

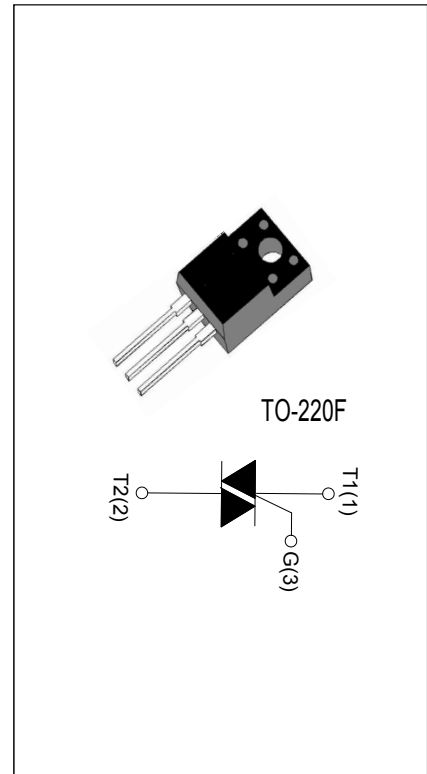
**BTA12-600B**
**MAIN FEATURES 4Q TRIAC**

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT1/2/3}$	50/50/50/70	mA

**DESCRIPTION:**

The BTA12-600B triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. By using an external plastic package.

Package TO-220F is RoHS compliant.


**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	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	600	V
RMS on-state current ( $T_c \leq 90^\circ\text{C}$ )	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	120	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	72	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $T_j=125^\circ\text{C}$ )	$di/dt$	50	$\text{A}/\mu\text{s}$
Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=125^\circ\text{C}$ )	$I_{GM}$	4	A
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	10	W

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

Symbol	Test Condition	Quadrant	Value		Unit
$I_{GT}$	$V_D=12V$ $R_L=100\Omega$	I - II - III	MAX.	50	mA
		IV		70	
$V_{GT}$		ALL	MAX.	1	V
$V_{GD}$	$V_D=V_{DRM}$ $T_j=125^\circ\text{C}$ $R_L=100\Omega$	ALL	MIN.	0.2	V
$I_L$	$I_G=1.2I_{GT}$	I - III - IV	MAX.	60	mA
		II		100	
$I_H$	$I_T=500\text{mA}$		MAX.	60	mA
$dV/dt$	$V_D=2/3V_{DRM}$ $T_j=125^\circ\text{C}$		MIN.	500	V/ $\mu\text{s}$
$(dI/dt)_c$	$T_j=125^\circ\text{C}$		MIN.	8	A/ms

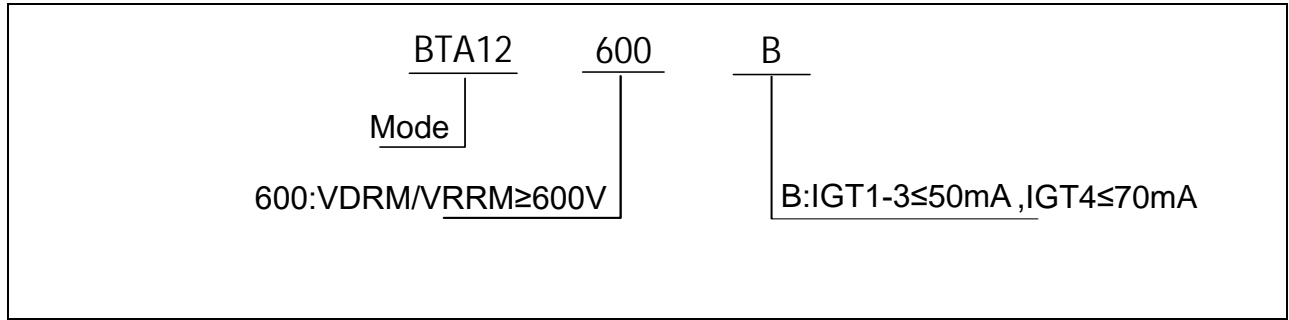
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=32A$	$T_j=25^\circ\text{C}$	1.50	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.86	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	36.6	$\text{m}\Omega$
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	1	mA

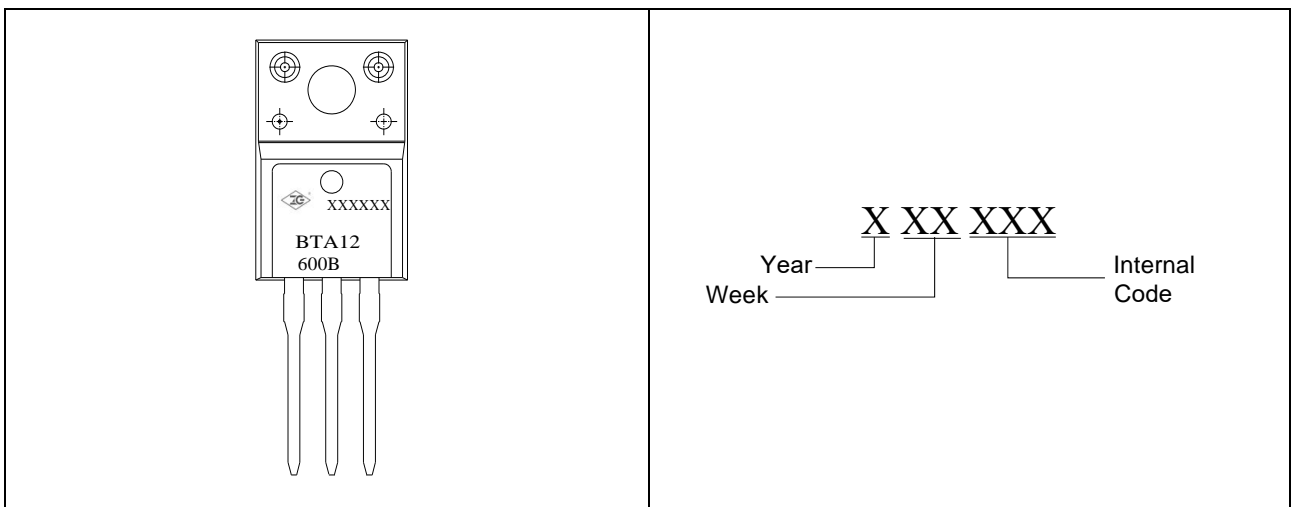
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.05	$^\circ\text{C}/\text{W}$

**ORDERING INFORMATION**



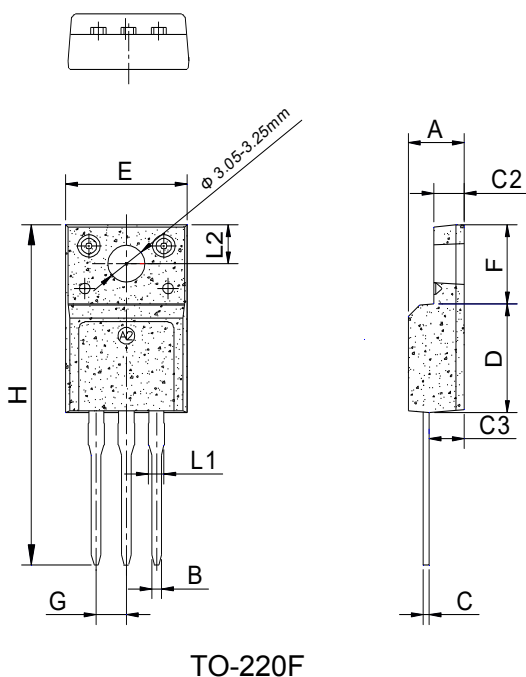
**MARKING**



**ORDERING INFORMATION**

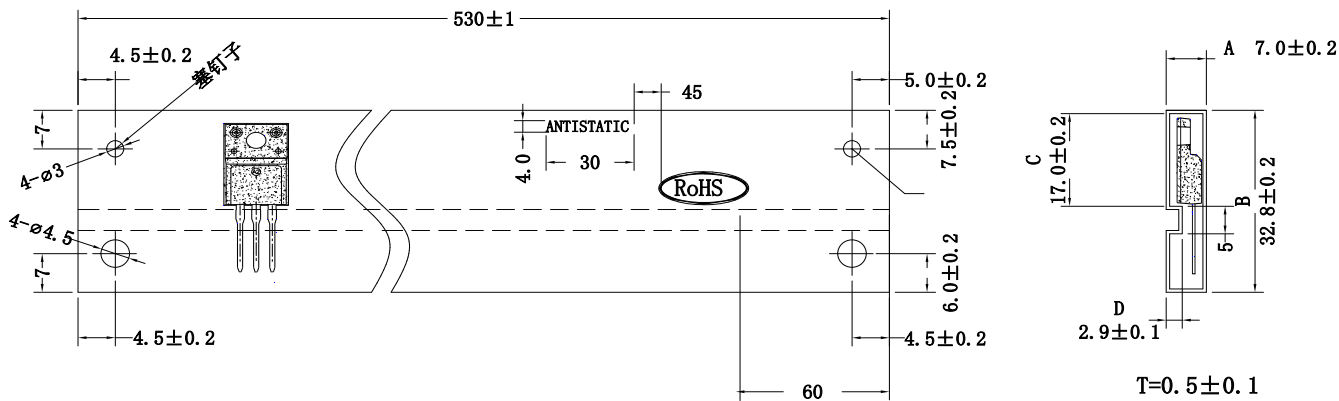
Order code	Voltage V <sub>DRM</sub> /V <sub>RRM</sub> (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I - II - III	IV			
BTA12-600B	600	50	70	TO-220F	50	Tube

PACKAGE MECHANICAL DATA



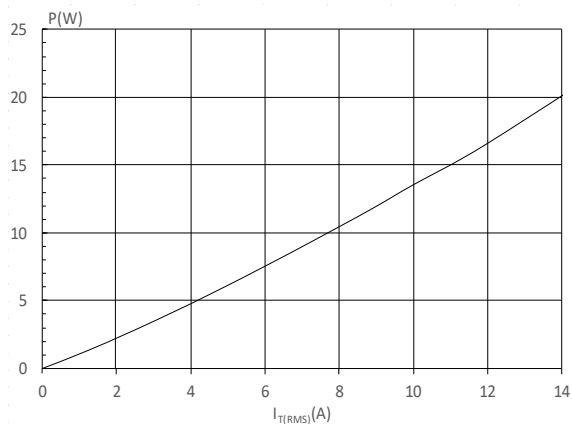
Ref.	Dimensions		
	Millimeters		
	Min.	Typ.	Max.
A	4.50	4.70	4.90
B	0.60	0.80	1.00
C	0.40	0.5	0.60
C2	2.35	2.55	2.75
C3	2.15	2.35	2.55
D	8.97	9.17	9.37
E	9.96	10.16	10.36
F	6.48	6.68	6.88
G	2.44	2.54	2.64
H	28.65	28.95	29.25
L1	1.10	1.30	1.50
L2	3.15	3.30	3.45

DELIVERY MODE

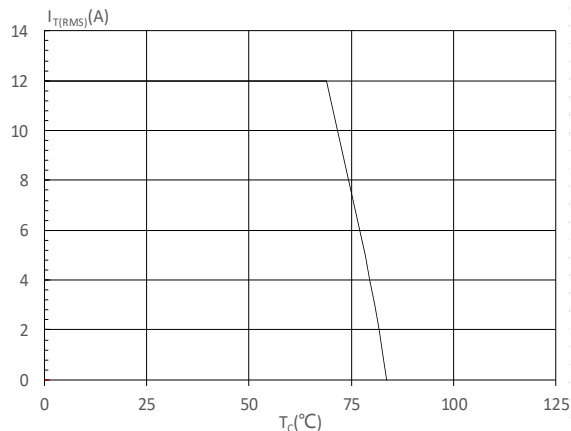


PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220F	TUBE	50	1,000	5,000

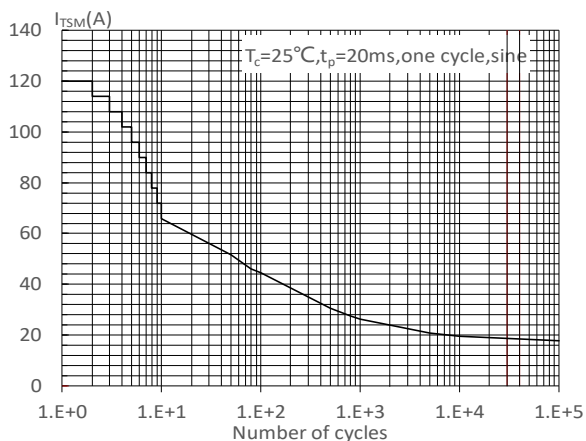
**FIG.1** Maximum power dissipation versus RMS on-state current



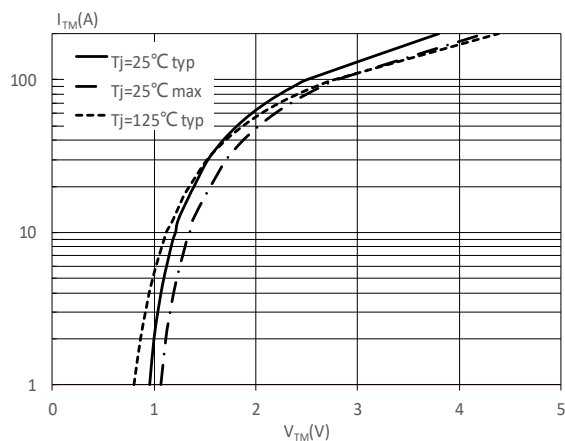
**FIG.2:** RMS on-state current versus case temperature



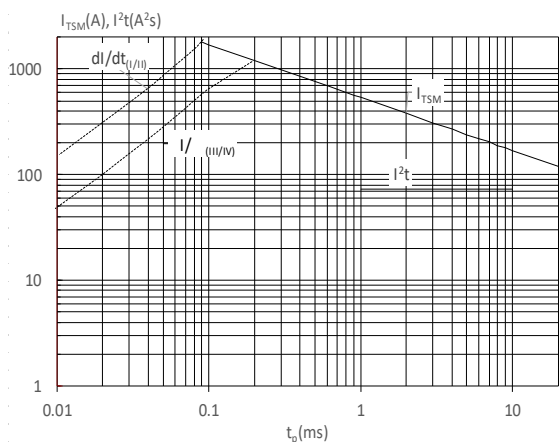
**FIG.3:** Surge peak on-state current versus number of cycles



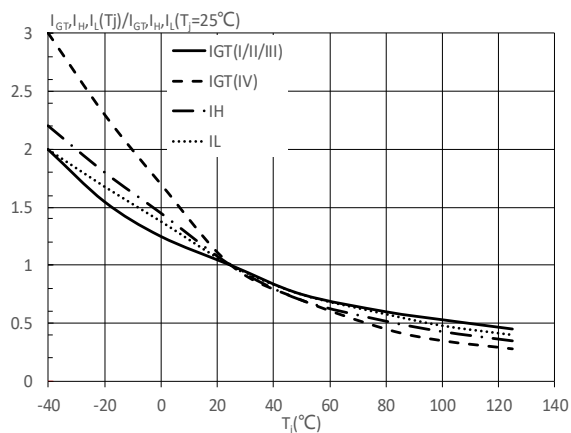
**FIG.4:** On-state characteristics



**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 :  $di/dt < 80\text{A}/\mu\text{s}$ ; III-IV :  $di/dt < 40\text{A}/\mu\text{s}$ )



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



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