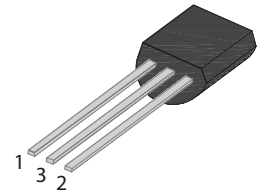


## FEATURES

- | 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



TO-92



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 ( $T_j=25^{\circ}\text{C}$ )		$V_{\text{DRM}}$	600	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}\text{C}$ )		$V_{\text{RRM}}$	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, $F=50\text{Hz}$ )		$I_{\text{TSM}}$	9	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )		$I^2t$	0.45	$\text{A}^2\text{S}$
Critical rate of rise of on-state current ( $I_G=2 \cdot I_{\text{GT}}$ )	I - II - III	$d/d_t$	50	$\text{A}/\mu\text{s}$
	IV		20	
Peak gate current		$I_{\text{GM}}$	1	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.1	W
Peak gate power		$P_{\text{GM}}$	1	W
Operating junction temperature range		$T_j$	-40~+125	$^{\circ}\text{C}$
Storage junction temperature range		$T_{\text{STG}}$	-40~+150	

## ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C)

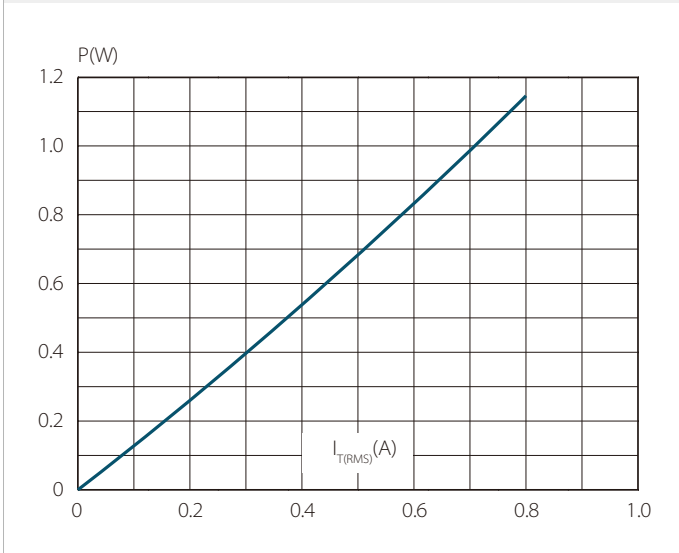
Symbol	Test Condition	Quadrant	Value		Unit
			D	T	
I <sub>GT</sub>	V <sub>D</sub> =12V	I - II - III	≤5	≤5	mA
		IV	≤10	≤5	
V <sub>GT</sub>		ALL	≤1.3		V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> , R <sub>L</sub> =3.3KΩ, T <sub>j</sub> =125°C		≥0.2		V
I <sub>H</sub>	I <sub>T</sub> =100mA		≤7	≤5	mA
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I - III	≤10	≤5	
		II - IV	≤20	≤15	
dV <sub>D</sub> /dt	V <sub>D</sub> =67%V <sub>DRM</sub> , T <sub>j</sub> =125°C		≥30	≥10	V/μs
V <sub>TM</sub>	I <sub>TM</sub> =1.1A, tp=380μs		≤1.5		V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	≤5		μA
I <sub>RRM</sub>		T <sub>j</sub> =125°C	≤100		μA

## THERMAL RESISTANCES

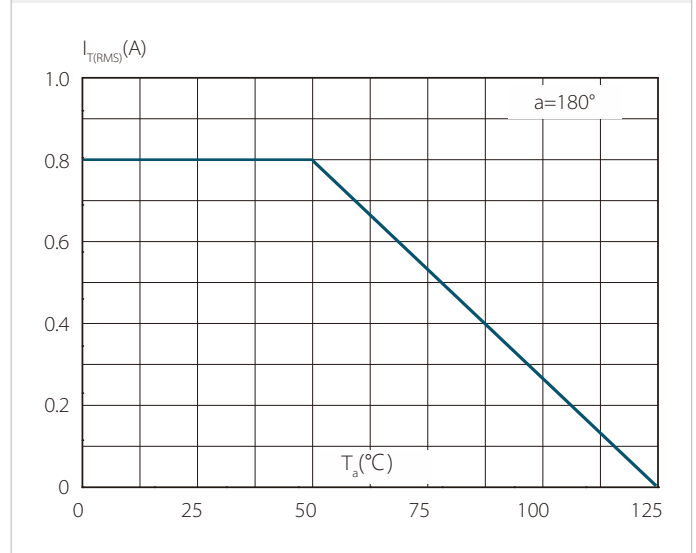
Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case(AC)	75	°C/W

## PARAMETER CHARACTERISTIC CURVE

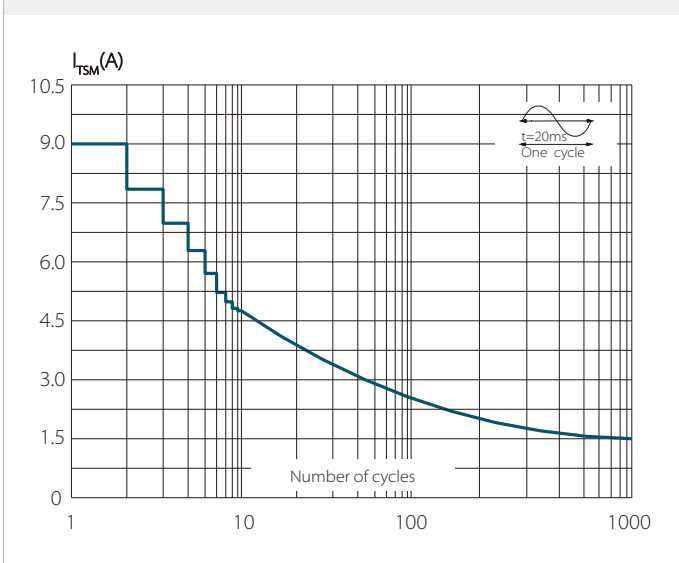
**FIG.1 Maximum power dissipation versus RMS on-state current**



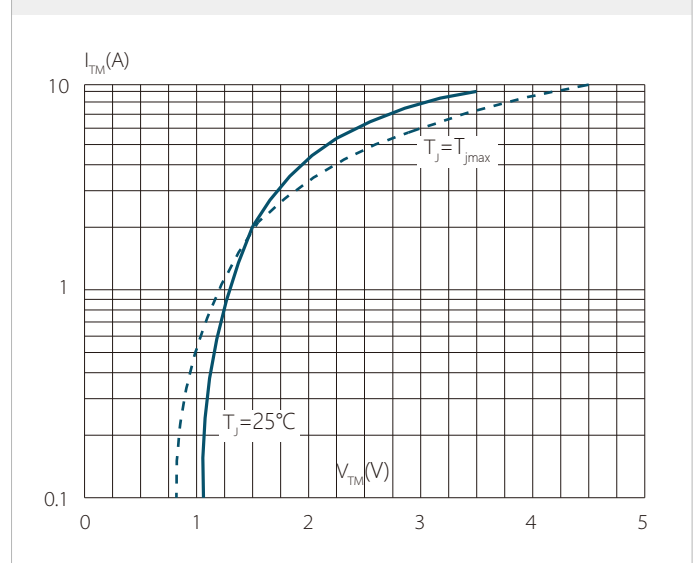
**FIG.2: RMS on-state current versus case temperature**



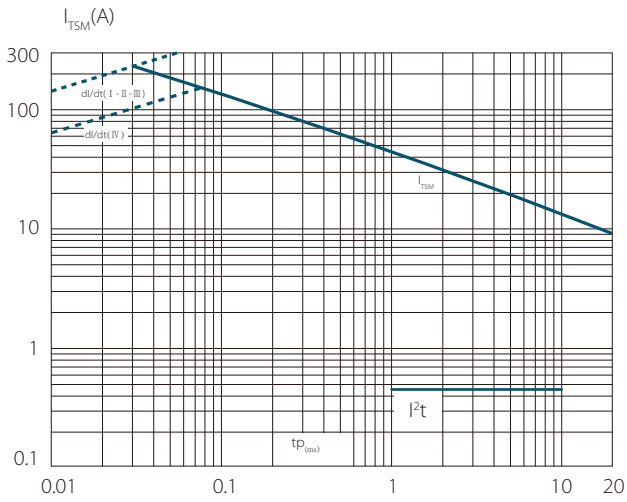
**FIG.3: Surge peak on-state current versus number of cycles**



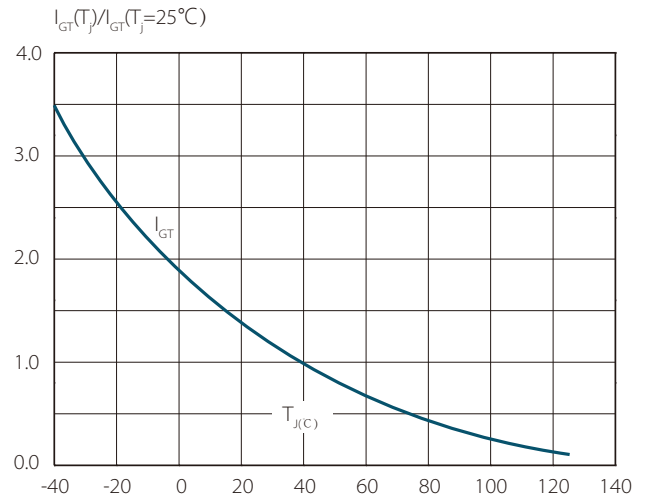
**FIG.4 On-state characteristics (maximum values)**



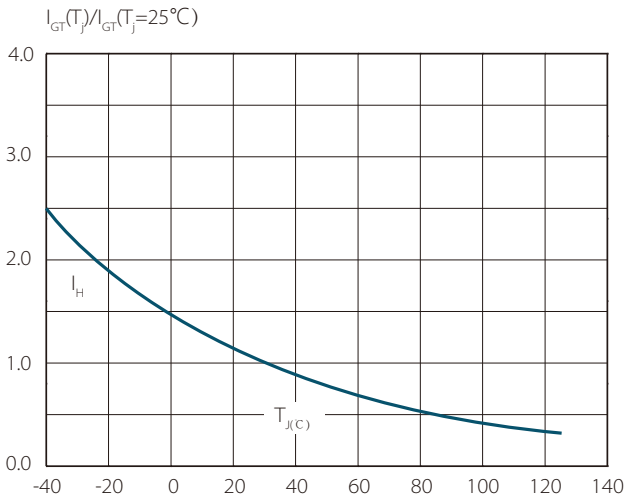
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )**



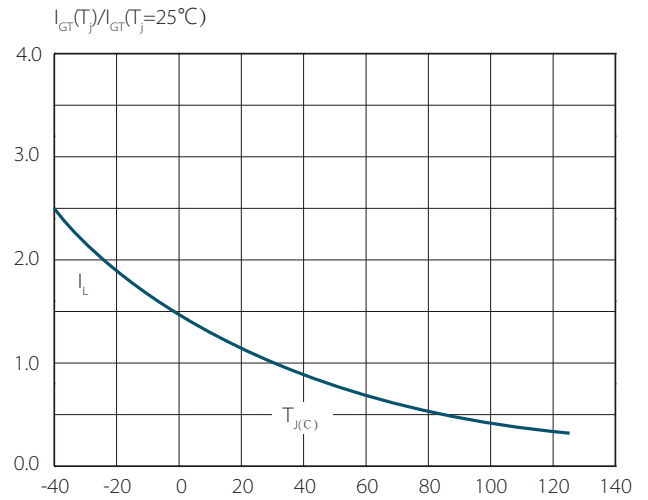
**FIG.6 Relative variations of gate trigger current versus junction temperature**



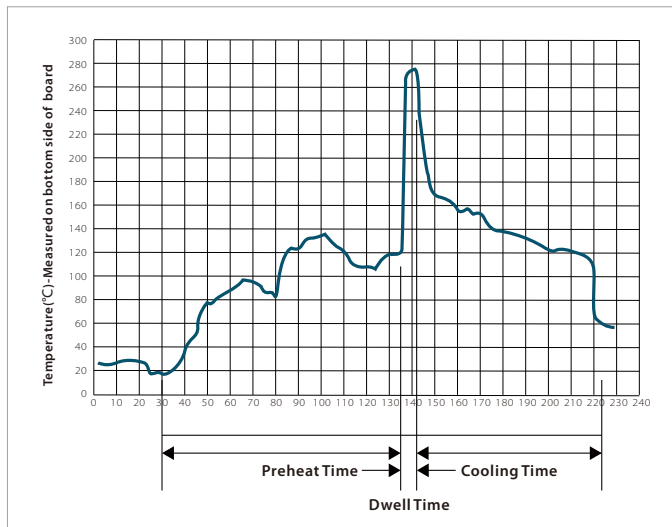
**FIG.7 Relative variations of holding current versus junction temperature**



**FIG.8 Relative variations of latching current versus junction temperature**

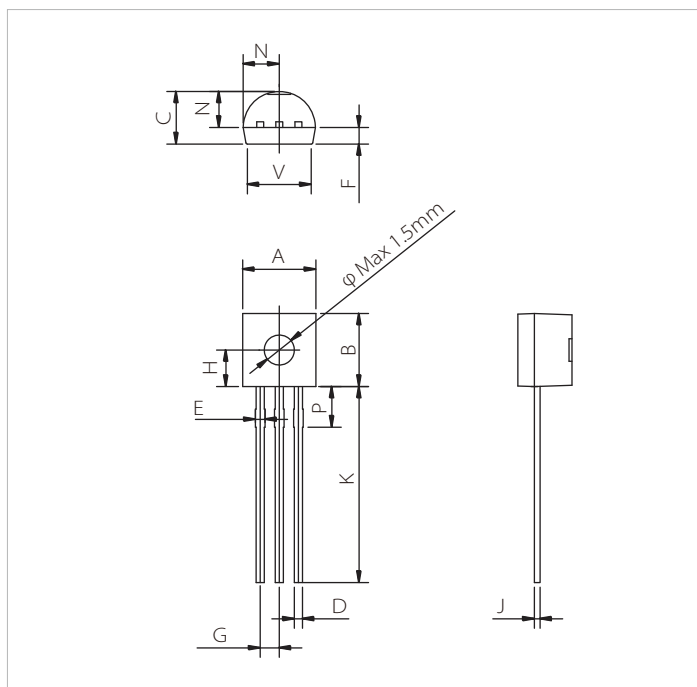


## WAVE SOLDERING



Wave Parameter		Lead-free assembly
Pre Heat	Temperature Min	100°C
	Temperature Max	150°C
	Time(min to max)	60 – 180 secs
Solder pot Temperature		280°C Max
Solder Dwell Time		2-5 seconds

## TO-92 PACKAGE DIMENSIONS



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	0.40		0.54	0.016		0.021
E	0.60		0.80	0.024		0.031
F		1.10			0.043	
G		1.27			0.050	
H		2.30			0.091	
J	0.36		0.50	0.014		0.020
K	12.7		15.0	0.500		0.591
N	2.04		2.66	0.080		0.105
P	1.86		2.06	0.073		0.081
V			4.30			0.169

## ORDERING INFORMATION

Part Number	Package	Marking	Qty/pcs		
			Shielding Bag	Inner Box	Carton
MAC97A8D(T)	TO-92	MAC 97A8	1000	10000	30000

To find your local partner within Semiwell' s website : [www.semiwell.com.cn](http://www.semiwell.com.cn)  
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