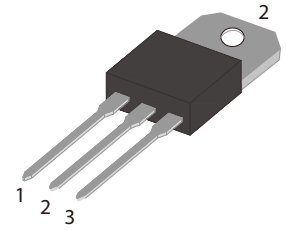
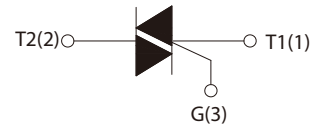


## FEATURES

- | High current 20 A RMS current Triac
- | Low thermal resistance
- | High commutation or very high commutation capability
- | RoHS (2002/95/EC) compliant packages
- | UL-94, V0 flammability package resin compliance



TO-220B(Non-Ins)



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 ( $T_j=25^\circ\text{C}$ )	$V_{\text{DRM}}$	800	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{\text{RRM}}$	800	V
RMS on-state current ( $T_c=90^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	20	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )	$I_{\text{TSM}}$	200	
I <sup>2</sup> t value for fusing ( $t_p=10\text{ms}$ )	I <sup>2</sup> t	100	A <sup>2</sup> S
Critical rate of rise of on-state current ( $I_G=2*I_{GT}$ )	$dI/dt$	100	A/ $\mu\text{s}$
Peak gate current	$I_{\text{GM}}$	4	A
Average gate power dissipation	$P_{\text{G(AV)}}$	1	W
Peak gate power	$P_{\text{GM}}$	10	W
Operating junction temperature range	$T_j$	-40~+125	°C
Storage junction temperature range	$T_{\text{STG}}$	-40~+150	

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

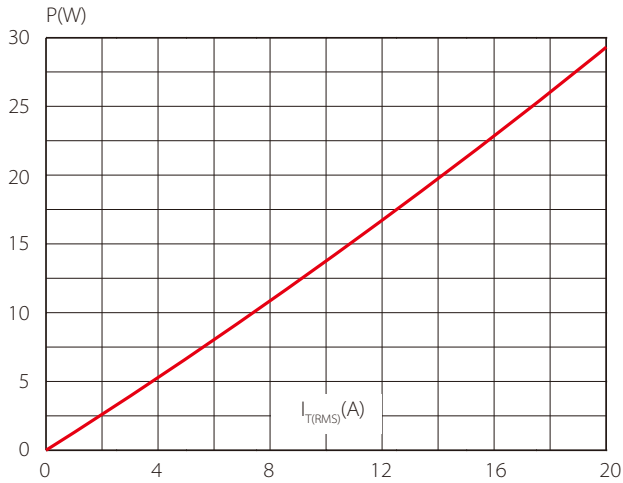
Symbol	Test Condition	Quadrant	Value		Unit
			B	C	
$I_{GT}$	$V_D=12\text{V}, R_L=33\Omega$	I - II - III	$\leq 50$	$\leq 35$	mA
		IV	$\leq 70$	$\leq 60$	
$V_{GT}$		ALL	$\leq 1.3$		V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$	ALL	$\geq 0.2$		V
$I_H$	$I_t=100\text{mA}$		$\leq 60$	$\leq 50$	mA
$I_L$	$I_G=1.2I_{GT}$	I - III - IV	$\leq 70$	$\leq 60$	
		II	$\leq 90$	$\leq 70$	
$dV_D/dt$	$V_D=67\%V_{DRM}, T_j=125^{\circ}\text{C}$		$\geq 1000$	$\geq 500$	V/ $\mu\text{s}$
$V_{TM}$	$I_{TM}=28\text{A}, t_p=380\mu\text{s}$		$\leq 1.5$		V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	$\leq 5$		$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	$\leq 2.5$		mA

## THERMAL RESISTANCES

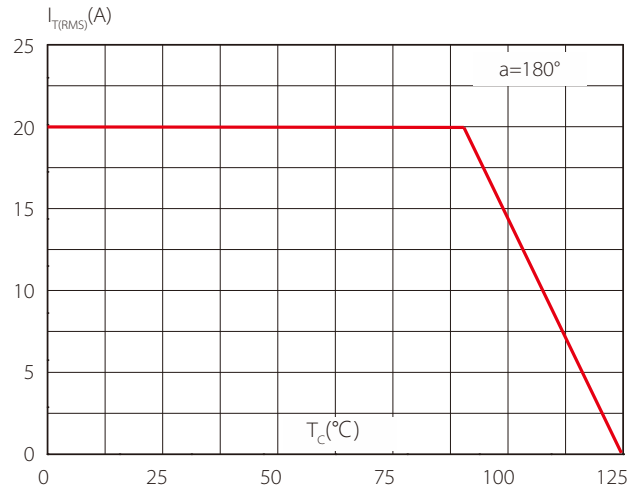
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	1.1	$^{\circ}\text{C}/\text{W}$

## PARAMETER CHARACTERISTIC CURVE

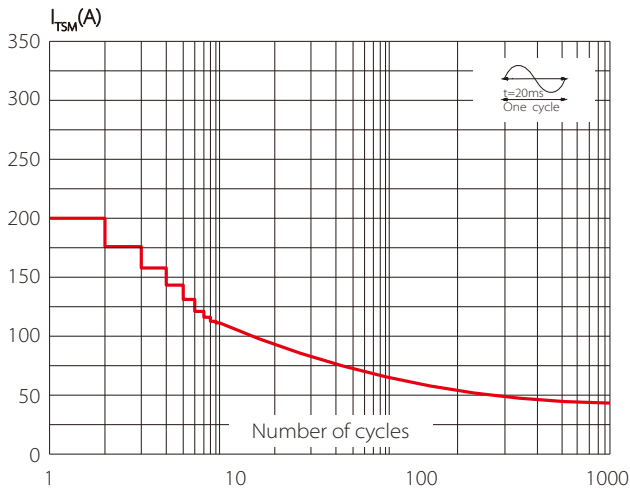
**FIG.1 Maximum power dissipation versus RMS on-state current**



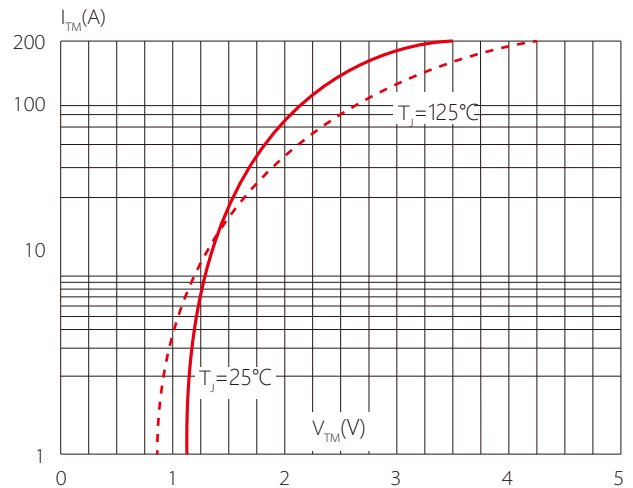
**FIG.2: RMS on-state current versus case temperature**



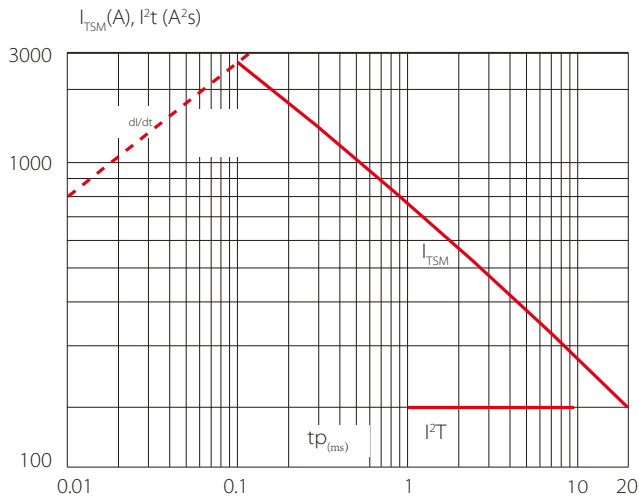
**FIG.3: Surge peak on-state current versus number of cycles**



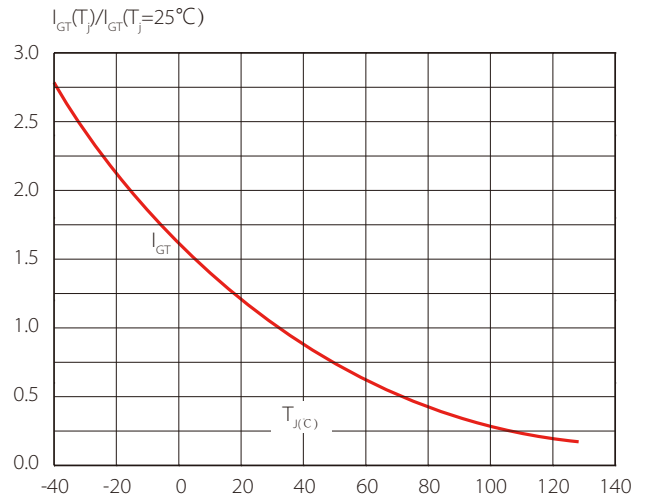
**FIG.4 On-state characteristics (maximum values)**



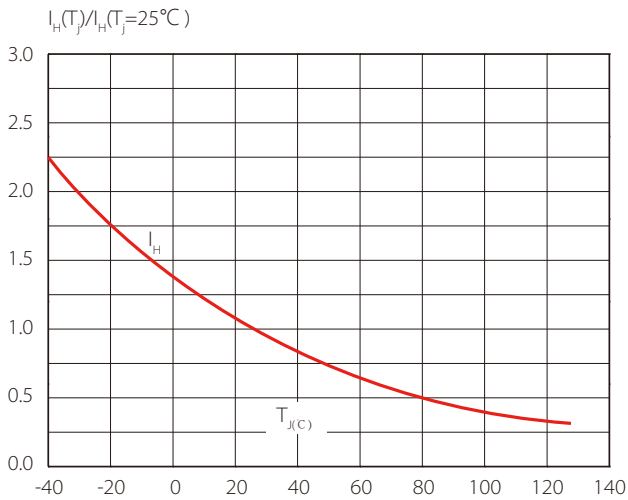
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( I - II - III:  $di/dt < 50\text{A}/\mu\text{s}$ ; IV:  $di/dt < 10\text{A}/\mu\text{s}$ )**



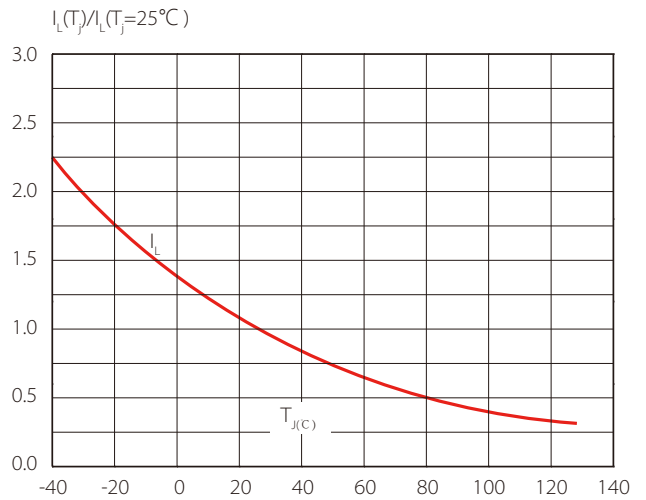
**FIG.6 Relative variations of gate trigger current versus junction temperature**



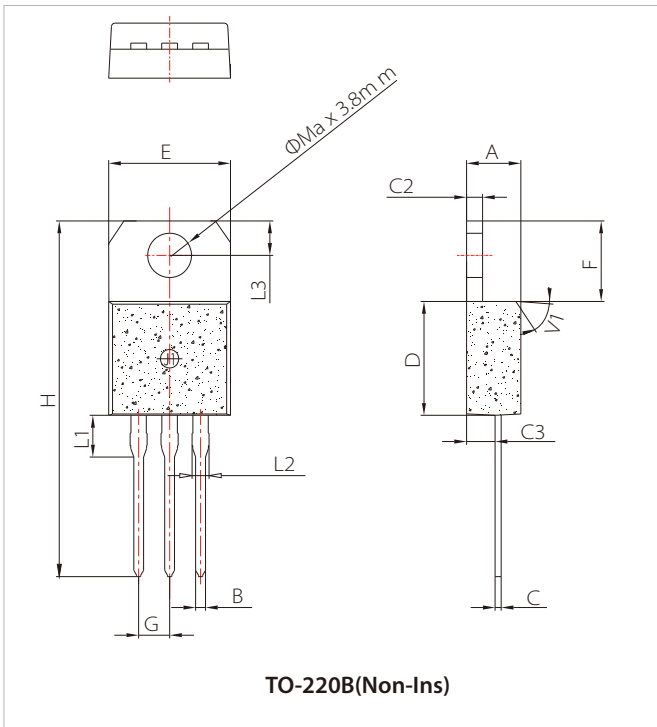
**FIG.7 Relative variations of holding current versus junction temperature**



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



## 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	0.222		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	Package	Qty/pcs		
		Tube	Inner Box	Carton
STB20Q80B(C)	TO-220B	50	1000	5000

**Headquarters**

No.3387 Shendu Road Pujiang  
I&E Park  
Minhang Shanghai China  
201000

**Hotline**

400-021-5756

**Web**

<https://www.semiware.com>

**Sales center**

Tel: 86-21-3463-7458  
Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

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