

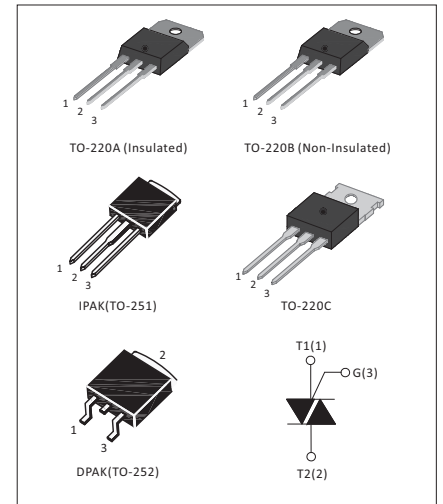
FEATURES

Available either in through hole or surface mount packages, the 6A series Triac is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits..or for phase control operation in light dimmers, motor speed controllers...

The snubberless versions are specially recommended for use on inductive loads, thanks to their high commutation performances.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	6	A
V_{RRM}	600/800	V
V_{DRM}	600/800	V



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40~150	°C
Operating junction temperature range	T_j	-40~125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	600/800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600/800	V
Non repetitive surge peak Off-state voltage	V_{DSM}	$V_{DRM}+100$	V
Non repetitive peak reverse voltage	V_{RSM}	$V_{RRM}+100$	V
RMS on-state current	TO-220A(Ins)($T_c=95^\circ\text{C}$)	6	A
	TO-220B(Non-Ins)/TO-220C($T_c=100^\circ\text{C}$)		
	IPAK/DPAK($T_c=100^\circ\text{C}$)		
Non repetitive surge peak on-state current(full cycle, F=60Hz)	I_{TSM}	60	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	21	A^2s
Critical rate of rise of on-state current($I_G=2 \times I_{GT}$)	d_i/d_t	50	A/us
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

STATIC CHARACTERISTICS

Symbol	Parameter	Value(Max)	Unit
V_{TM}	$I_{TM}=5.5\text{A}, t_p=380\mu\text{s}$	1.55	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}, T_j=25^\circ\text{C}$	5	μA
I_{RRM}	$V_D=V_{DRM}, V_R=V_{RRM}, T_j=125^\circ\text{C}$	1	mA



ELECTRICAL CHARACTERISTICS($T_j=25^{\circ}\text{C}$ unless otherwise specified)

3 Quadrants									
Symbol	Test Condition	Quadrant		Value				Unit	
				BW	CW	SW	TW		
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	I - II - III	Max	50	35	10	5	mA	
V_{GT}		I - II - III	Max	1.3					
V_{GD}	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$	I - II - III	Min	0.2				V	
I_L	$I_G=1.2I_{GT}$	I - III	Max	70	50	25	10	mA	
		II		80	60	30	15		
I_H	$I_T=500\text{mA}$		Max	50	35	15	10	mA	
d_v/d_t	$V_D=2/3V_{DRM}, \text{Gate open}, T_j=125^{\circ}\text{C}$		Min	1000	400	40	20	V/uS	

4 Quadrants										
Symbol	Test Condition	Quadrant		Value						Unit
				B	C	A	S	D	T	
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	I - II - III	Max	50	25	10	10	5	5	mA
		IV	Max	100	50	25	10	10	5	
V_{GT}	$V_D=12\text{V}, R_L=33\Omega$	All	Max	1.5						V
V_{GD}	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$	All	Min	0.2						V
I_L	$I_G=1.2I_{GT}$	I - III - IV	Max	50	40	20	20	10	10	mA
		II		100	80	40	40	20	20	
I_H	$I_T=100\text{mA}$		Max	50	25	25	25	15	15	mA
d_v/d_t	$V_D=2/3V_{DRM}, \text{Gate open}, T_j=125^{\circ}\text{C}$		Min	400	200	10	10	5	5	V/uS

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	TO-220A(Ins)	3.3	$^{\circ}\text{C}/\text{W}$
	TO-220B(Non-Ins)	2.4	
	TO-220C	2.4	
	DPAK	2.4	
	IPAK	2.4	



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	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
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°	

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	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
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°	



PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
φ		3.6			0.142	

Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.20		5.40	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L1		0.80			0.031	
L2	1.37		1.50	0.054		0.059
V1		4°C			4°C	
V2	0°C		8°C	0°C		8°C

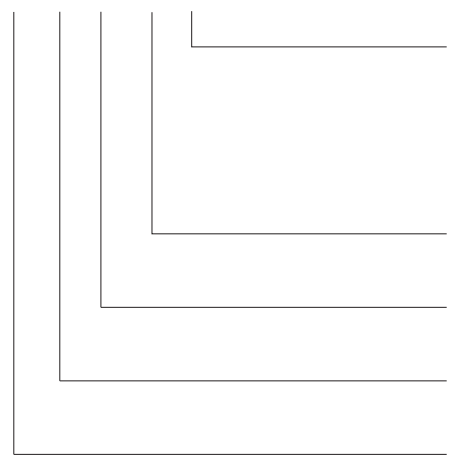


PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	2.20		2.40	0.086		0.095
A2	0.90		1.10	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.20		5.40	0.204		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	15.90		16.30	0.626		0.641
L	9.00		9.40	0.354		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	

PRODUCT IDENTIFICATION

ST A 6A 60 T



I_{GT}
 T: $I_{GT1-3} \leq 5mA, I_{GT4} \leq 5mA, D: I_{GT1-3} \leq 5mA, I_{GT4} \leq 10mA$
 S: $I_{GT1-3} \leq 10mA, I_{GT4} \leq 10mA, A: I_{GT1-3} \leq 10mA, I_{GT4} \leq 25mA$
 C: $I_{GT1-3} \leq 25mA, I_{GT4} \leq 50mA, B: I_{GT1-3} \leq 50mA, I_{GT4} \leq 100mA$
 BW: $I_{GT1-3} \leq 50mA$ CW: $I_{GT1-3} \leq 35mA$ SW: $I_{GT1-3} \leq 10mA$ TW: $I_{GT1-3} \leq 5mA$

V_{DRM}/V_{RRM}
 60: 600V 80:800V

$I_{T(RMS)}$
 6A: 6A

Package
 A: TO-220A B: TO-220B C: TO-220C D: DPAK H: IPAK

Product Line
 ST: Semiware Triacs



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

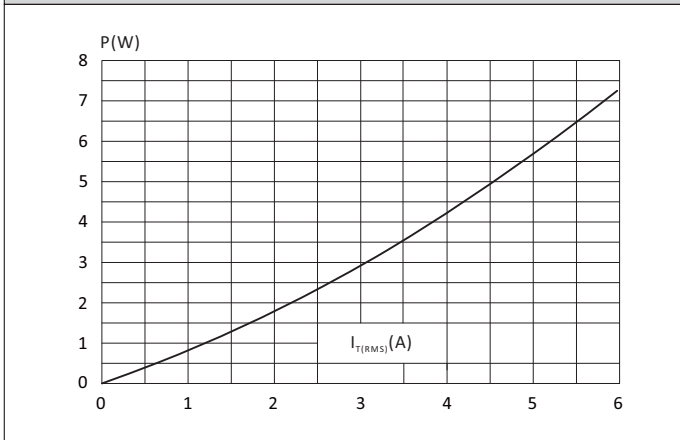


FIG.2 RMS On-state Current Versus Case Temperature

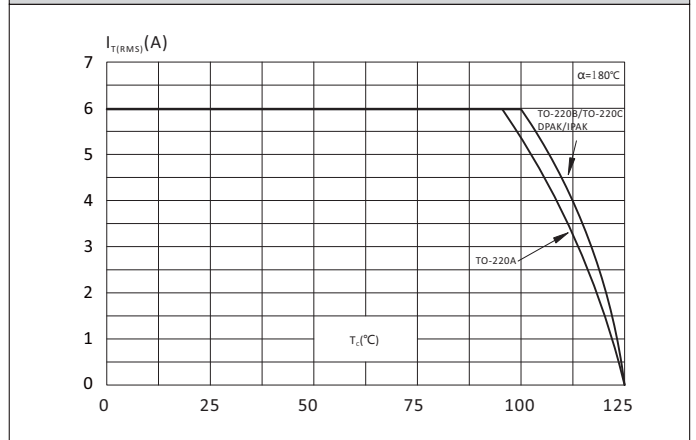


FIG.3 Surge Peak On-state Current Versus Number Of Cycles

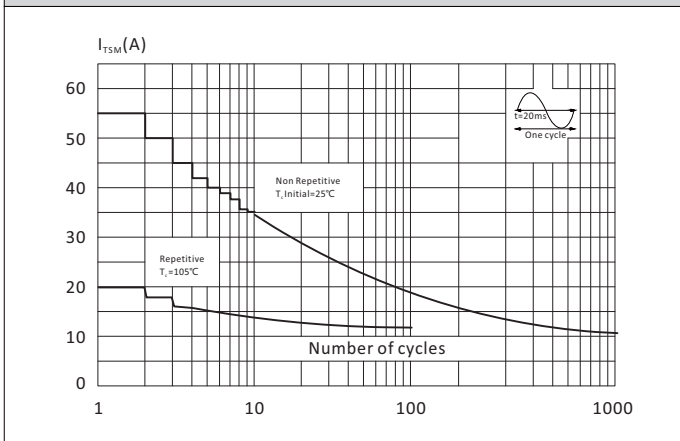


FIG.4 On-state Characteristics (Maximum Values)

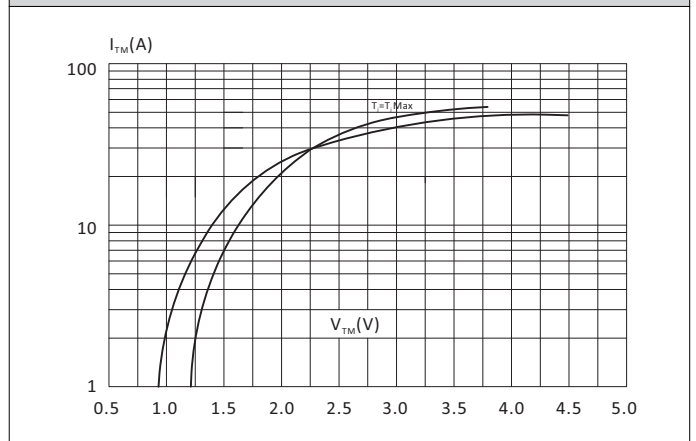


FIG.5 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of i^2t

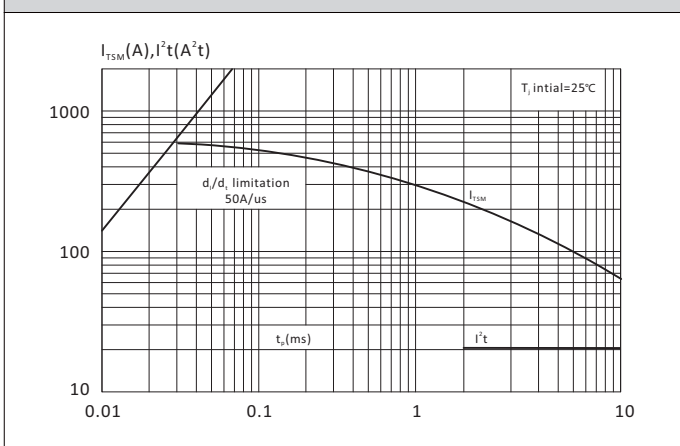
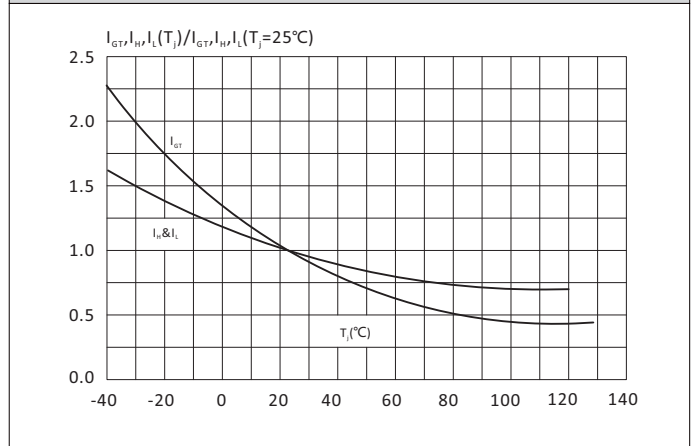


FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature



CONTACT US

Headquarters

A Building Caohejing I&E Park Pujiang Minhang Shanghai
China

Hotline

400-021-5756

Web

<http://www.semiware.com.cn>

By Telephone

Sales: 86-21-3463-7345

Customer Service: 86-21-3463-7172-8810/8826

Technical Support: 86-21-3463-7173-8811

By Email

Sales: sales03@semiware.com.cn

Customer Service: sales17@semiware.com.cn

Technical Support: fae03@semiware.com.cn

By Fax

General: 86-21-3965-0654

Sales: 86-21-3463-7458

COPYRIGHT ©Semiware 2009 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: Semiware reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES : Semiware reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. Semiware assumes no responsibility with respect to the selection or specifications of such products. Semiware makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Semiware assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: Semiware products are not authorized for use in life support systems without written consent from the factory.

