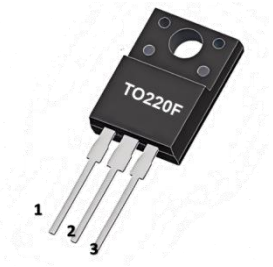
BTB16

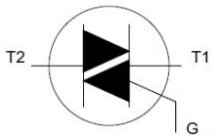
TRIAC

■ GENERAL DESCRIPTION

*The BTB16 is a 16A triac which can be operated in 4 quadrants, it uses our advanced technology to provide customers with high commutation performances.

*The BTB16 is suitable for AC switching application and phase control application such as fan speed and temperature modulation control, lighting control and static switching relay, either in through-hole or surface-mount packages.





Pin1:T1 Pin2:T2 Pin3:G

■ MARKING

: HY LOGO

BTB16=Device Code

800E:V_{DRM}/V_{RRM}=800V

XXXX=Date Code

Solid Dot=Green molding compound

■ ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

SYMBOL	PARAMETER		TEST CONDITION		VALUE	UNIT
V_{DRM}/V_{RRM}	Repetitive Peak off-state/reverse voltage		BTB16-600E		600	V
			BTB16-800E		800	
$I_{T(RMS)}$	RMS On-State Current(Full Sine Wave)		Tc=86°C		16	A
I_{TSM}	Non Repetitive Surge Peak On-State Current ((Full Cycle TJ initial=25°C)		t=20ms	F=50Hz	160	A
			t=16.7ms	F=60Hz	168	
I^2t	I^2t Value for Fusing		t_P=10ms		144	A^2S
dI/dt	Critical Rate of Rise of On-State Current I_G=2xI_{GT}, tr≤100ns		F=120Hz	T_J=125°C	50	A/μs
V_{DSM}/V_{RSM}	Non Repetitive Surge Peak Off-State Voltage		t_P=10ms	T_J=25°C	V_{DRM}/V_{RRM}+100	V
I_{GM}	Peak Gate Current	t_P=20μs	T_J=125°C		4	A
$P_{G(AV)}$	Average Gate Power Dissipation (T_J=125°C)				1	W
T_j	Operating junction temperature				125	℃
Tstg	Storage Junction Temperature				-40 to +150	℃

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	θ_{JA}	60	℃/W
Junction to Case	TO-220F	θ_{JC}	1.2	℃/W

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
B	◎	◎	50mA	STANDARD
C	◎	◎	25mA	STANDARD

◎ : Available

■ ELECTRICAL CHARACTERISTICS (Tc=25°C unless otherwise noted)

FOR STANDARD (4 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		C			B			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	I_{GT}	V_D=12V, R_L=33Ω	T2+, G+			25			50	mA
			T2+, G -			25			50	
			T2-, G -			25			50	
			T2-, G+			50			100	
Gate Trigger Voltage	V_{GT}	V_D=12V, R_L=33Ω	T2+, G+			1.3			1.3	V
			T2+, G -			1.3			1.3	
			T2-, G -			1.3			1.3	
			T2-, G+			1.3			1.3	
Gate Non-Trigger Voltage	V_{GD}	V_D=V_{DRM} R_L=3.3kΩ T_J=125°C	I-II-III-IV	0.2			0.2			V
Holding Current (Note 2)	I_H	I_T=500mA				25			50	mA
Latching Current	I_L	I_G=1.2I_{GT}	I-III-IV			40			60	mA
			II			80			120	mA
Critical Rate of Rise of Off-State Voltage(Note 2)	dV/dt	V_D=67%V_{DRM}(Gate Open) T_J=125°C		200			400			V/μs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	(dV/dt)c	(dI/dt)c=7A/ms T_J=125°C		5			10			V/μs

BTB16

TRIAC

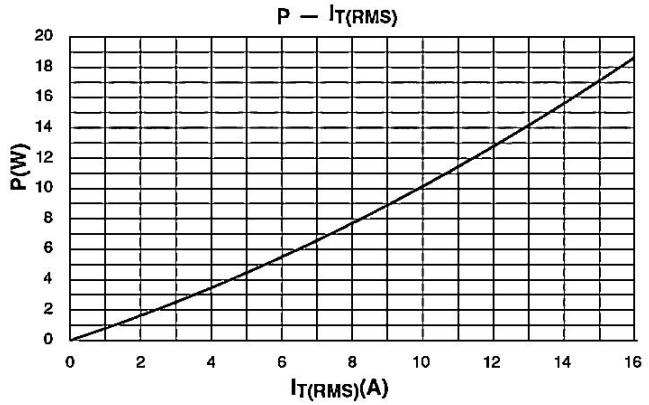
■ STATIC CHARACTERISTICS

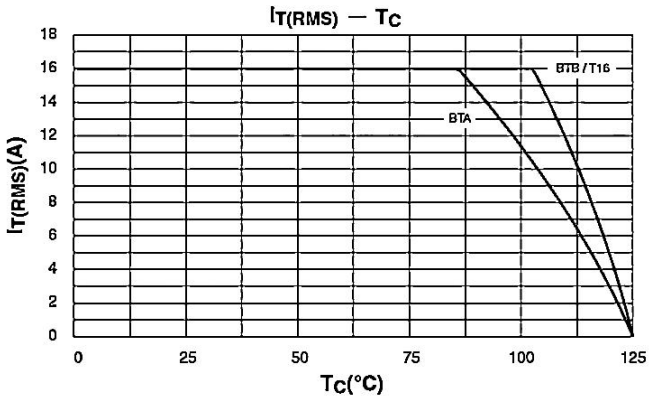
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 2)	V_{TM}	I_{TM}=8.5A, t_P=380μs	T_J=25°C			1.55	V
Threshold Voltage (Note 2)	V_{TO}		T_J=125°C			0.85	V
Dynamic Resistance (Note 2)	R_D		T_J=125°C			25	mΩ
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM}=V_{RRM}	T_J=25°C			5	μA
	I_{RRM}		T_J=125°C			2	mA

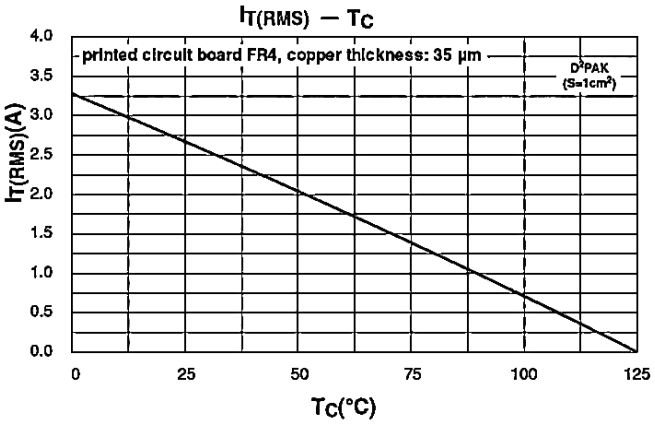
Notes: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

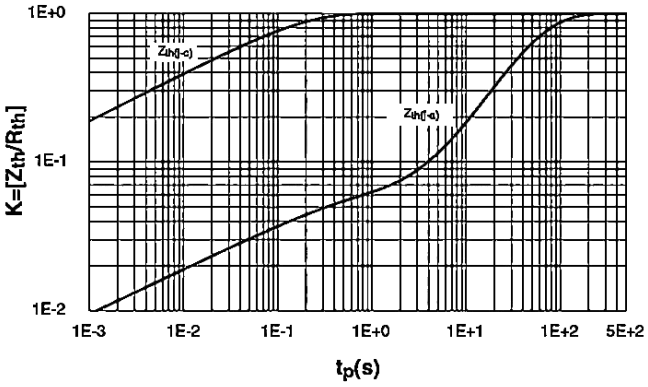
2. For both polarities of MT2 referenced to MT1.

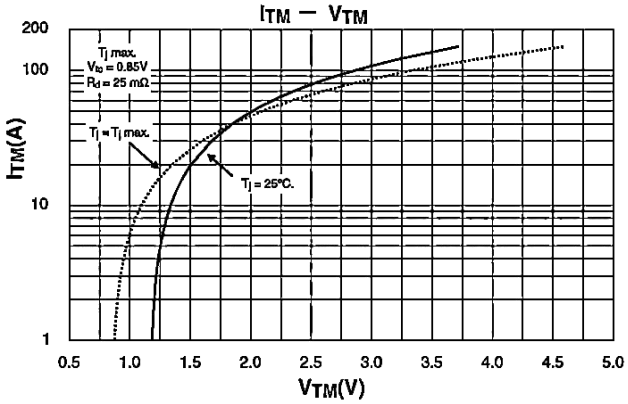
■ TYPICAL CHARACTERISTICS（1）

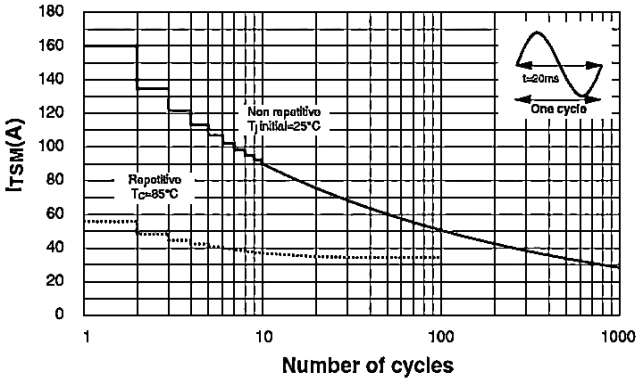




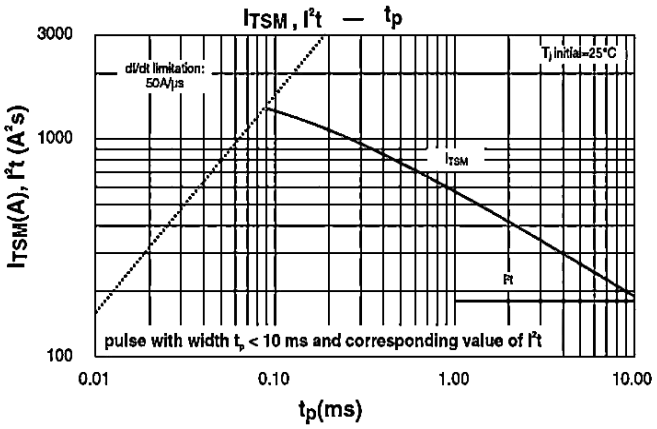


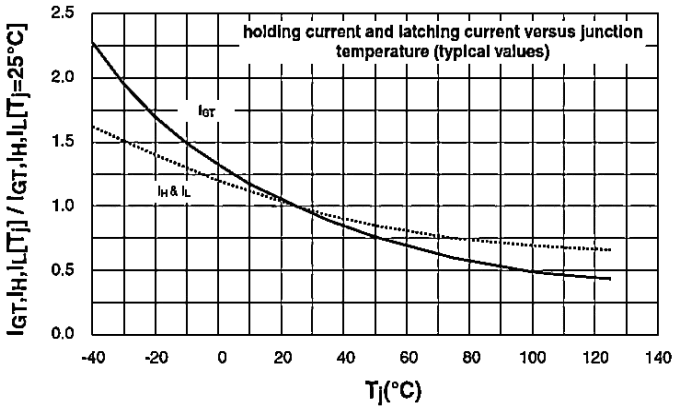


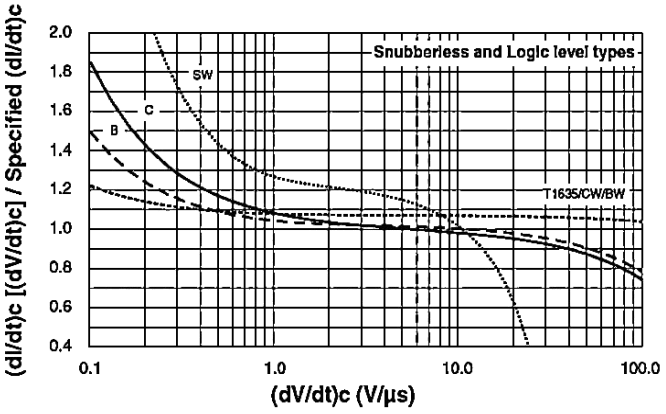


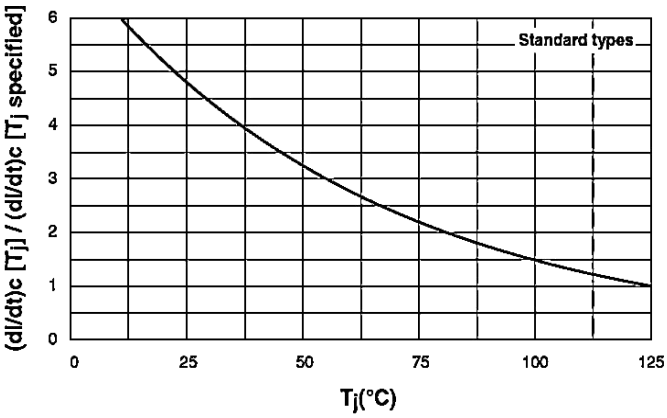


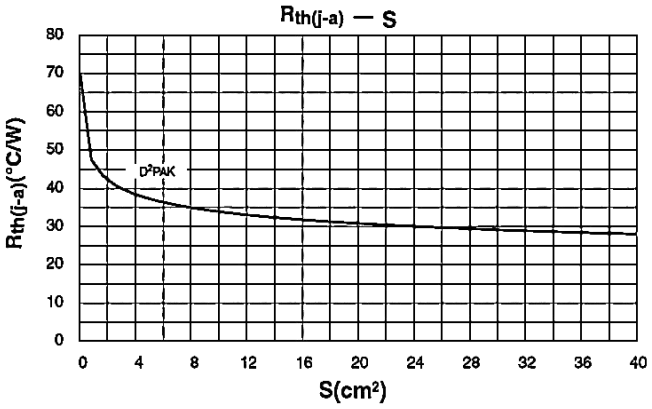
■ TYPICAL CHARACTERISTICS（2）



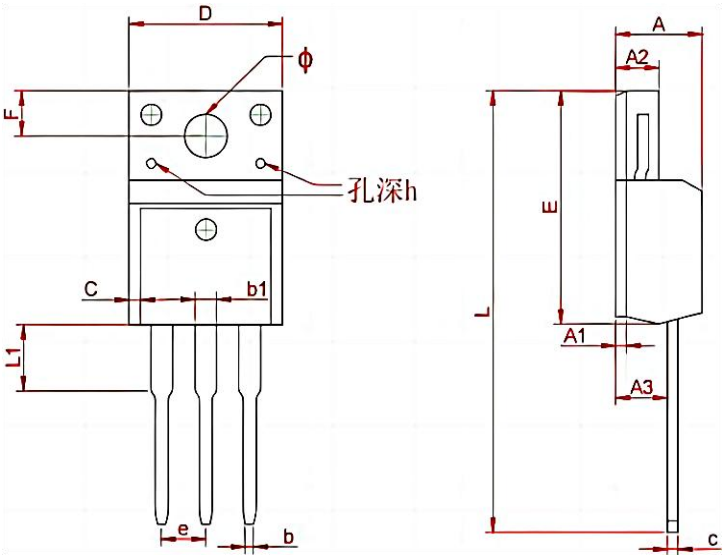








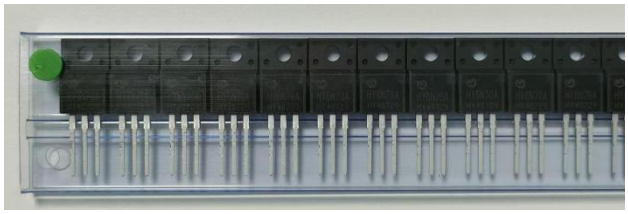
■ TO-220F PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	Max
A	4.300	4.750	0.169	0.185
A1	1.830 REF		0.072 REF	
A2	2.300	2.850	0.090	0.112
A3	2.500	2.900	0.098	0.114
b	0.400	0.420	0.016	0.016
b1	1.220	1.280	0.048	0.050
C	0.690	0.720	0.027	0.028
c	0.490	0.510	0.019	0.020
D	9.960	10.200	0.392	0.400
E	15.000	15.950	0.588	0.625
e	2.574 TYP		0.101TYP	
F	3.470 REF		0.136 REF	
y	3.200 REF		0.125 REF	
h	0.000	0.300	0.000	0.012
L	28.780	28.900	1.128	1.133
L1	2.990	3.100	0.117	0.122

■ TO-220F PACKING INFORMATION

50PCS



20 Tube

Inner Box

5 Inner Box

Outer Box

Package version	**Tube dimensions LxW×H (mm)**	**Per Tube (pcs)**	**Tube per box**	**Inner box** dimensions LxW×H (mm)	**PCS/ Inner box**	**Outer box** dimensions L×W×H(mm)	**PCS/ Outer box**