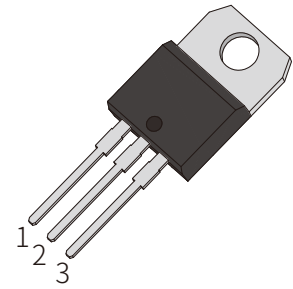


FEATURES

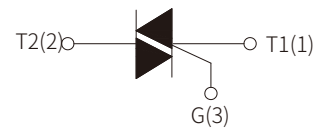
- | Direct interfacing to logic level ICs
- | Direct interfacing to low power gate drive circuits
- | High blocking voltage capability
- | Planar passivated for voltage ruggedness and reliability
- | Triggering in all four quadrant



TO-220A

APPLICATIONS

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



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

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 ($T_c=91^\circ\text{C}$)	$I_{\text{T(RMS)}}$	6	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	65	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	21	A ² S
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	I - II	100	A/ μs
	III - IV	50	
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$)	I_{GM}	4	A
Average gate power dissipation ($T_j=125^\circ\text{C}$)	$P_{\text{G(AV)}}$	0.5	W
Storage junction temperature range	T_{STG}	-40~+150	°C
Operating junction temperature range	T_j	-40~+125	

ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant	Value			Unit
			Min.	Typ.	Max.	
I _{GT}	V _D =12V, R _L =33Ω	I - II - III			50	mA
		IV			70	
V _{GT}		ALL			1	V
V _{GD}	V _D =V _{DRM} , R _L =3.3KΩ, T _j =125°C	ALL	0.2			V
I _H	I _T =200mA				60	mA
I _L	I _G =1.2I _{GT}	I - III - IV			70	
		II			80	
dV _D /dt	V _D =400V Gate Open T _j =125°C		600			V/μs
(di/dt) _c	(di/dt) _c =2.7A/ms, T _j =125°C		10			A/ms
t _{on}	I _G =80mA I _A =400mA I _R =40mA T _j =25°C			3		μs
t _{off}				30		μs

STATIC CHARACTERISTICS

Symbol	Parameter	Value	Unit
V _{TM}	I _{TM} =8.5A, t _p =380μs	≤1.5	V
I _{DRM}	V _D =V _{DRM} , V _R =V _{RRM}		
I _{RRM}		T _j =125°C	≤0.2

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	3	°C/W

PARAMETER CHARACTERISTIC CURVE

FIG.1 Maximum Power Dissipation Versus RMS On-state Current

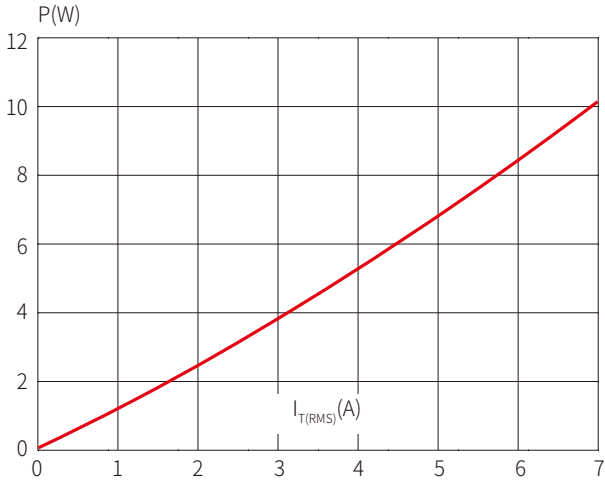


FIG.2: RMS on-state Current Versus Case Temperature

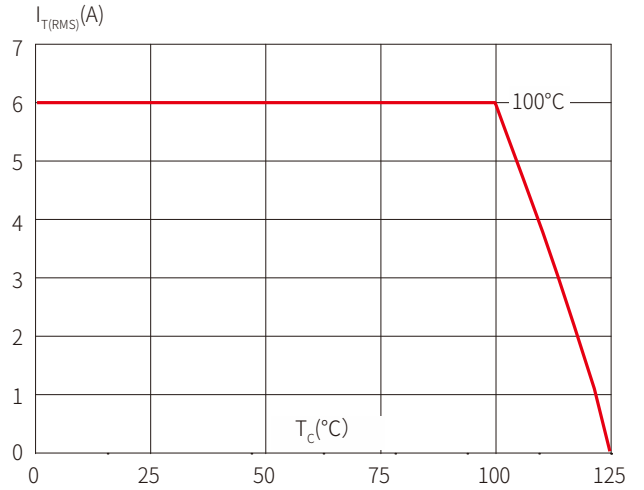


FIG.3: Surge Peak On-state Current Versus Number Of Cycles

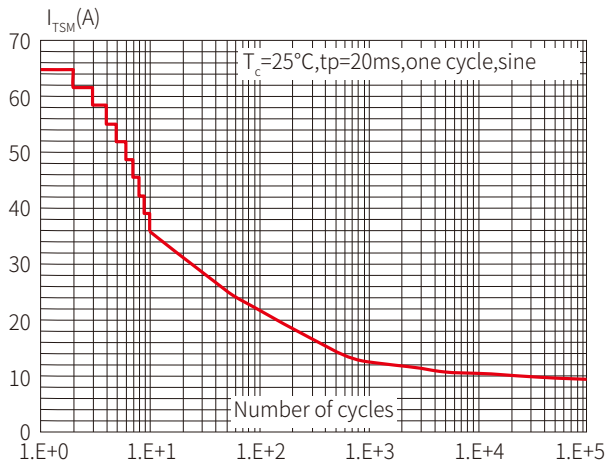


FIG.4 On-state characteristics

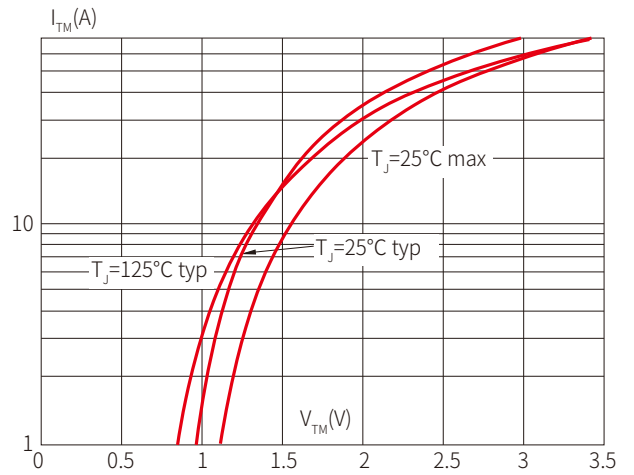


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II : $di/dt < 100\text{A}/\mu\text{s}$; III-IV: $di/dt < 50\text{A}/\mu\text{s}$)

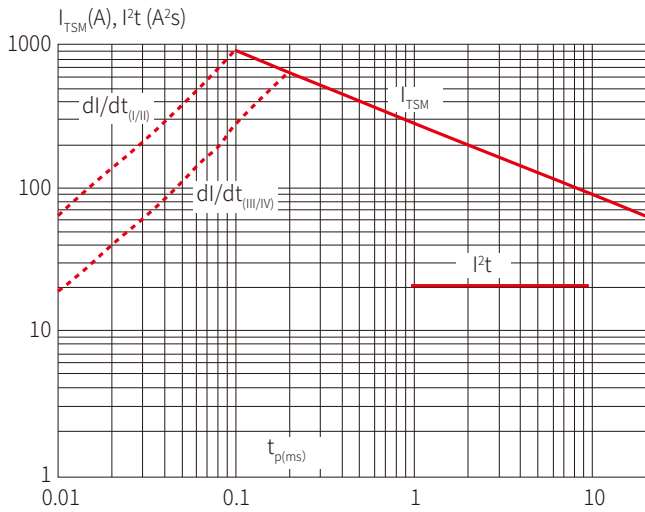
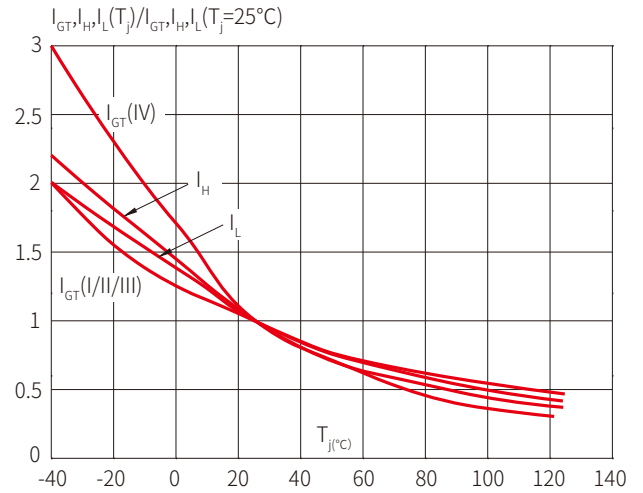
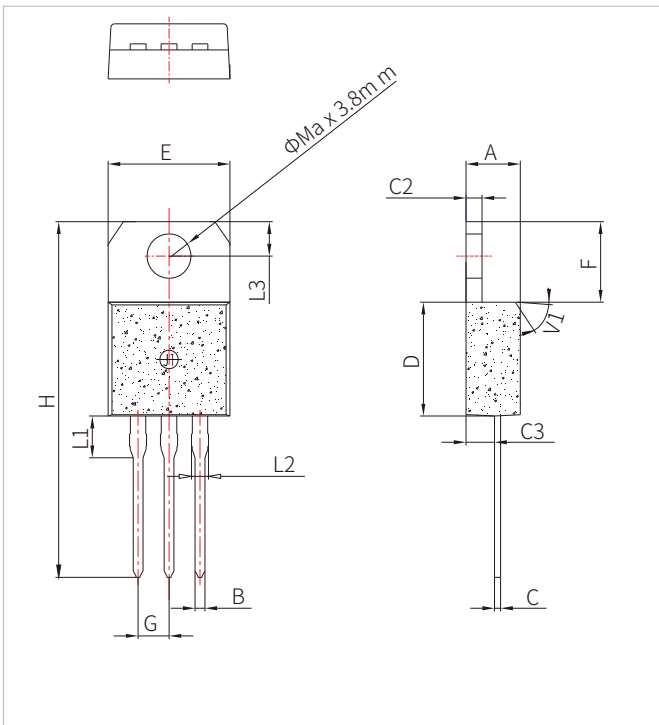


FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature




TO-220A PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Tube	QTY/Box	QTY/Carton
STA6Q60B	TO-220A	 STA6Q60B XXXX	50PCS	1000PCS	5000PCS

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By QR Code

Website



Wechat

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