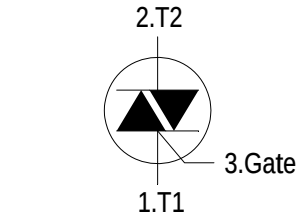
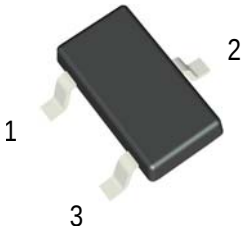
4 Quadrants Triacs





SOT-23-3L

General Description

This device is suitable for low power AC switching application, phase control application such as fan speed and temperature modulation control , lighting control and static switching relay also designed for use in MPU interface, TTLlogic.

Features

- ◆ Repetitive Peak Off-State Voltage: 600Vand700V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$= 0.8 A)
- ◆ These Devices are Pb-Free and are RoHS Compliant

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Absolute Maximum Ratings (T_j = 25°C unless otherwise specified)

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj = 25°C	MAC97A6N	600	V
V_{RRM}			MAC97A8N	700	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 60°C		0.8	A
I_{TSM}	Surge On-State Current	tp =20ms(50Hz)/tp=16.7ms(60Hz)		9/10	A
I^2t	I^2t for fusing	tp=10ms		0.4	A^2s
dI/dt	Critical rate of rise of on-state current	F = 120 Hz Tj = 125°C I_G = 2 x I_{GT} , tr ≤ 100 ns		20	A/μs
I_{GM}	Peak Gate Current	tp = 20 μs Tj = 125°C		1	A
$P_{G(AV)}$	Average Gate Power Dissipation(tp=10ms,Tj=80°C)			0.1	W
P_{GM}	Peak Gate Power Dissipation(tp=10ms,Tj=80°C)			1	W
T_j	Operating Junction Temperature			- 40 ~ 125	°C
T_{STG}	Storage Temperature			- 40 ~ 150	°C

ADV

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Electrical Characteristics(T_j = 25°C unless otherwise specified)

Symbol	Items		Conditions		MAC97A6N/8N	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	5	uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		0.1	mA
V_{TM}	Peak On-State Voltage		I_{TM} = 1.1A, tp = 380 μs	Max.	1.5	V
V_{GD}	Q1-Q2-Q3-Q4	Non－Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ Tj = 125°C	Min.	0.2	V
V_{GT}	Q1-Q2-Q3-Q4	GateTrigger Voltage	V_D = 12V ， R_L = 33Ω	Max.	1.3	V
I_{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	mA
	Q4				10	
I_H	Q1-Q2-Q3-Q4	Holding Current	I_T = 0.2A	Max.	7	mA
I_L	Q1-Q3-Q4	Latching Current	I_G = 1.2 I_{GT}	Max.	10	mA
	Q2				20	
dV/dt	Critical Rate of Rise of Off-State Voltage		V_D = 2/3V_{DRM} gate open Tj = 125°C	Min.	30	V/μs
(dV/dt)c	Critical Rate of Change of Commutating Voltage		(dI/dt)c=-0.3A/ms Tj = 125°C	Min.	3	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	50	°C/W
$R_{th(j-a)}$	Junction to ambient			Max.	400	°C/W

FIG.1:Triac quadrant are defined and the gate trigger test circuit

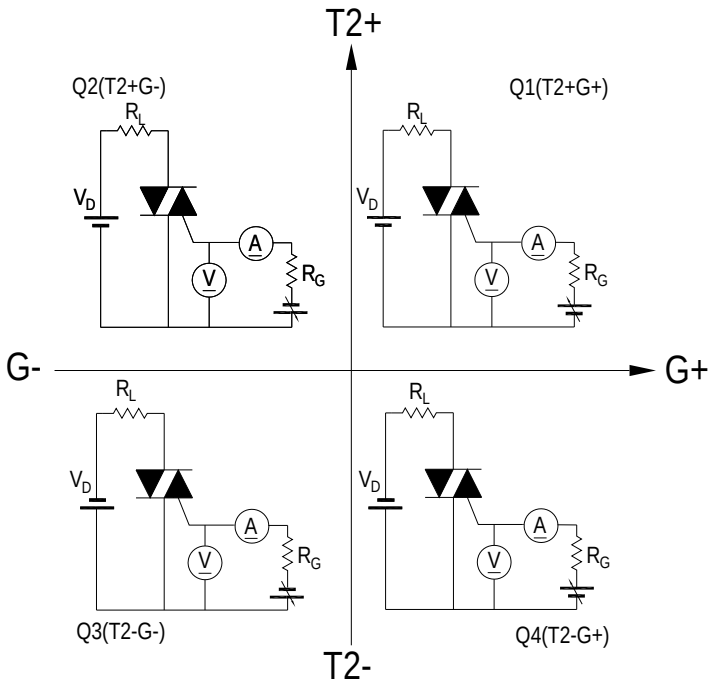


FIG.2: Maximum on-state power dissipation

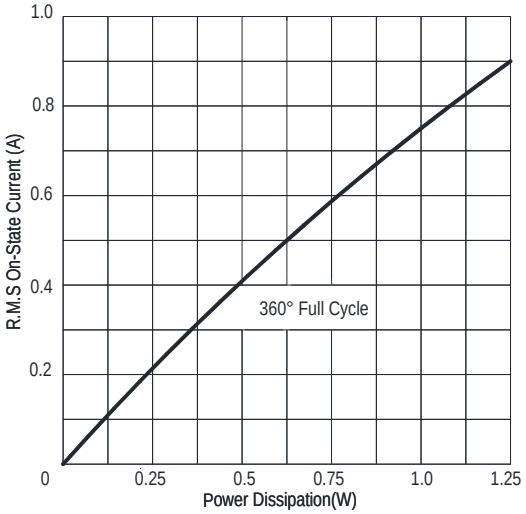


FIG.3: Typical RMS on-state current VS Allowable case Temperature

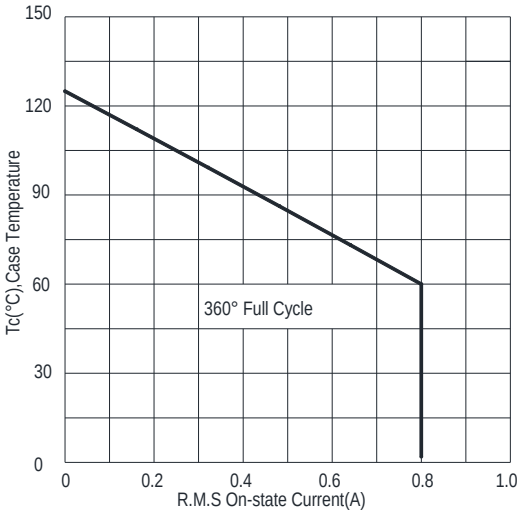


FIG.4: Gate trigger current VS Junction temperature

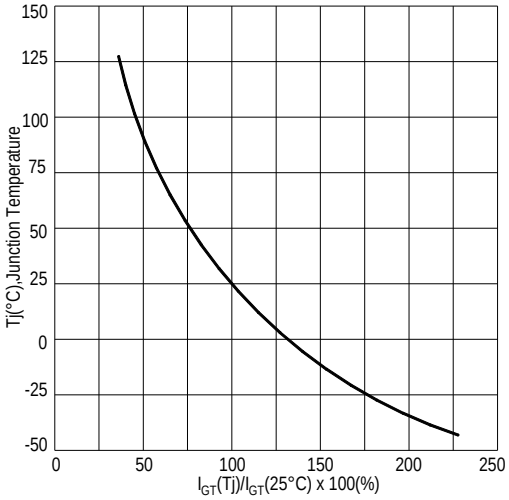


FIG.5: Rated surge on-state current (Non-Repetitive)

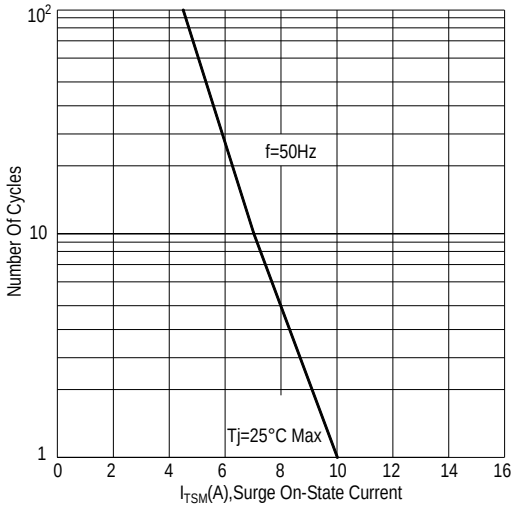


FIG.6: On-state characteristics(Max)

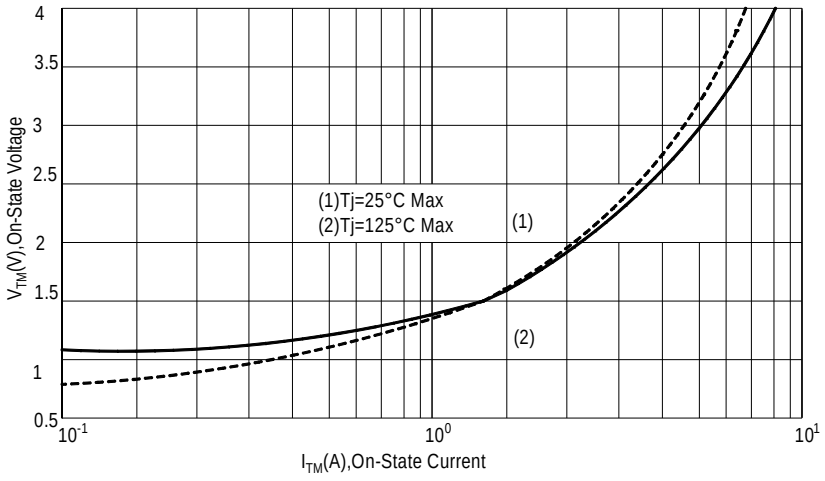


FIG.7:Holding current and Latching current VS Junction temperature

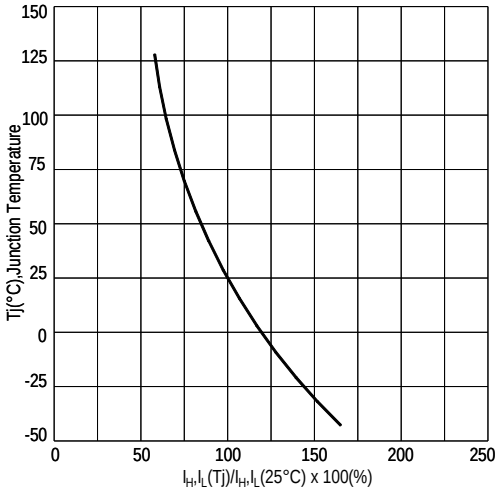
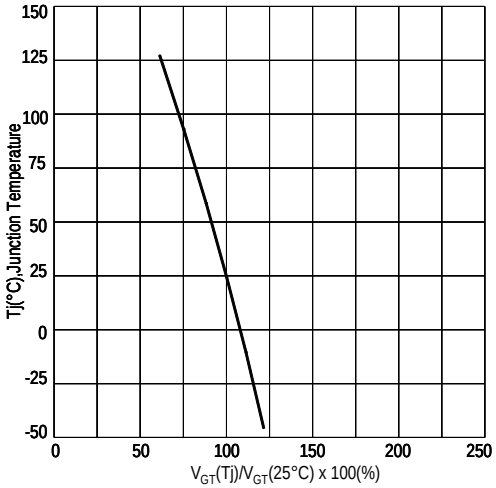
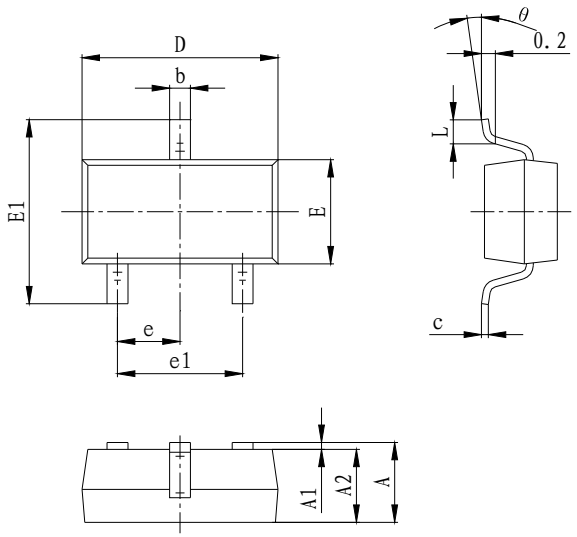


FIG.8: Gate trigger voltage VS Junction temperature



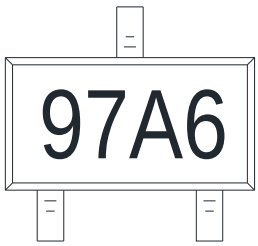
PACKAGE MECHANICAL DATA

SOT-23-3L Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.120	1.220	0.044	0.048
A1	0.000	0.070	0.000	0.003
A2	1.050	1.170	0.041	0.046
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.550	1.650	0.061	0.065
E1	2.650	2.950	0.104	0.116
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
θ	0°	8°	0°	8°

Making Diagram



MAC 97A 6 N

TRIACs

$I_{T(RMS)}$=0.8A

Packge explain:
N=SOT-23-3L

Voltage:6=600V/8=700V

Ordering information

Part number	Package	Marking	Packing	Quantity
MAC97A6N	SOT-23-3L	97A6	Tape&reel	3000pcs
MAC97A8N	SOT-23-3L	97A8	Tape&reel	3000pcs

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