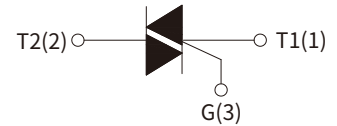
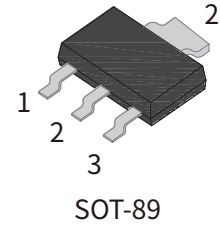


FEATURES

- Direct interfacing to logic level ICs
- Direct interfacing to low power gate drive circuits
- High blocking voltage capability
- Planar passivated for voltage ruggedness and reliability
- Triggering in all four quadrant
- UL-94, V0 flammability package resin compliance



Schematic Symbol

APPLICATIONS

- General purpose motor control circuits
- Phase control operations in light dimmers and motor speed controllers
- Home appliances

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)		V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)		V_{RRM}	600	V
RMS on-state current ($T_c=50^{\circ}\text{C}$)		$I_{\text{T(RMS)}}$	0.8	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	9	
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	0.45	A^2S
Critical rate of rise of on-state current ($I_G=2 \cdot I_{\text{GT}}$)	I - II - III	di/dt	50	$\text{A}/\mu\text{s}$
	IV		10	
Peak gate current		I_{GM}	1	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.1	W
Peak gate power		P_{GM}	5	W
Operating junction temperature range		T_j	$-40 \sim +125$	$^{\circ}\text{C}$
Storage junction temperature range		T_{STG}	$-40 \sim +150$	

ELECTRICAL CHARACTERISTICS (T_j=25°C)

Symbol	Test Condition	Quadrant	Value	Unit
I _{GT}	V _D =12V, R _L =3.3KΩ	I - II - III	≤5	mA
		IV	≤10	
V _{GT}		I - II - III - IV	≤1.3	V
V _{GD}	V _D =V _{DRM} , T _j =125°C	I - II - III - IV	≥0.2	V
I _H	I _T =100mA		≤7	mA
I _L	I _G =1.2I _{GT}	I - III - IV	≤5	
		II	≤20	
dV/dt	V _D =0.66×V _{DRM} , T _j =125°C Gate open		≥50	V/μs
V _{TM}	I _{TM} =1.1A, tp=380μs	T _j =25°C	≤1.5	V
I _{DRM}	V _D =V _{DRM} , V _R =V _{RRM}	T _j =25°C	≤5	μA
I _{RRM}		T _j =125°C	≤0.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	60	°C/W

PARAMETER CHARACTERISTIC CURVE

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

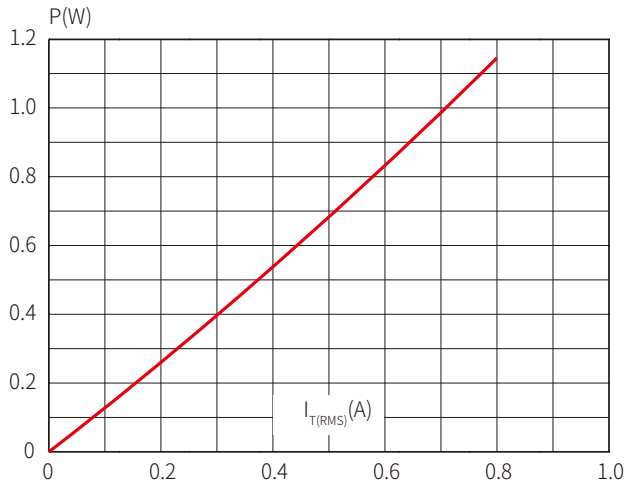


FIG.2: RMS on-state current versus case temperature

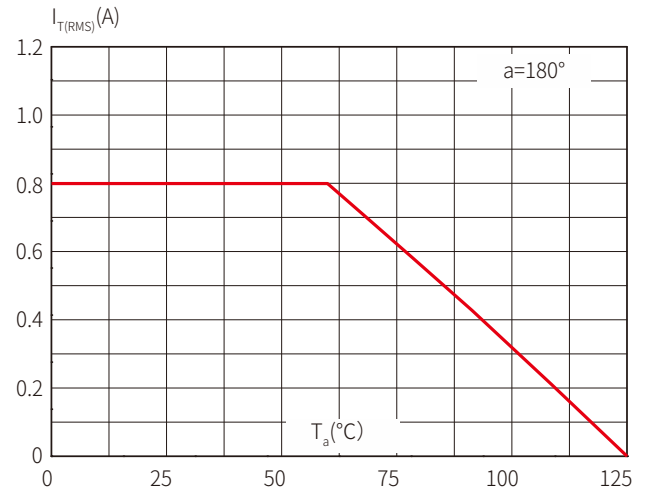


FIG.3: Surge peak on-state current versus number of cycles

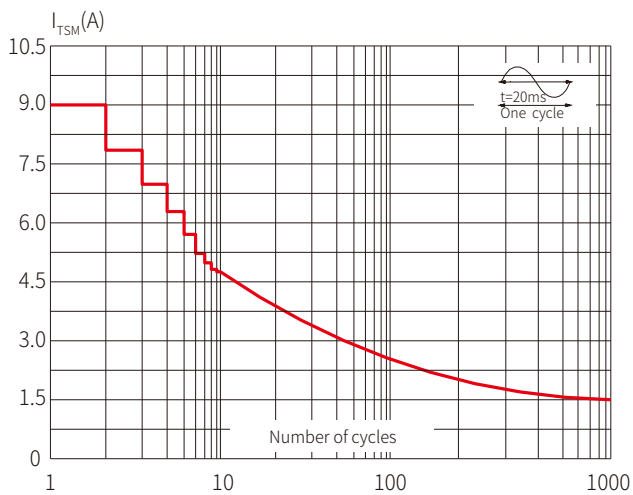


FIG.4 On-state characteristics (maximum values)

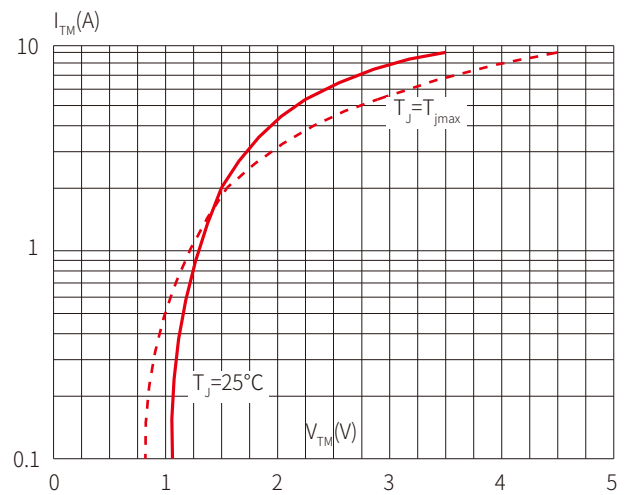


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

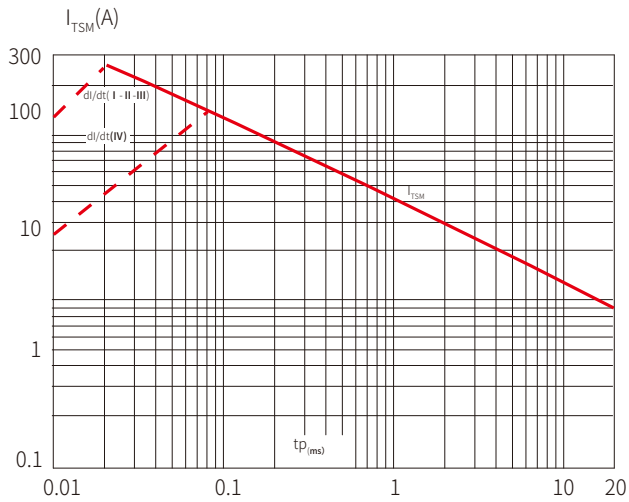
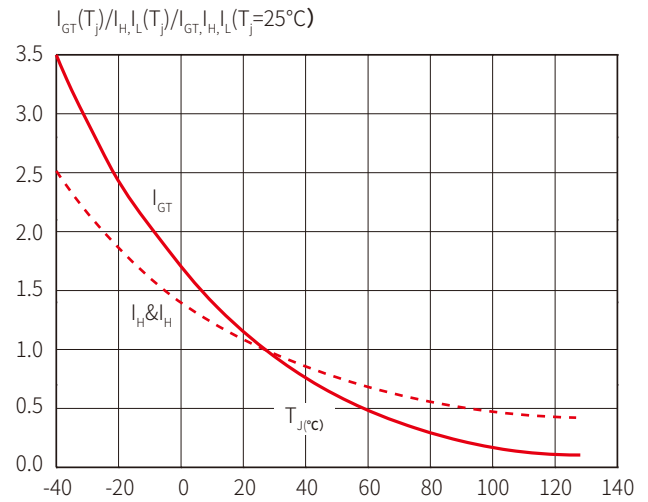
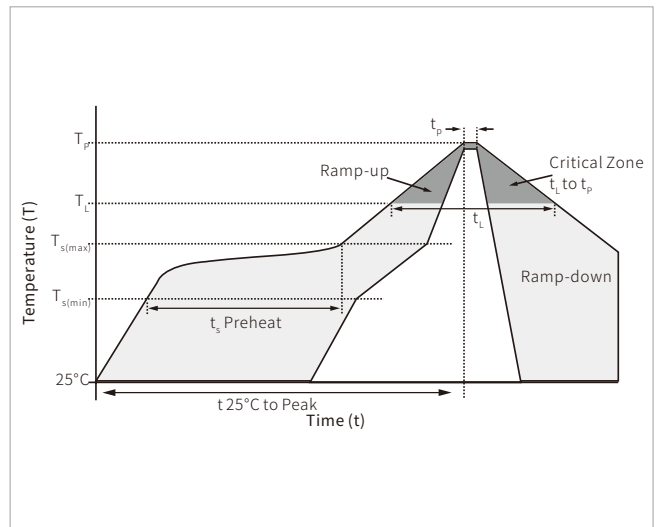


FIG.6 Relative variations of gate trigger current versus junction temperature

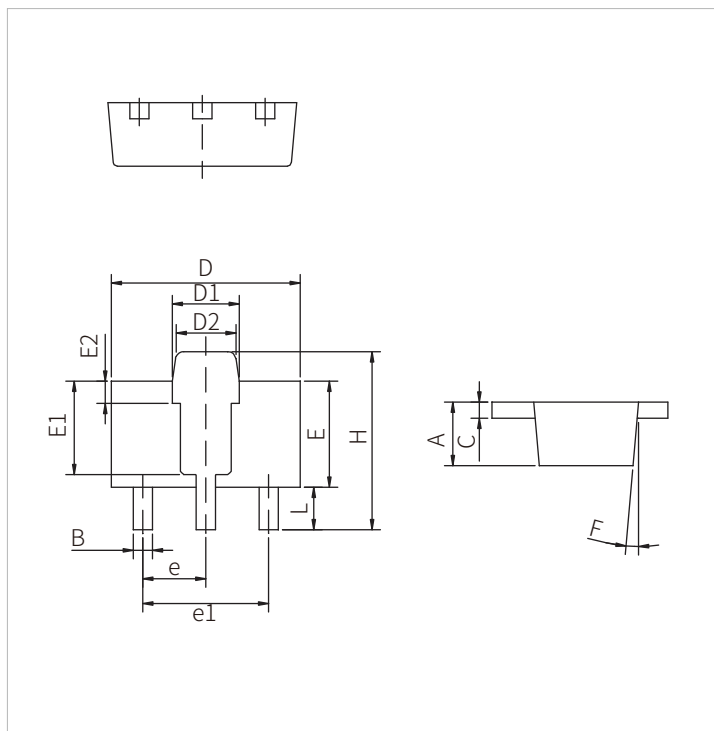


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(\min)}$)	150°C
	Temperature Max ($T_{s(\max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak $T_{s(\max)}$ to T_L - Ramp-up Rate)		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C



SOT-89 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.40		1.60	0.055		0.063
B	0.40		0.52	0.016		0.020
C	0.35		0.41	0.014		0.016
D	4.40		4.60	0.173		0.181
D1	1.50		1.70	0.059		0.067
D2	1.30		1.50	0.051		0.059
E	2.40		2.60	0.094		0.102
E1		2.20			0.087	
E2		0.52			0.020	
e		1.50			0.059	
e1		3.00			0.118	
F		5.00			5.000	
H	4.05		4.25	0.159		0.167
L	0.89		1.20	0.035		0.047

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
MAC97A6M	SOT-89	97A6	1000PCS	7"

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By QR Code

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