SGS-THOMSON MICROELECTRONICS

T4016xKS

SNUBBERLESS TRIACS

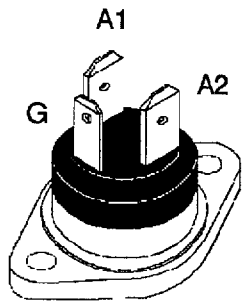
FEATURES

- $I_{T(RMS)}$ = 40A
- HIGH COMMUTATION : $(dI/dt)c \geq 22A/ms$
- INSULATING VOLTAGE = $2500V_{(RMS)}$ (UL RECOGNIZED : E81734)

DESCRIPTION

The T4016xKS series of isolated triacs uses a high performance MESA GLASS technology.

The SNUBBERLESS™ concept offer suppression of RC network and it is suitable for application such as phase control and static switching on inductive or resistive load.



RD107
(Plastic)

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 = 50 mA dI_G/dt = 0.1 A/µs.	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 125 - 40 to + 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)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity	Unit
					16	
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	I-II-III	MIN	2	mA
				MAX	50	
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	I-II-III	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj= 125°C	I-II-III	MIN	0.2	V
tgt	V_D=V_{DRM} I_T = 56A I_G = 500mA dI_G/dt = 3A/µs	Tj= 25°C	I-II-III	TYP	2	µs
I_H *	I_T= 250mA Gate open	Tj= 25°C		MAX	50	
I_L	I_G= 1.2 I_{GT}	Tj= 25°C	I-III	TYP	50	mA
			II	TYP	100	
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 *	V_D=67%V_{DRM} Gate open	Tj= 125°C		MIN	750	V/µs
(dI/dt)c *	Without snubber	Tj= 125°C		MIN	22	A/ms
				TYP	44	

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

ORDERING INFORMATION

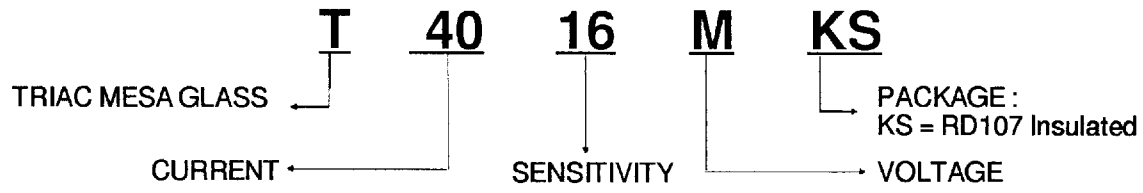


Fig.1 : Maximum power dissipation versus RMS on-state current.

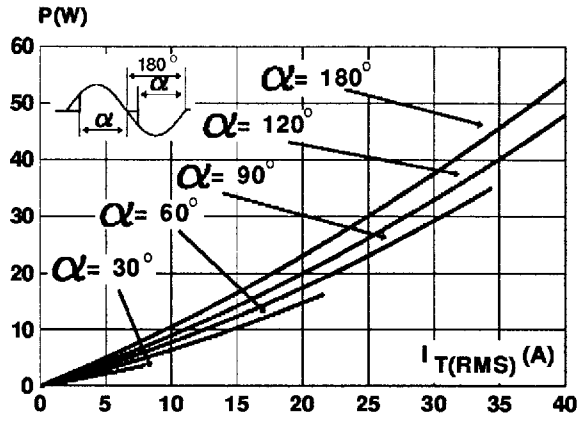


Fig.2 : Correlation between maximum power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

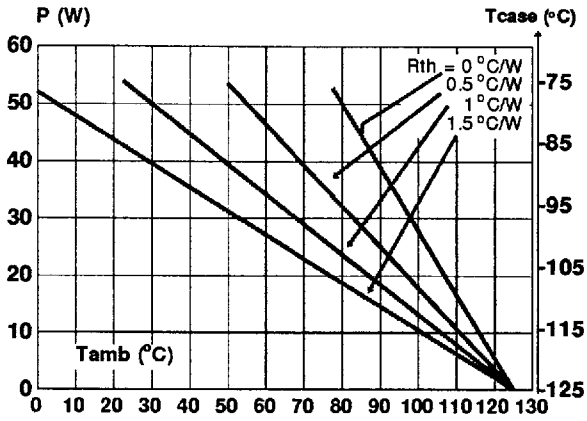


Fig.3 : RMS on-state current versus case temperature.

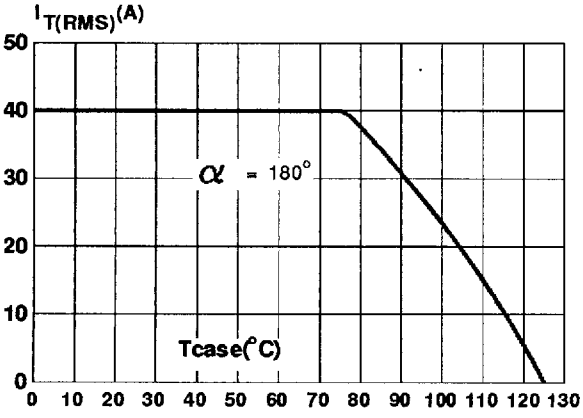


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

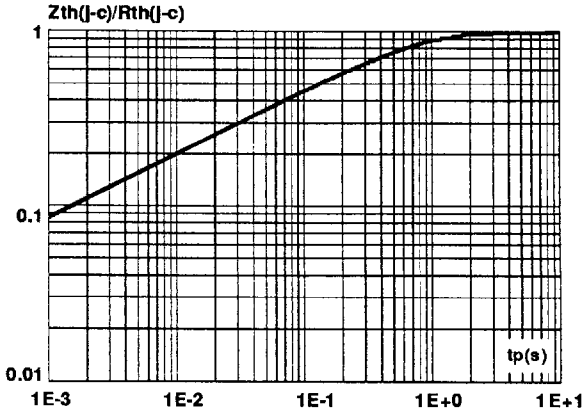


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

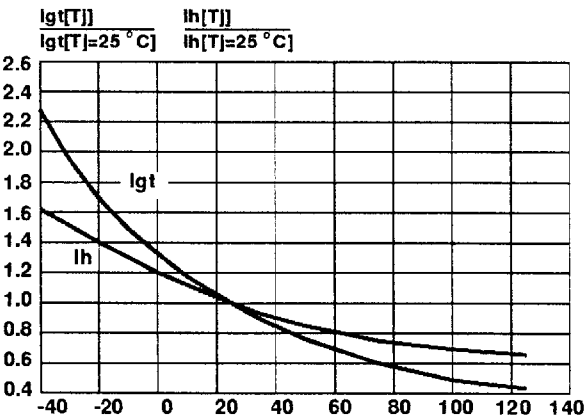


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

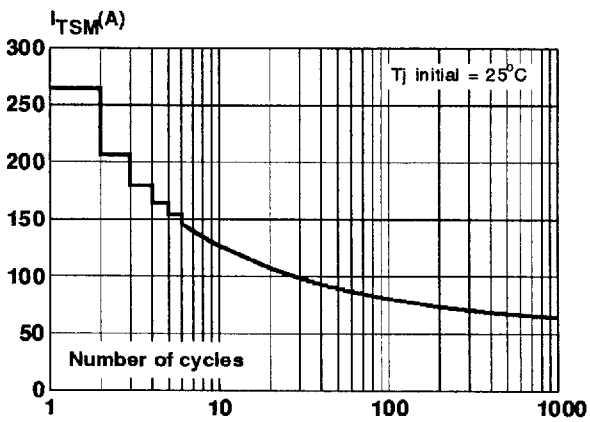


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ≤ 10ms, and corresponding value of I^2t.

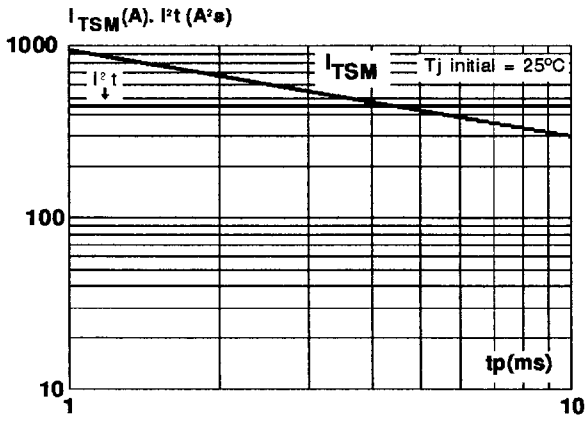
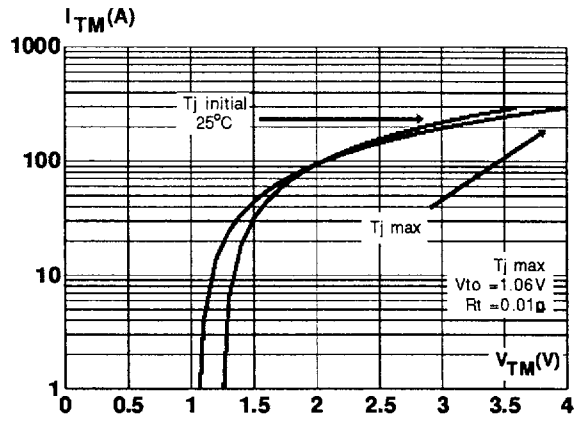
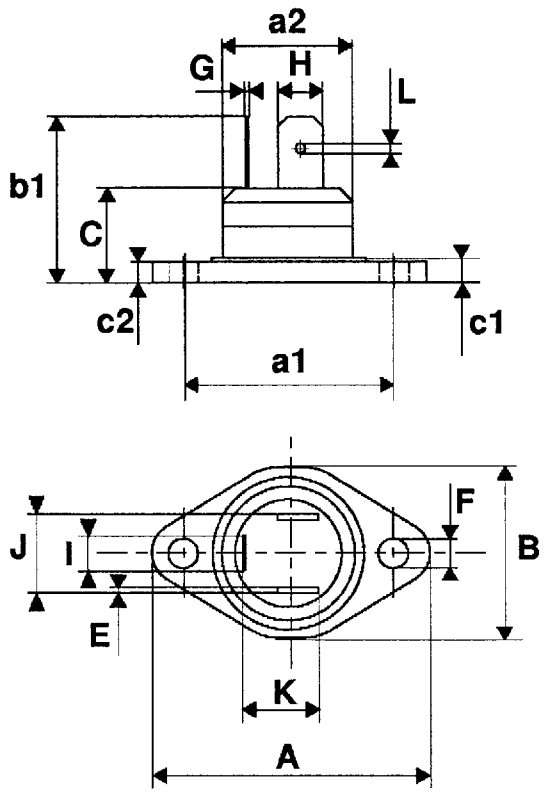


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

RD 107(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 : 20g