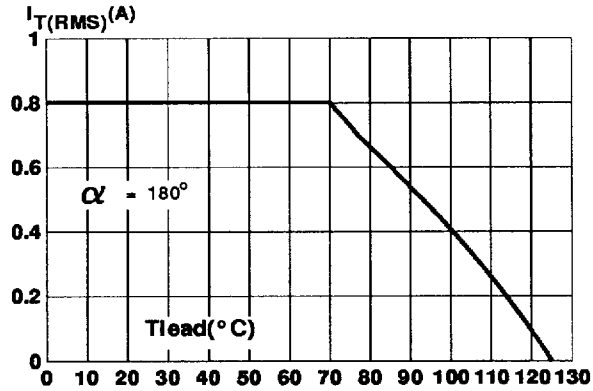


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

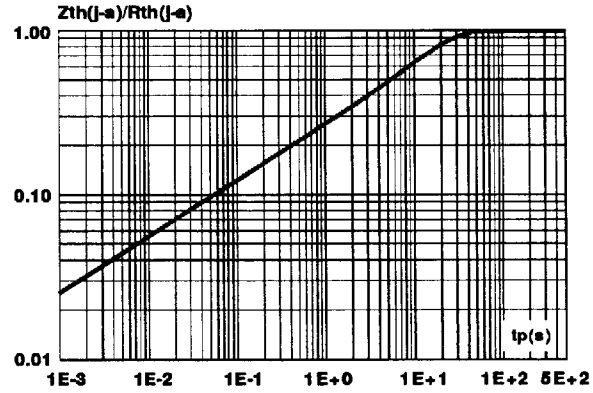


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

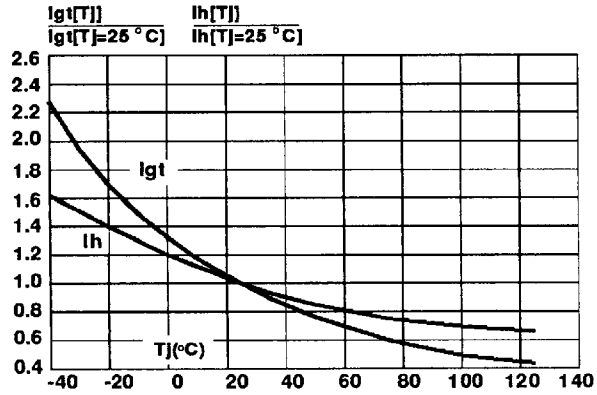


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

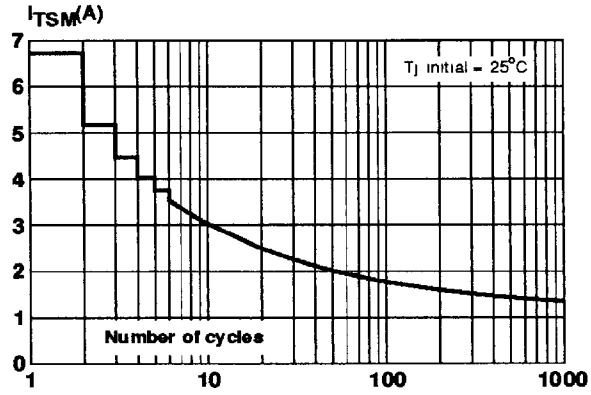


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ≤ 10ms, and corresponding value of I^2t.

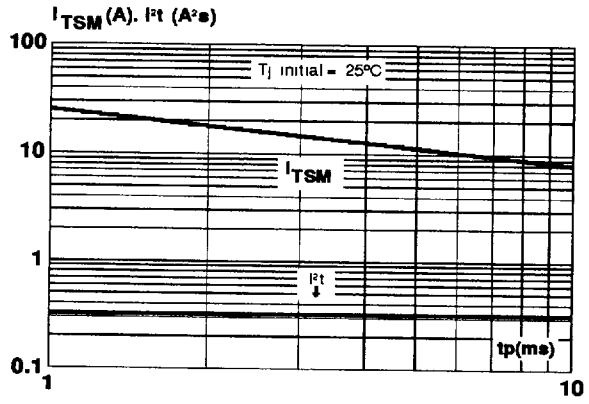
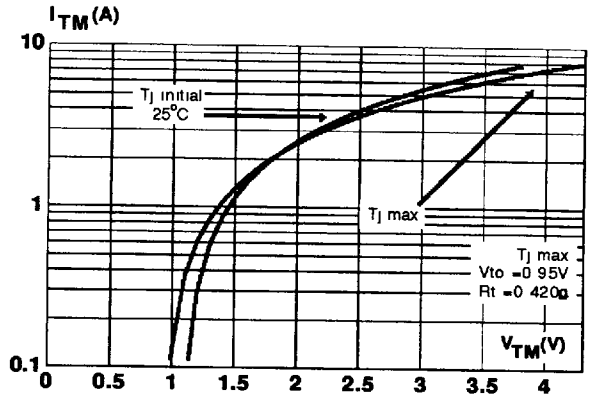
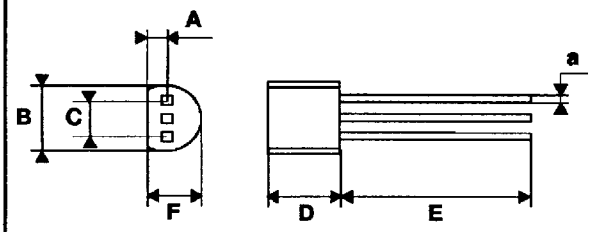


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO92 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	1.35			0.053		
B			4.7			0.185
C	2.54			0.100		
D		4.4	4.8		0.173	0.189
E		12.7			0.500	
F			3.7			0.146
a			0.45			0.017

Marking : type number
Weight : 0.2 g