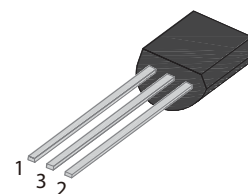


FEATURES

- | 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_{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 ($I_G=2 \times I_{\text{GT}}$)	I - II - III	d/d_t	50	$\text{A}/\mu\text{s}$
	IV		20	
Peak gate current		I_{GM}	1	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.1	W
Peak gate power		P_{GM}	1	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
			D	T	
I _{GT}	V _D =12V	I - II - III	≤5	≤5	mA
		IV	≤10	≤5	
V _{GT}		ALL	≤1.3		V
V _{GD}	V _D =V _{DRM} , R _L =3.3KΩ, T _j =125°C		≥0.2		V
I _H	I _T =100mA		≤7	≤5	mA
I _L	I _G =1.2I _{GT}	I - III	≤10	≤5	
		II - IV	≤20	≤15	
dV _D /dt	V _D =67%V _{DRM} , T _j =125°C		≥30	≥10	V/μs
V _{TM}	I _{TM} =1.1A, tp=380μs		≤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	≤100		μA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	75	°C/W

PARAMETER CHARACTERISTIC CURVE

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

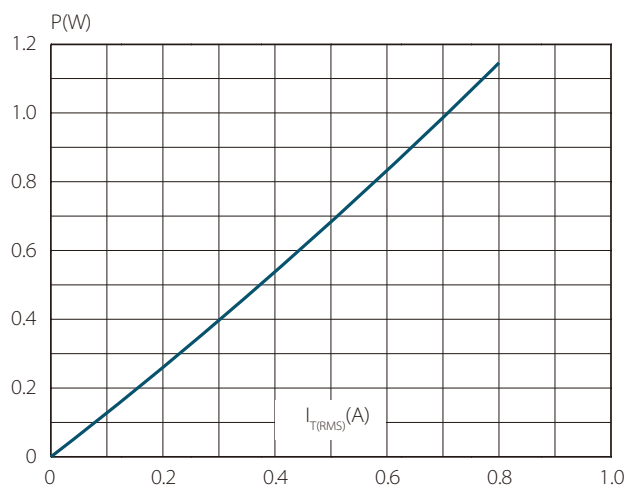


FIG.2: RMS on-state current versus case temperature

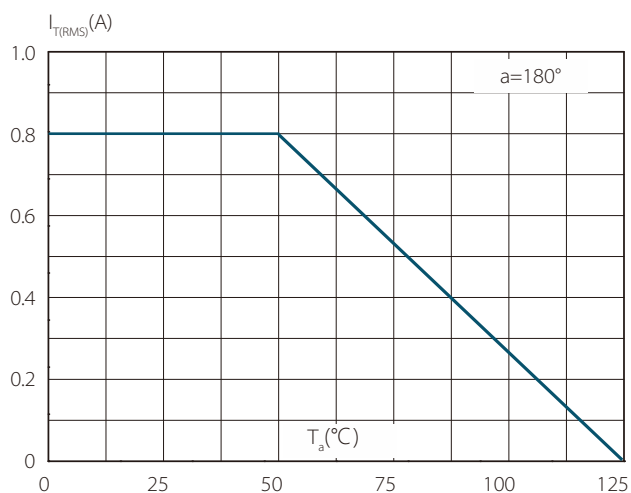


FIG.3: Surge peak on-state current versus number of cycles

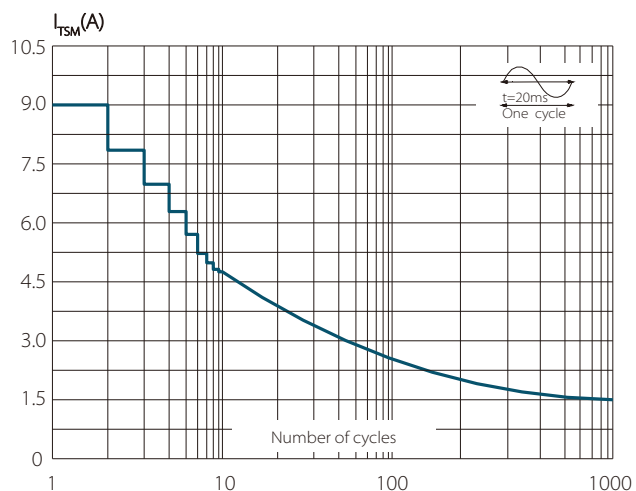


FIG.4 On-state characteristics (maximum values)

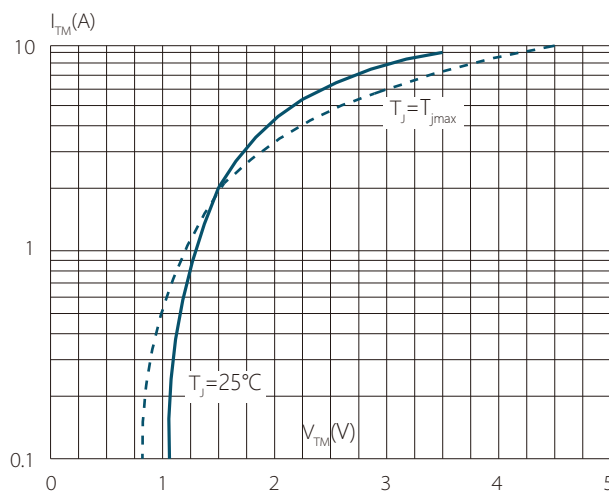


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

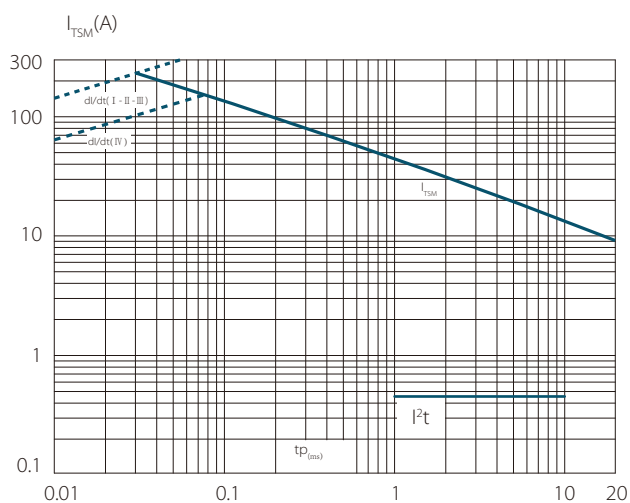


FIG.6 Relative variations of gate trigger current versus junction temperature

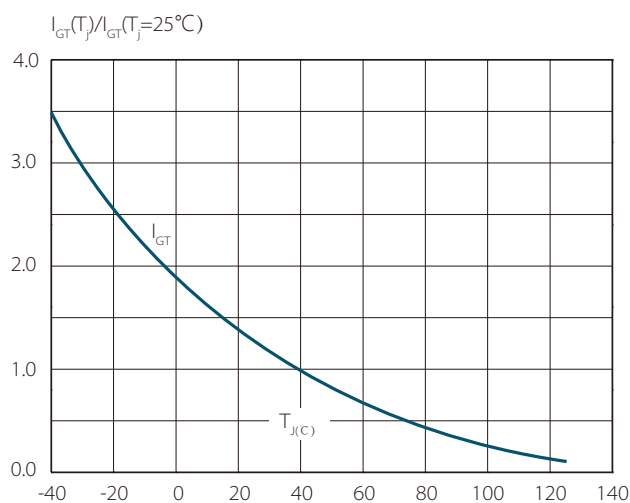


FIG.7 Relative variations of holding current versus junction temperature

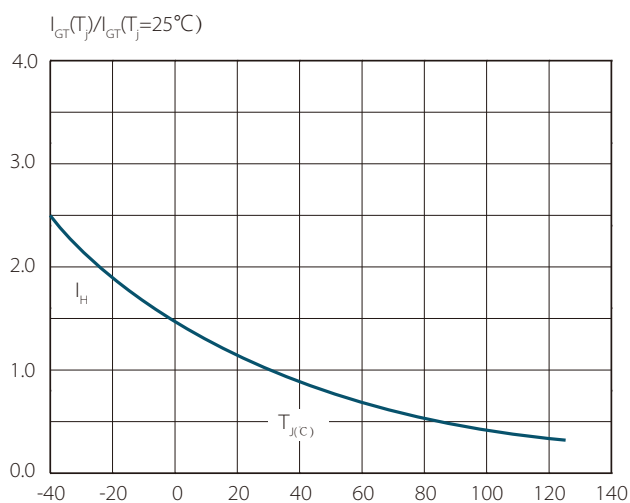
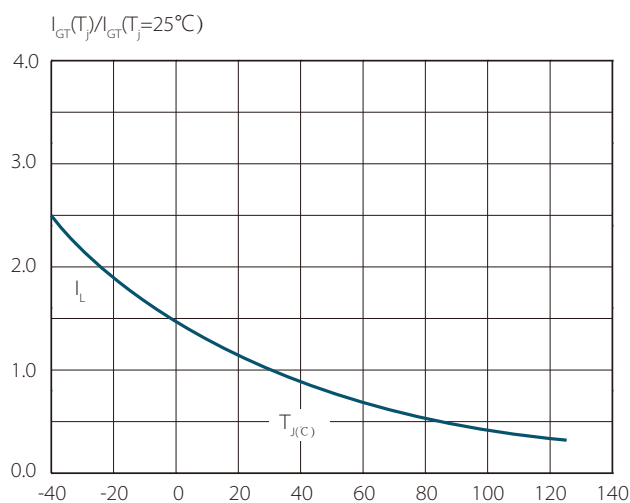
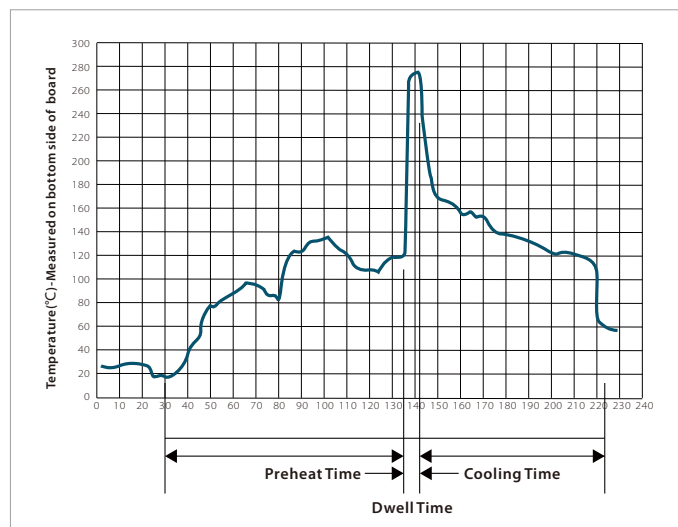


FIG.8 Relative variations of latching current versus junction temperature

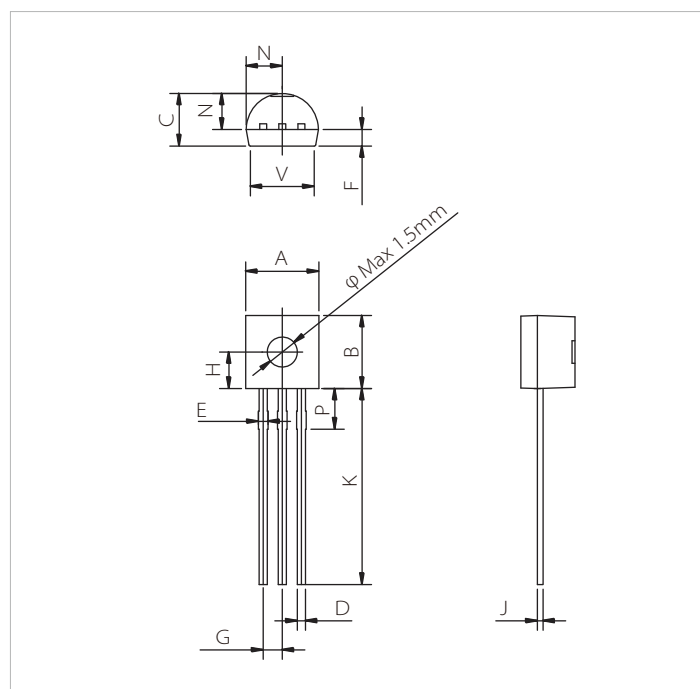


WAVE SOLDERING



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	Box
MAC97A8D(T)	TO-92	MAC 97A8	1000	10000	30000	2000

To find your local partner within Semiwell' s website : www.semiwell.com

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