

TO-220-3L Plastic-Encapsulate Thyristors

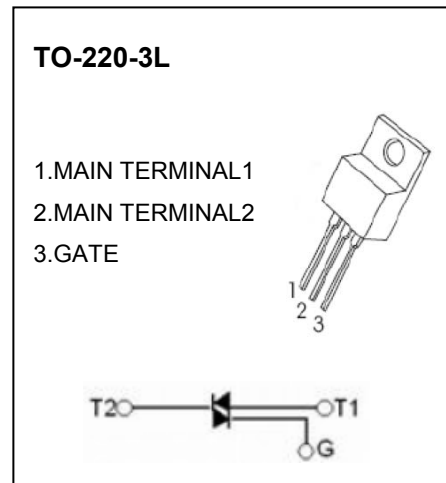
BTB12 3Q TRIAC

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_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DRM}	Repetitive Peak Off-state Voltage	600/800	V
I_{T(RMS)}	RMS On-state Current	12	A
I_{TSM}	Non-repetitive Peak On-state Surge Current	@ tp =20ms	120
		@ tp =16.7ms	126
i²t	i ² t for Fusing @t=10ms	78	A ² s
di/dt	Critical Rate of Rise of On-state Current	50	A/μs
I_{GM}	Peak Gate Current	4	A
V_{GM}	Peak Gate Voltage	5	V
P_{GM}	Peak Gate Power	20	W
P_{G(AV)}	Average Gate Power	1	W
R_{θJA}	Thermal Resistance from Junction to Ambient	62.5	°C/W
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C

ELECTRICAL CHARACTERISTICS (@T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Repetitive peak off-state voltage	V _{DRM} ⁽³⁾	I _D =10μA	600/800			V
Repetitive peak Off-state current	I _{DRM}	V _D =V _{DRM}			5	μA
Gate trigger current	I _{GT} ^{(1) (3)}	V _D =12V, R _L =30Ω			50	mA
Gate trigger voltage	V _{GT}	V _D =12V, R _L =30Ω			1.3	V
Latching current	I _L ⁽³⁾	I _G =1.2 I _{GT}			70	mA
					80	mA
Holding current	I _H ^{(2) (3)}	I _T =100mA			50	mA
Peak on-state voltage	V _{TM} ⁽²⁾	I _T =17A			1.55	V
Critical rate of rise of off-state voltage	dV/dt ⁽²⁾	V _D =67%V _{DRM} , gate open	20			V/μs
Gate controlled turn-on time	T _{gt} [*]	I _{TM} =6A, V _D =V _{DRM} , I _G =0.1mA, dI _G /dt=5A/μs		2		μs

*Guaranteed by design, not subject to production testing.

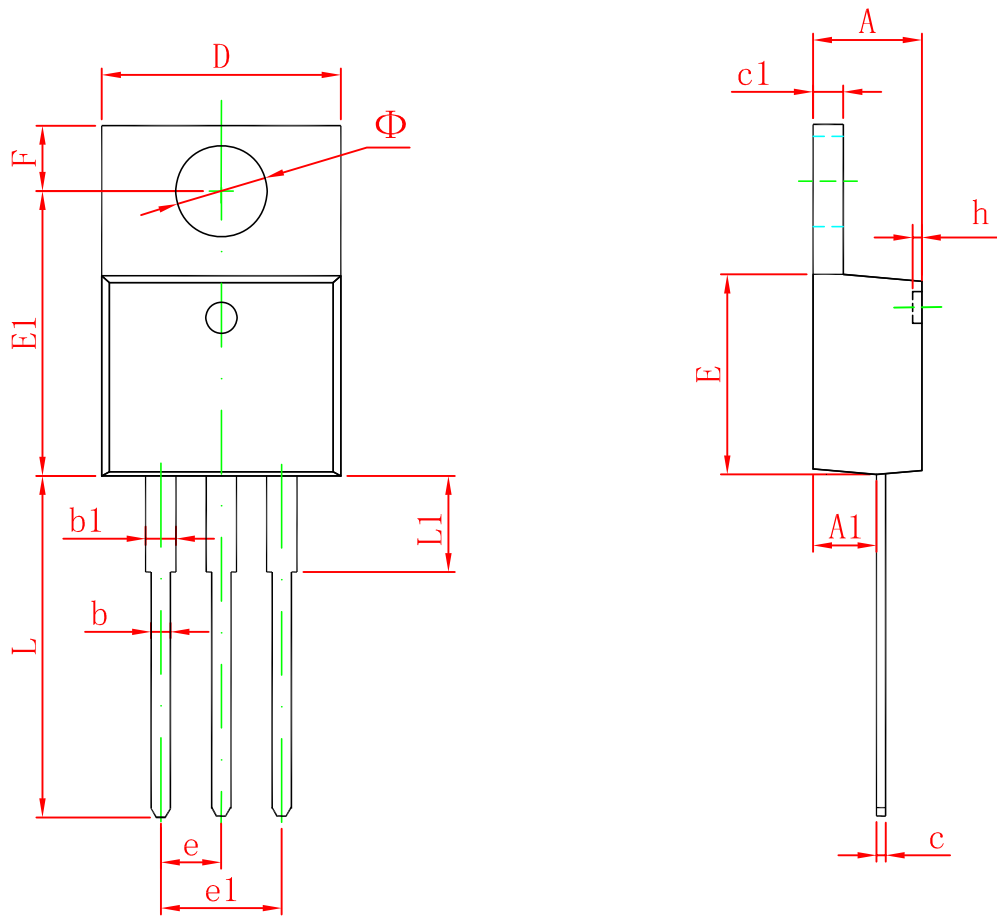
1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

2. for both polarities of A2 referenced to A1.

3. CLASSIFICATION of BTB12

RANK		BTB12-800SW	BTB12-600SW	BTB12-800CW	BTB12-600CW	BTB12-800BW	BTB12-600BW	Unit
V _{DRM}		>800	>600	>800	>600	>800	>600	V
I _{GT}	I, II, II	<10		<35		<50		mA
I _H		<15		<35		<50		
I _L	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
Φ	3.735	3.935	0.147	0.155