

## TO-220-3L Plastic-Encapsulate Thyristors

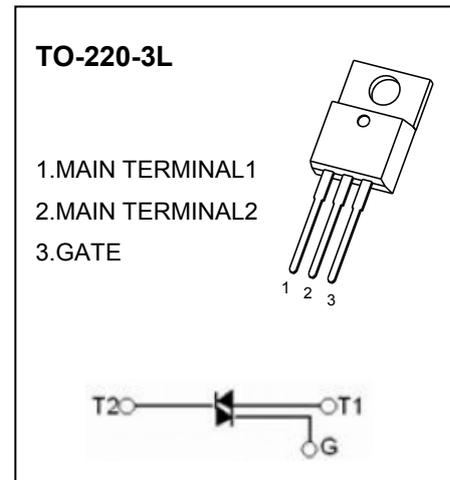
### BTB12-600 3Q TRIAC

#### FEATURE

- High Blocking Voltage Capability
- High Surge Current Capability
- High Commutation Performances
- Uniform Gate Trigger Currents in Three Quadrants
- Medium Current Triac

#### APPLICATION

- General purpose AC switching
- Motor control, static relays, light dimmers and appliance motors speed controllers
- Bidirectional switching and phase control



#### MAXIMUM RATINGS (@T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>DRM</sub>	Repetitive Peak Off-state Voltage	600	V
I <sub>T(RMS)</sub>	RMS On-state Current	12	A
I <sub>TSM</sub>	Non-repetitive Peak On-state Surge Current	@ tp =20ms	120
		@ tp =16.7ms	126
i <sup>2</sup> t	i <sup>2</sup> t for Fusing @t=10ms	72	A <sup>2</sup> s
di/dt	Critical Rate of Rise of On-state Current	50	A/μs
I <sub>GM</sub>	Peak Gate Current	4	A
V <sub>GM</sub>	Peak Gate Voltage	5	V
P <sub>GM</sub>	Peak Gate Power	20	W
P <sub>G(AV)</sub>	Average Gate Power	1	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	62.5	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (@T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Repetitive peak off-state voltage	V <sub>DRM</sub> <sup>(3)</sup>	I <sub>D</sub> =10μA	600			V
Repetitive peak Off-state current	I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub>			5	μA
Gate trigger current	I <sub>GT</sub> <sup>(1)(3)</sup>	V <sub>D</sub> =12V, R <sub>L</sub> =30Ω			50	mA
Gate trigger voltage	V <sub>GT</sub>	V <sub>D</sub> =12V, R <sub>L</sub> =30Ω			1.3	V
Latching current	I <sub>L</sub> <sup>(3)</sup>	I <sub>G</sub> =1.2 I <sub>GT</sub>			70	mA
					80	mA
Holding current	I <sub>H</sub> <sup>(2)(3)</sup>	I <sub>T</sub> =100mA			50	mA
Peak on-state voltage	V <sub>TM</sub> <sup>(2)</sup>	I <sub>T</sub> =17A			1.55	V
Critical rate of rise of off-state voltage	dV/dt <sup>*(2)</sup>	V <sub>D</sub> =67%V <sub>DRM</sub> , gate open	20			V/μs

\*Guaranteed by design, not subject to production testing.

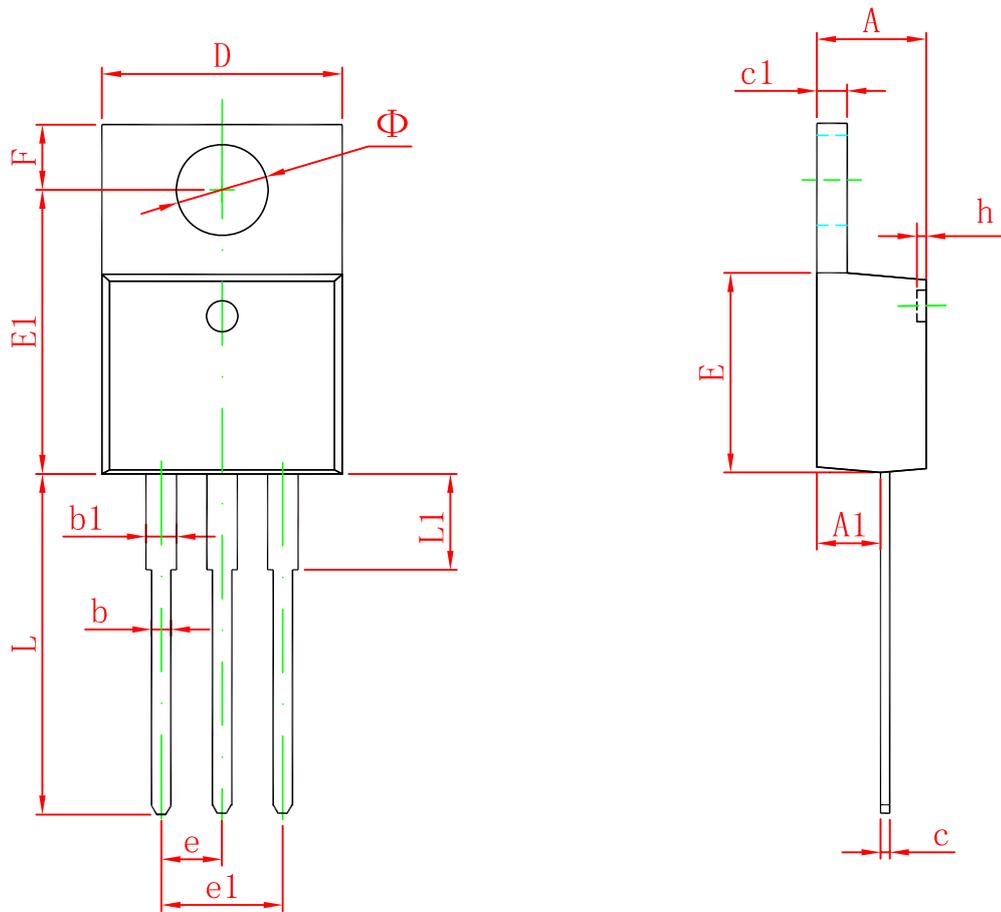
1. Minimum I<sub>GT</sub> is guaranteed at 5% of I<sub>GT</sub> max.

2. for both polarities of A2 referenced to A1.

3. CLASSIFICATION of BTB12-600

RANK		BTB12-600SW	BTB12-600CW	BTB12-600BW	Unit
V <sub>DRM</sub>		>600	>600	>600	V
I <sub>GT</sub>	I, II, II	<10	<35	<50	mA
I <sub>H</sub>		<15	<35	<50	
I <sub>L</sub>	I, III	<25	<50	<70	
	II	<30	<60	<80	

# TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
$\Phi$	3.735	3.935	0.147	0.155