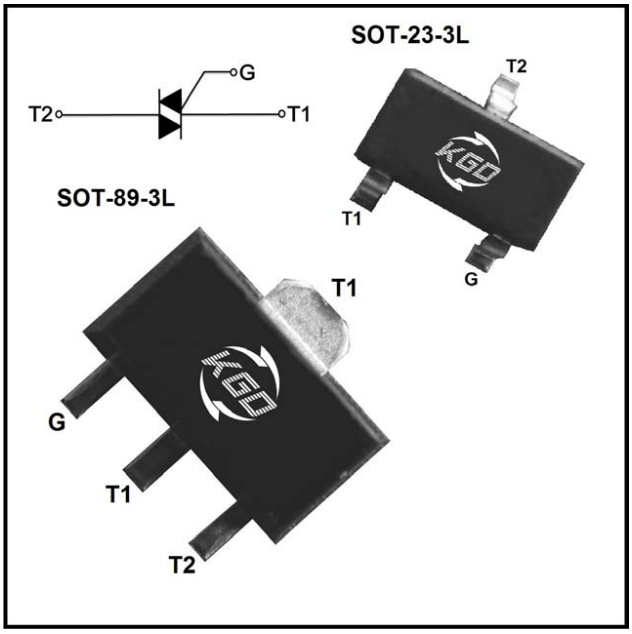
MAC97A6S,MAC97A6M Series

- **Description:**
  Logic level sensitive gate triac intended to interfaced directly to microcontrollers,logic integrated circuits and other low power gate trigger circuits.
- **Applications**
  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.
- **Features:**
  Blocking voltage to 600V
  On-state RMS current to 0.8A
  Non-repetitive peak on-state current to 8A
- **Absolute Maximum Ratings**



Symbol	Parameter	Conditions	Value	Unit
V_{DRM}	Repetitive peak off-state voltage	T_J=25℃	600	V
V_{RRM}	Repetitive peak Reverse voltage	T_J=25℃	600	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	T_c=110℃	0.8	A
$I_{T(av)}$	Average on-state current (full sine wave)	T_c=110℃	0.5	A
I_{TSM}	Non-repetitive surge peak On-state current (One full cycle,sine wave,T_C=110℃)	tp=10ms	8	A
		tp=8.3ms	8.3	
I^2t	I^2t Value for fusing	tp=10ms	0.32	A^2S
I_{GM}	Peak gate current	tp≤2μs, T_J=80℃	1	A
$P_{G(AV)}$	Average gate power dissipation	tp≤10ms, T_J=80℃	0.1	W
PGM	Peak gate power dissipation		1	W
T_{STG}	Storage temperature		-40 ~ 150	℃
T_J	Junction temperature		-40 ~ 125	℃

● Electrical Characteristics

Symbol	Conditions	Quadrant	Value		Unit
			MIN	MAX	
I_{GT}	V_D=12V,R_L=33Ω	Ⅰ-Ⅱ-Ⅲ	/	4	mA
		Ⅳ	/	6	
V_{GT}		ALL	/	1.5	V
V_{GD}	V_D=V_{DRM},R_L=3.3KΩ,T_J=125℃	ALL	0.2	/	V
I_L	I_G=1mA	ALL	/	10	mA
I_H	I_T=200mA		/	5	mA
dV/dt	V_{DM}=67%V_{DRM}, gate open,T_J=125℃		25	/	V/μs
(dV/dt)c	(dI/dt)c=0.3A/ms,T_J=125℃		0.5	/	V/μs

● Electrical Characteristics

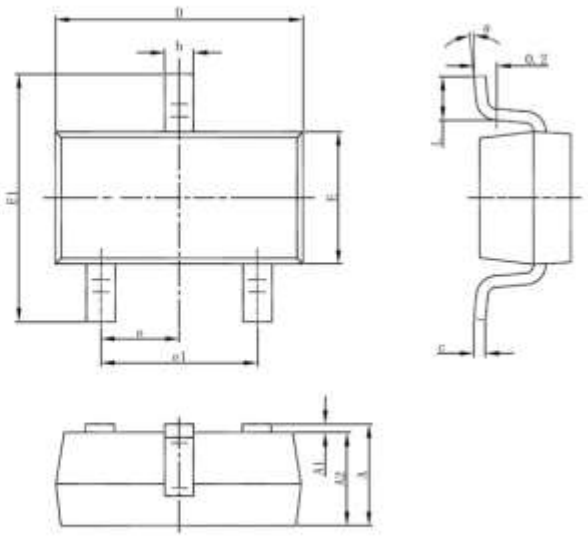
Symbol	Parameter		Numerical	Unit
V_{TM}	I_T=1.1A,tp=380μs	T_J=25℃	1.5	V
I_{DRM} I_{RRM}	V_D=V_{DRM},V_R=V_{RRM}	T_J=25℃	5	μA
		T_J=125℃	0.1	mA

● Thermal Characteristics

Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j-c)}$	Junction to case	15	℃/W
$R_{th(j-a)}$	Junction to ambient	150	℃/W
T_L	Lead Solder Temperature(<1/16”from case,10 secs max)	260	℃

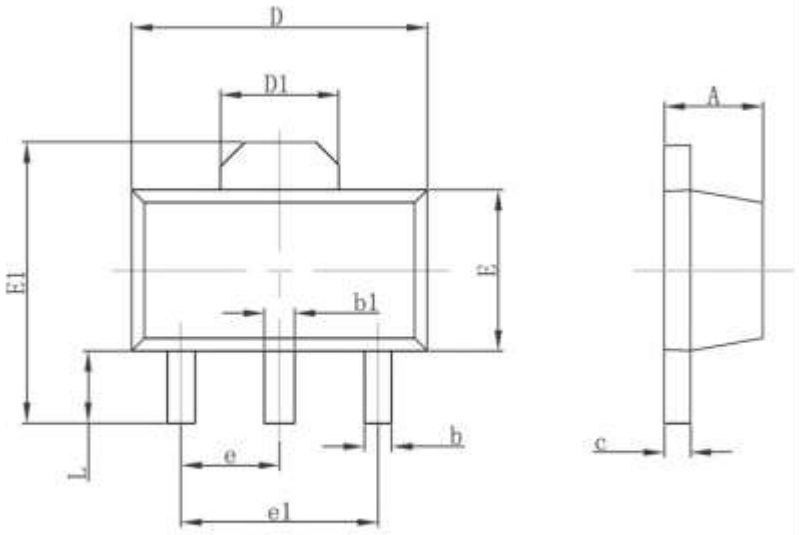
- **Package Outline Dimensions**

SOT-23-3L



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950		0.037	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-89-3L



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.188 TYP.	
L	0.900	1.200	0.035	0.047

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FIG.1: Maximum power dissipation versus average on-state current.

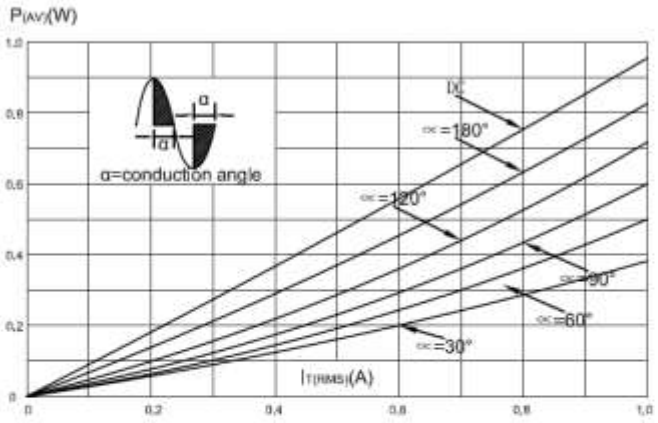

FIG.2: RMS on-state current versus case temperature.

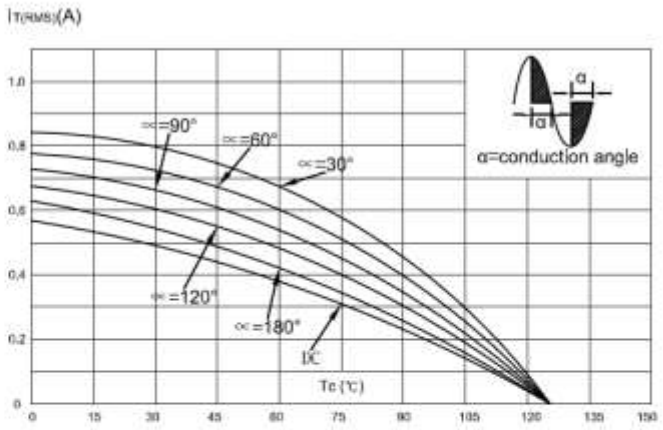

FIG.3: On-state characteristics (maximum values)

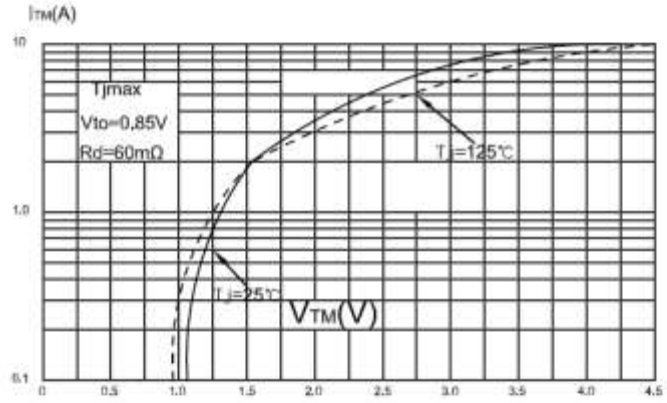

FIG.4: Surge peak on-state current versus number of cycles.

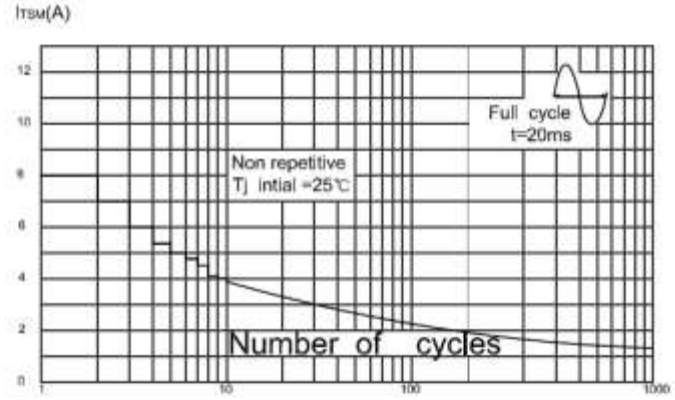

FIG.5: Relative variation of gate trigger current,holding current and latching current versus junction temperature(typical values).