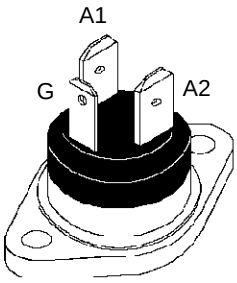
SGS-THOMSON MICROELECTRONICS

T40xxxKS

STANDARD TRIACS

FEATURES

- $I_{T(RMS)}$ = 40A
- V_{DRM} = 400V to 800V
- INSULATING VOLTAGE 2500$V_{(RMS)}$ (UL RECOGNIZED : E81734)



RD107
(Plastic)

DESCRIPTION

The T40xxxKS series triacs uses a high performance MESA GLASS 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 (360° conduction angle)	Tc= 75 °C	40	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	330	A
		tp = 10 ms	300	
I^2t	I^2t Value for fusing	tp = 10 ms	450	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 500 mA di_G/dt = 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		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-c)	Junction to case for D.C	1.2	°C/W
Rth(j-c)	Junction to case for A.C 360° conduction angle (F=50Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G\ (AV)}$= 1 W P_{GM} = 10 W (tp = 20 µs) I_{GM} = 4 A (tp = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity		Unit
					12	13	
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	I-II-III	MAX	50	50	mA
			IV	MAX	50	75	
V_{GT}	V_D=12V (DC) R_L=33Ω	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 = 500mA I_T = 56A dI_G/dt = 3A/µs	Tj= 25°C	I-II-III-IV	TYP	2		µs
I_H *	I_T= 250 mA Gate open	Tj= 25°C		MAX	50	75	mA
I_L	I_G= 1.2 I_{GT}	Tj= 25°C	I-III-IV	TYP	50	75	mA
			II	TYP	100	150	
V_{TM}*	I_{TM}= 56A tp= 380µs	Tj= 25°C		MAX	1.7		V
I_{DRM} I_{RRM}	V_D = V_{DRM} V_R = V_{RRM}	Tj= 25°C		MAX	10		µA
		Tj= 125°C		MAX	3		mA
dV/dt *	VD=67%V_{DRM} Gate open	Tj= 125°C		MIN	500		V/µs
(dV/dt)c *	(dI/dt)c = 18 A/ms	Tj= 125°C		MIN	5		V/µs

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

ORDERING INFORMATION

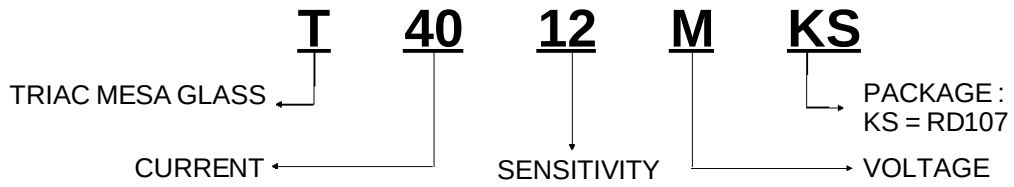


Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

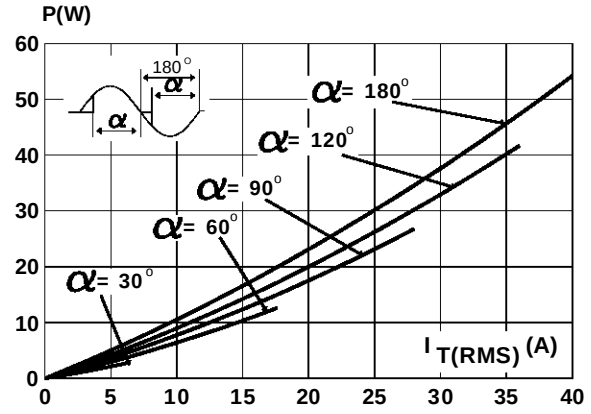


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

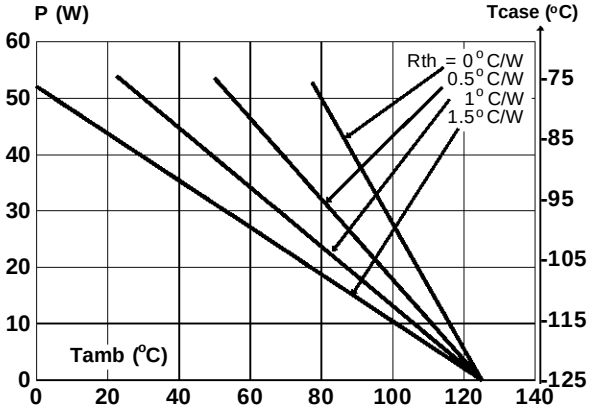


Fig.3 : RMS on-state current versus case temperature.

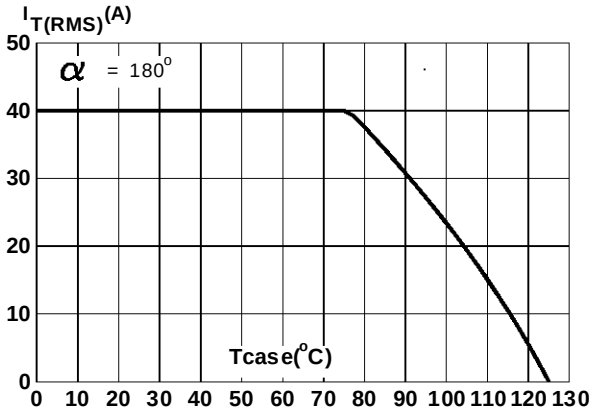


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

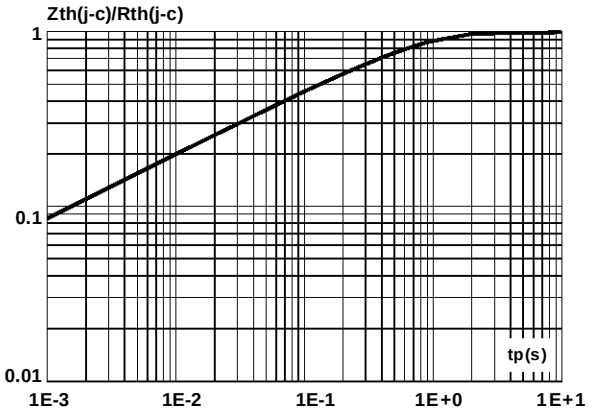


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

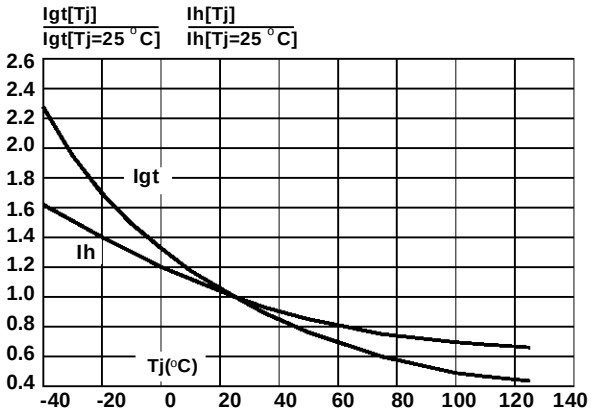


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

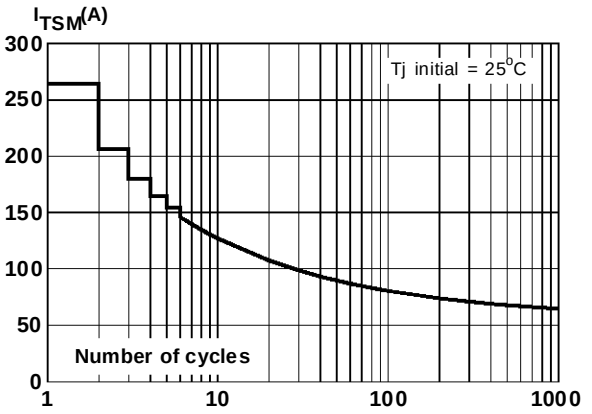


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ≤ 10ms, and corresponding value of I^2t.

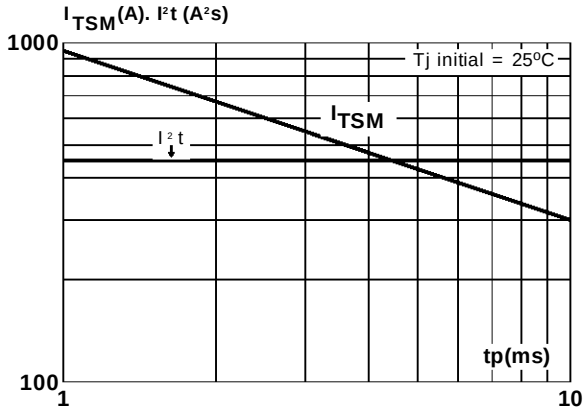
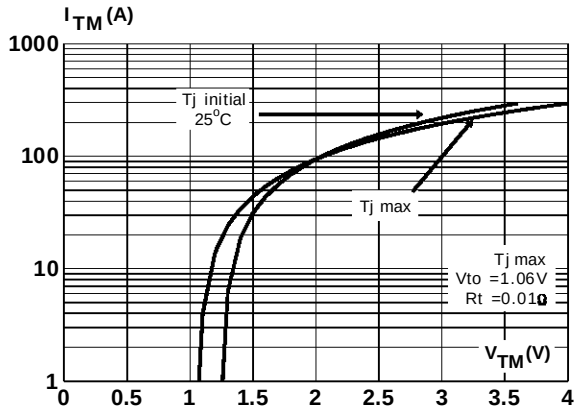
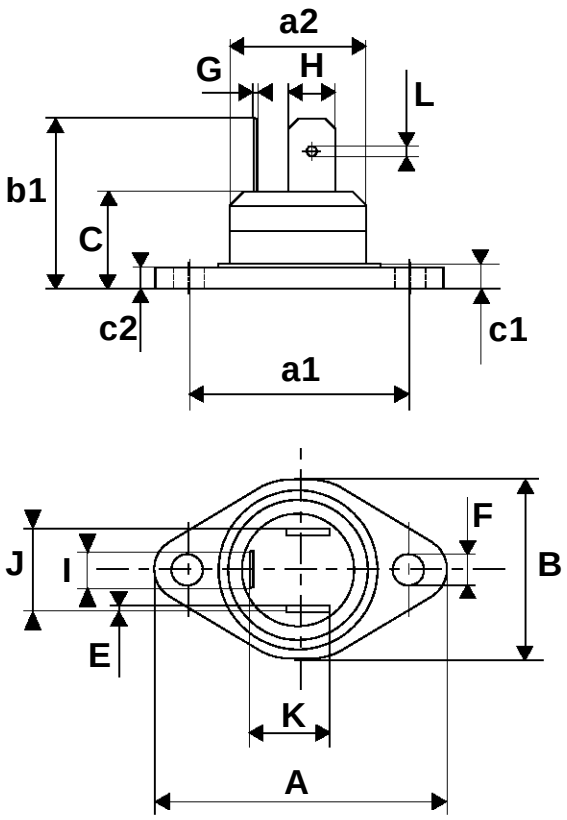


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
RD107 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			40.0			1.575
a1		29.9	30.3		1.177	1.193
a2			22.0			0.867
B			27.0			1.063
b1			24.0			0.945
C			14.0			0.552
c1			3.5			0.138
c2		1.95	3.0		0.767	0.118
E		0.75	0.85		0.029	0.033
F		4.0	4.5		0.157	0.177
G		0.45	0.55		0.018	0.022
H		6.2	6.3		0.244	0.248
I		4.7	4.8		0.185	0.189
J		9.5	11.7		0.374	0.461
K	11.35			0.446		
L		1.4	1.6		0.551	0.630

Marking : type number
Weight : 20 g