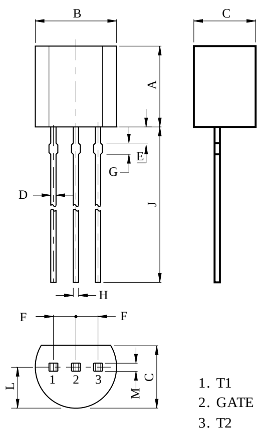
MAC97A6 TRIAC

MAIN FEATURES

Symbol		value	unit
$I_{T(RMS)}$		1	A
V_{DRM}/V_{RRM}	MAC97A6	600	V
I_{TSM}		8	A



DIM	MILLIMETERS
A	4.70 MAX
B	4.80 MAX
C	3.70 MAX
D	0.55 MAX
E	1.00
F	1.27
G	0.85
H	0.45
J	14.00±0.50
L	2.30
M	0.51 MAX

1. T1
2. GATE
3. T2

TO-92

DESCRIPTION

Logic level sensitive gate triac intended to be interfaced directly to microc ontrollers, logic integrated circuits and other low power gate trigger circuits.

FEATURES

- Blocking voltage to 600 V (MAC97A6)
- RMS on-state current to 1.0 A
- General purpose bidirectional switching

APPLICATIONS

- General purpose bidirectional switching
- Phase control applications
- Solid state relays.

Limiting values

Symbol	Parameter	Conditions	Value	Unit
V_{DRM}	repetitive peak off-state voltage MAC97A6	T_j= 25 to125 ℃	600	V
I_{GM}	gate current(peak value)	t = 2μs max	1	A
V_{GM}	gate voltage(peak value)	t = 2μs max	5	V
P_{GM}	gate power(peak value)	t = 2μs max	5	W
T_J	Junction Temperature	-	-40 to 125	℃
T_{stg}	Storage Temperature	-	-40 to 150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter		Symbol	Test conditions		MIN	MAX	UNIT
Rated repetitive peak off-state voltage		V_{DRM}, V_{RRM}	I_D=10μA		600		V
Rated repetitive peak off-state current		I_{DRM}	V_D=V_{DRM}			10	μA
On-state voltage		V_{TM}	I_T=1A, I_G=50mA			1.9	V
Gate trigger current	I	I_{GT}	T_2(+), G(+)	V_D=12V R_L=100Ω		5	mA
	II		T_2(+), G(-)			5	mA
	III		T_2(-), G(-)			5	mA
	IV		T_2(-), G(+)			-	mA
Gate trigger voltage	I	V_{GT}	T_2(+), G(+)	V_D=12V R_L=100Ω		1.5	V
	II		T_2(+), G(-)			1.5	V
	III		T_2(-), G(-)			1.5	V
	IV		T_2(-), G(+)			-	V
Holding current		I_H	I_T=600mA, I_G=20mA			10	mA

Typical Characteristics

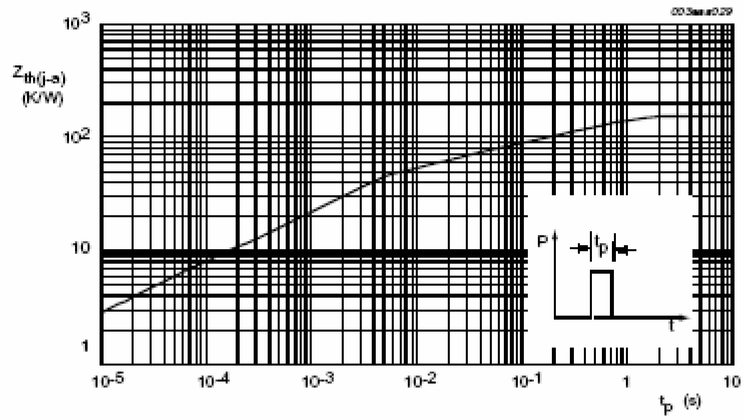
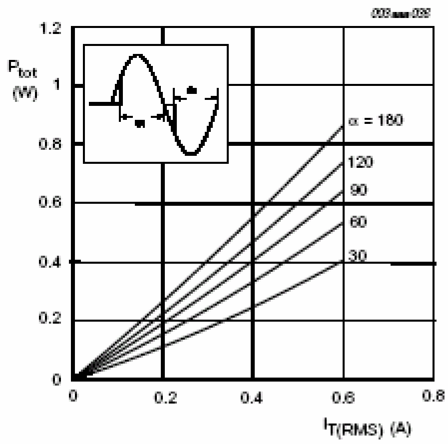
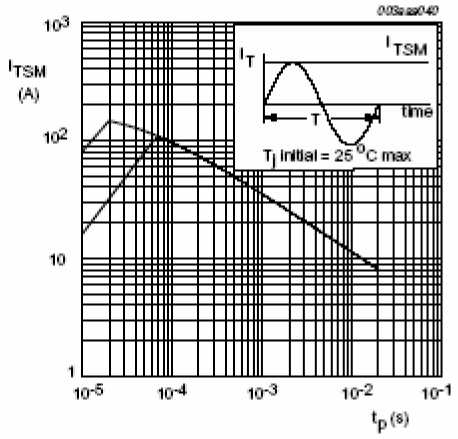


Fig 1. Transient thermal impedance from junction to ambient as a function of pulse duration.



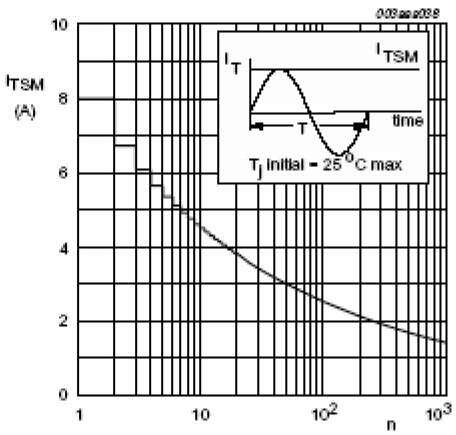
α = conduction angle

Fig 2. Maximum on-state dissipation as a function of RMS on-state current; typical values.



$t_p \leq 20$ ms

Fig 3. Maximum permissible non-repetitive peak on-state current as a function of pulse width for sinusoidal currents; typical values.



n = number of cycles at f = 50 Hz

Fig 4. Maximum permissible non-repetitive peak on-state current as a function of number of cycles for sinusoidal currents; typical values.

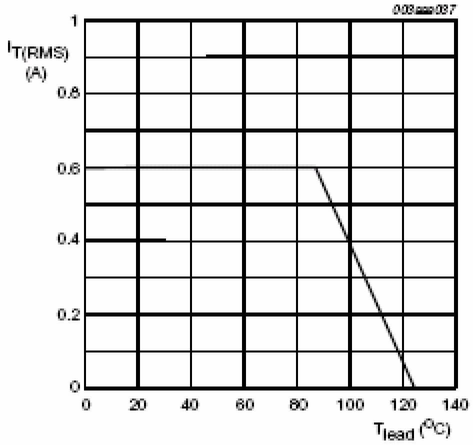
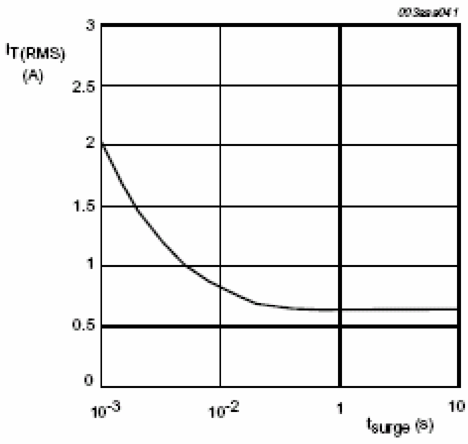
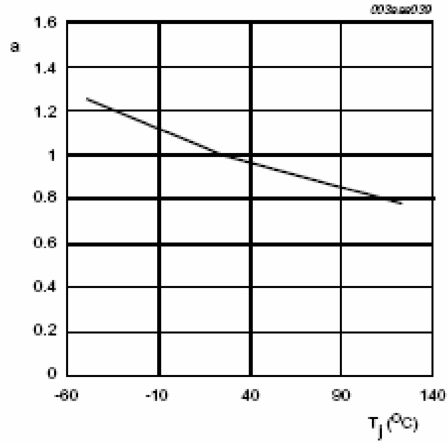


Fig 5. Maximum permissible RMS current as a function of lead temperature; typical values.



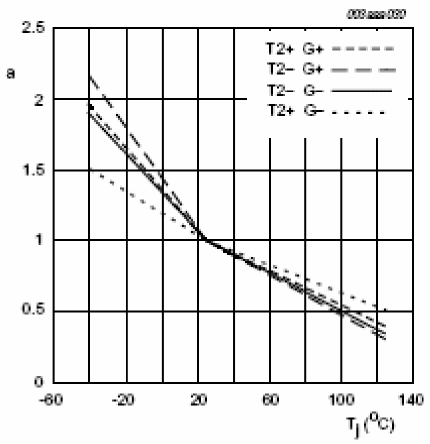
f = 50 Hz; $T_{lead} \leq 50$ °C

Fig 6. Maximum permissible repetitive RMS on-state current as a function of surge duration for sinusoidal currents; typical values.



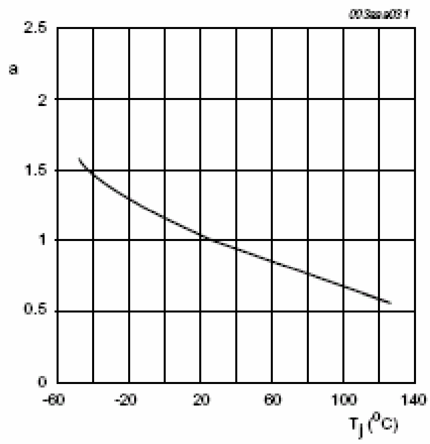
$$a = \frac{V_{GT(Tj)}}{V_{GT(25°C)}}$$

Fig 7. Normalized gate trigger voltage as a function of junction temperature; typical values.



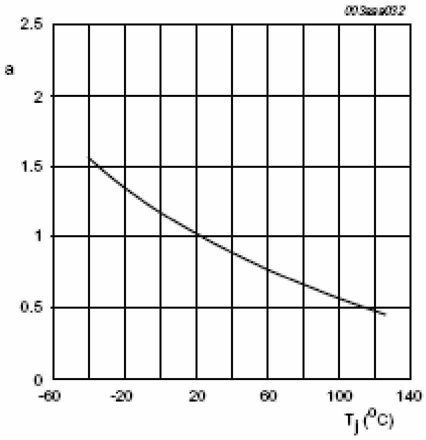
$$a = \frac{I_{GT(Tj)}}{I_{GT(25°C)}}$$

Fig 8. Normalized gate trigger current as a function of junction temperature; typical values.



$$a = \frac{I_{L(Tj)}}{I_{L(25°C)}}$$

Fig 9. Normalized latching current as a function of junction temperature; typical values.



$$a = \frac{I_{H(Tj)}}{I_{H(25^{\circ}C)}}$$

Fig 10. Normalized holding current as a function of junction temperature; typical values.

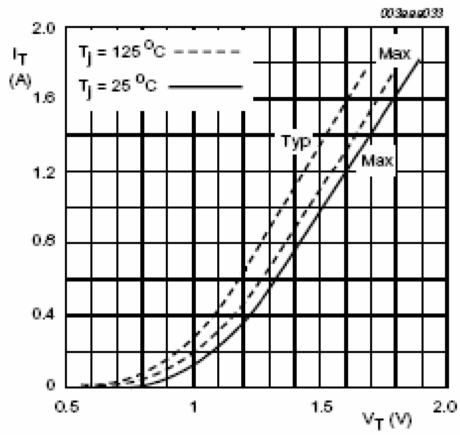


Fig 11. On-state current as a function of on-state voltage; typical and maximum values.

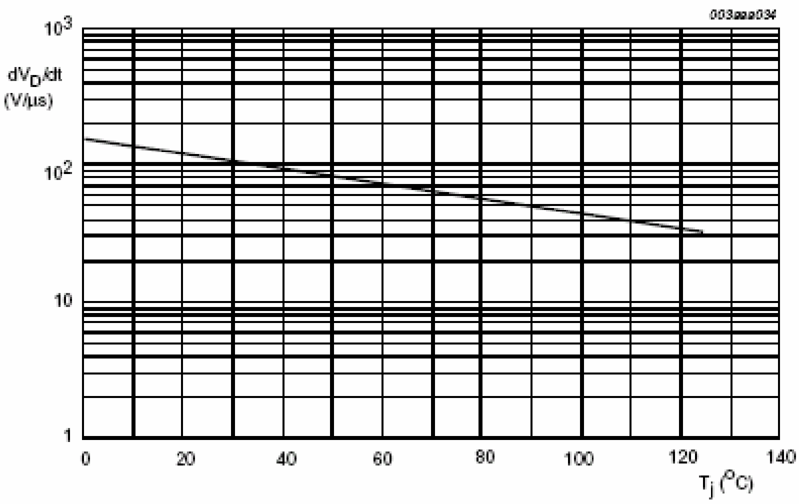


Fig 12. Critical rate of rise of off-state voltage as a function of junction temperature; typical values.