

MAC97A6 2A TRIAC

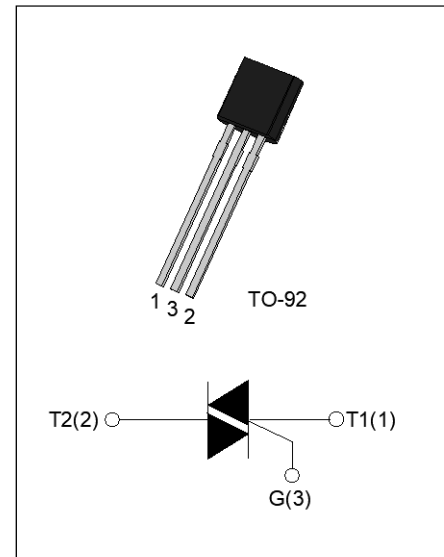
Rev.A.2.0

DESCRIPTION

The MAC97A6 triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Package TO-92 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	2	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I/II/III/IV}$	5/5/5/10	μA



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40~150	$^{\circ}C$
Operating junction temperature range		T_j	-40~125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)		V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		V_{RRM}	800	V
R.M.S On-State Current ($T_c \leq 110^{\circ}C$)		$I_{T(RMS)}$	2	A
Surge On-State Current ($t_p=10ms$)		I_{TSM}	20	A
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)		I^2t	2.6	A^2s
Critical rate of rise of on-state current ($I_T=4A, I_G=0.2A$, $dI_G/dt=0.2A/\mu s$,)	I - II - III	dI/dt	50	$A/\mu s$
	IV		10	
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)		I_{GM}	2	A
Average gate power dissipation ($T_j=125^{\circ}C$)		$P_{G(AV)}$	0.5	W
Peak gate power		P_{GM}	5	W
Peak pulse voltage ($T_j=25^{\circ}C$, non-repetitive, off-state)		V_{PP}	3.5	kV

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ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I _{GT}	V _D =12V R _L =33Ω	I - II -III	MAX.	5	mA
		IV		10	
V _{GT}		ALL	MAX.	1.3	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	ALL	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	I -III-IV	MAX.	5	mA
		II		20	
I _H	I _T =50mA		MAX.	7	mA
dV/dt	V _D =540V Gate Open T _j =110°C		MIN.	100	V/μs
(dV/dt) _c	(dI/dt) _c =0.44A/ms, T _j =110°C		MIN.	30	V/μs
t _{on}	I _G =20mA I _A =200mA I _R =20mA T _j =25°C		TYP.	2.5	μs
t _{off}				25	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V _{TM}	I _{TM} =1.4A t _p =380μs	T _j =25°C	1.45	V
V _{TO}	Threshold voltage	T _j =125°C	0.96	V
R _D	Dynamic resistance	T _j =125°C	225	mΩ
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	5	μA
I _{RRM}		T _j =110°C	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	junction to case (DC)	60	°C/W
R _{th(j-a)}	junction to ambient (DC)	150	°C/W

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FIG.1 Maximum power dissipation versus RMS on-state current

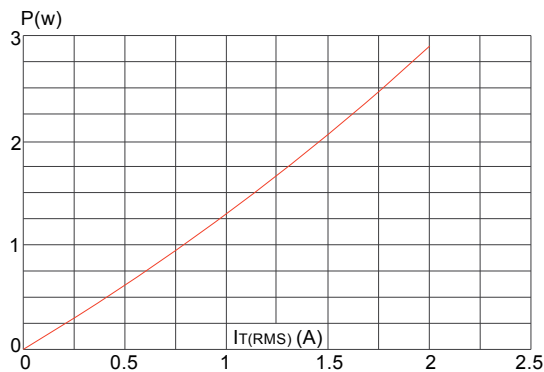


FIG.2: RMS on-state current versus case temperature

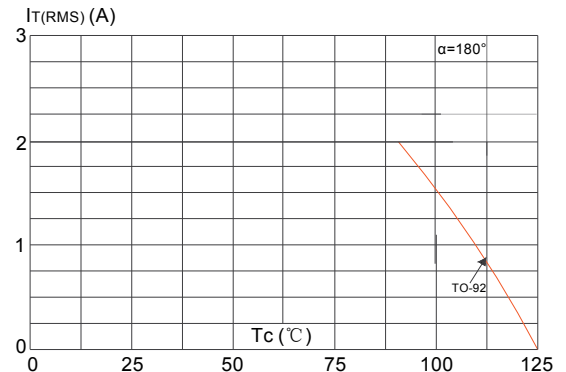


FIG.3: Surge peak on-state current versus number of cycles

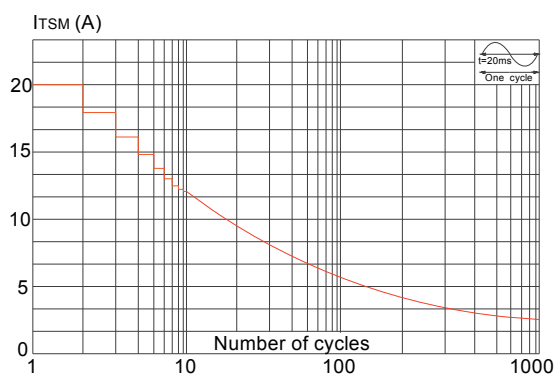


FIG.4: On-state characteristics

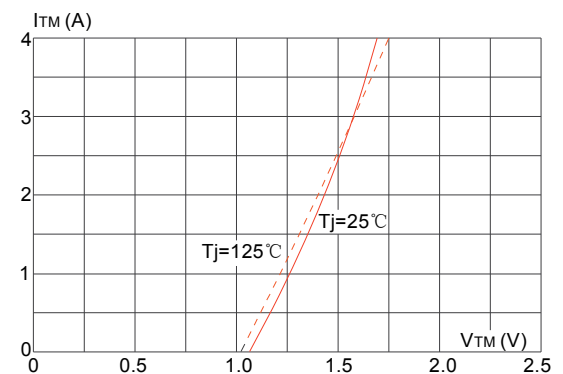


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I_{l2t} ($di/dt < 100\text{A}/\mu\text{s}$)

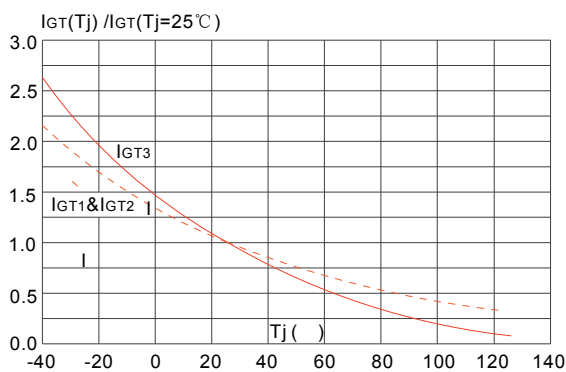
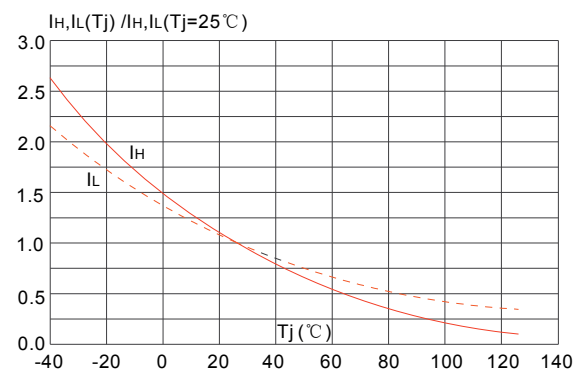


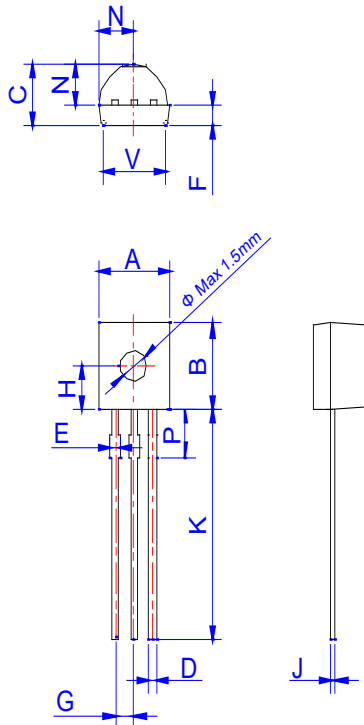
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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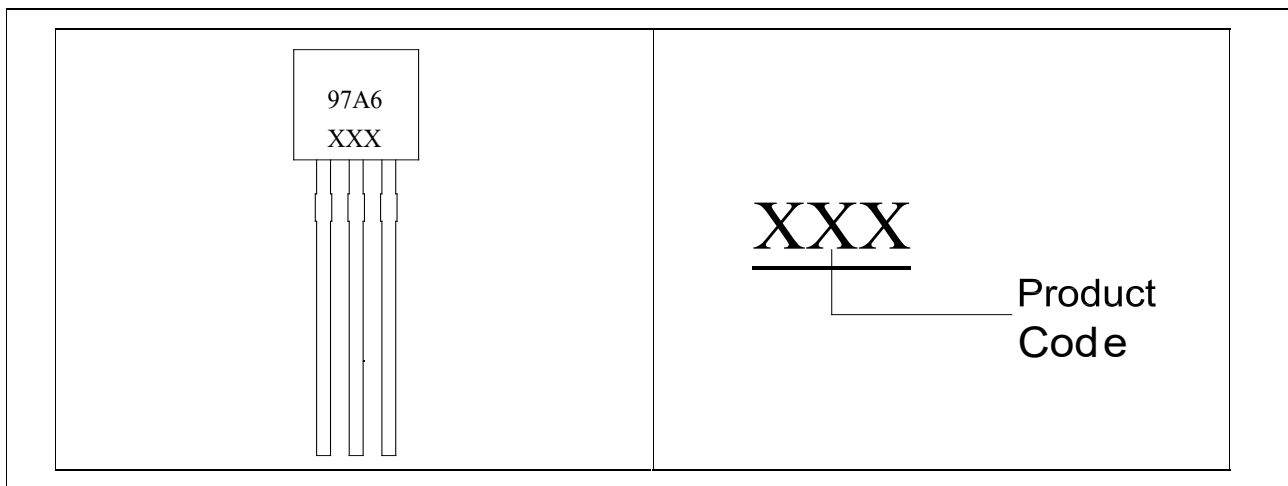
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PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.407		0.533	0.016		0.021
E	0.50		0.70	0.020		0.028
F	1.10		1.30			0.051
G	1.10		1.40	0.043		0.055
H	2.20		2.40	0.087		0.094
J	0.36		0.50	0.014		0.020
K	12.70		15.0	0.500		0.591
N	2.04		2.66	0.080		0.105
P	1.80		2.30	0.071		0.091
V	4.10		4.50	0.161		0.177

MARKING



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PACKAGE	OUTLINE	BAG (PCS)	INNER BOX (PCS)	CARTON BOX (PCS)
TO-92	Bulk Pack	1,000	10,000	50,000

PACKAGE	OUTLINE	REEL (PCS)	INNER BOX (PCS)	PER CARTON
TO-92	Tape & Reel	/	10,000	50,000

Document Revision History

Date	Revision	Changes
Jun.22, 2025	A.2.0	Last updated

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