



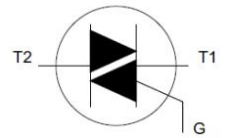
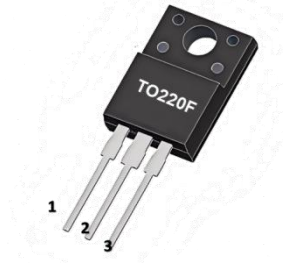
BTB16

TRIAC

GENERAL DESCRIPTION

*The BTB16 is a 16A triac which can be operated in 3 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 : HY LOGO

BTB16=Device Code

800E:VDRM/VRRM=800V

XXXX=Date Code

Solid Dot=Green molding compound

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

SYMBOL	PARAMETER	TEST CONDITION		VALUE	UNIT
VDRM/VRRM	Repetitive Peak off-state/reverse voltage	BTB16-600E		600	V
		BTB16-800E		800	
IT(RMS)	RMS On-State Current(Full Sine Wave)	Tc=86°C		16	A
ITSM	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 ² t	I ² t Value for Fusing	tp=10ms		144	A ² S
di/dt	Critical Rate of Rise of On-State Current IG=2xIGT, tr≤100ns	F=120Hz	TJ=125°C	50	A/μs
VDSM/VRSM	Non Repetitive Surge Peak Off-State Voltage	tp=10ms	TJ=25°C	VDRM/VRRM+100	V
IGM	Peak Gate Current	tp=20μs	TJ=125°C	4	A
PG(AV)	Average Gate Power Dissipation (Tj=125°C)			1	W
Tj	Operating junction temperature			125	°C
Tstg	Storage Junction Temperature			-40 to +150	°C

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.



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■ THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	θ_{JA}	60	$^{\circ}\text{C/W}$
Junction to Case	TO-220F	θ_{JC}	1.2	$^{\circ}\text{C/W}$

■ SENSITIVITY AND TYPE

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

⊙ : Available

■ ELECTRICAL CHARACTERISTICS ($T_c=25^{\circ}\text{C}$ 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}	$V_D=12\text{V}$, $R_L=33\Omega$	T2+, G+			25			50	mA
			T2+, G-			25			50	
			T2-, G-			25			50	
Gate Trigger Voltage	V_{GT}	$V_D=12\text{V}$, $R_L=33\Omega$	T2+, G+			1.3			1.3	V
			T2+, G-			1.3			1.3	
			T2-, G-			1.3			1.3	
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$ $R_L=3.3\text{k}\Omega$ $T_J=125^{\circ}\text{C}$	I-II-III	0.2			0.2			V
Holding Current (Note 2)	I_H	$I_T=500\text{mA}$				25			50	mA
Latching Current	I_L	$I_G=1.2I_{GT}$	I-III			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) $T_J=125^{\circ}\text{C}$		200			400			V/ μs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	(dV/dt) _c	(dI/dt) _c =7A/ms $T_J=125^{\circ}\text{C}$		5			10			V/ μs



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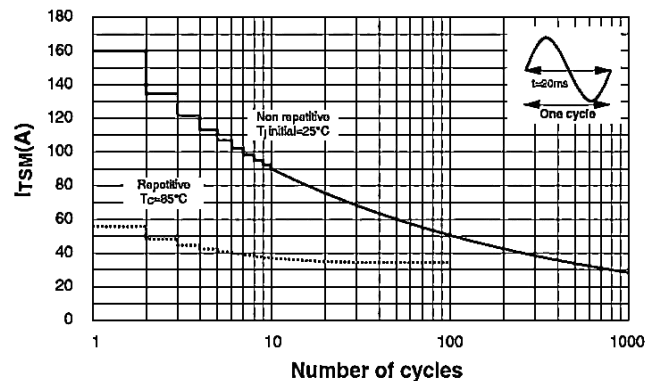
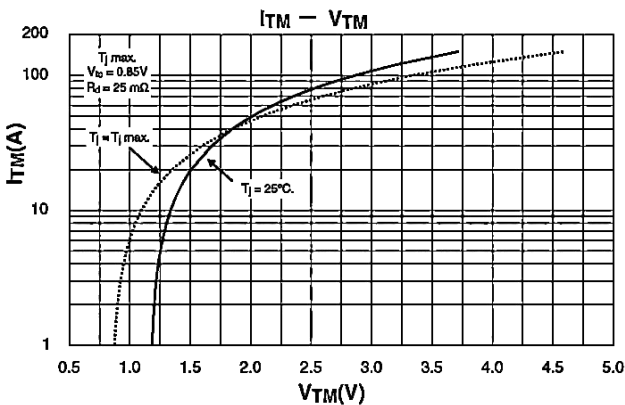
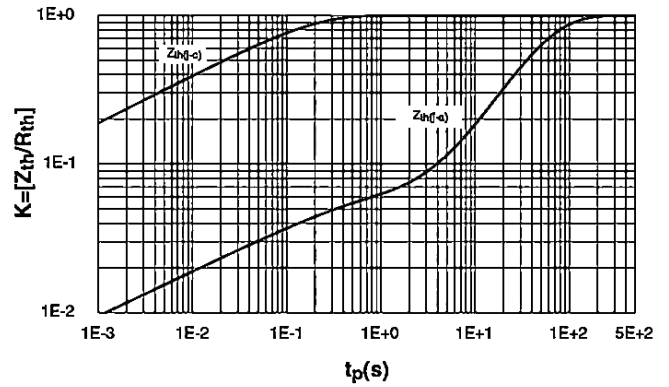
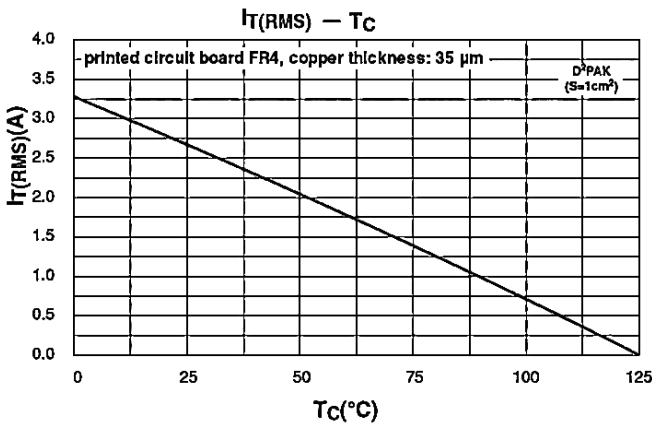
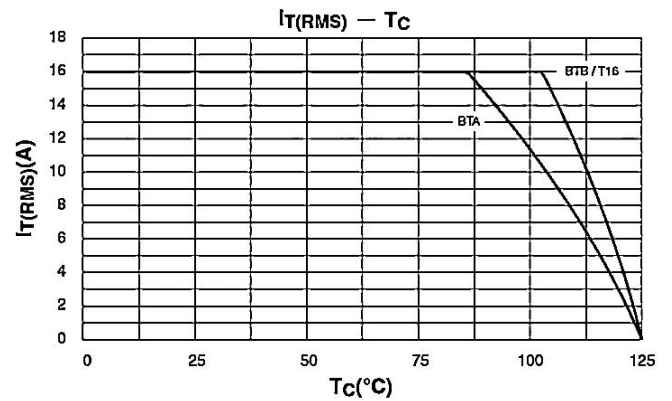
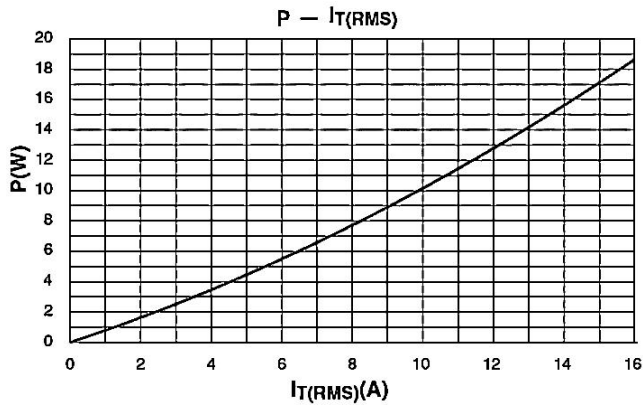
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■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 2)	V_{TM}	$I_{TM}=8.5A, t_p=380\mu s$	$T_J=25^\circ C$			1.55	V
Threshold Voltage (Note 2)	V_{TO}		$T_J=125^\circ C$			0.85	V
Dynamic Resistance (Note 2)	R_D		$T_J=125^\circ C$			25	m Ω
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$	$T_J=25^\circ C$			5	μA
	I_{RRM}		$T_J=125^\circ C$			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)

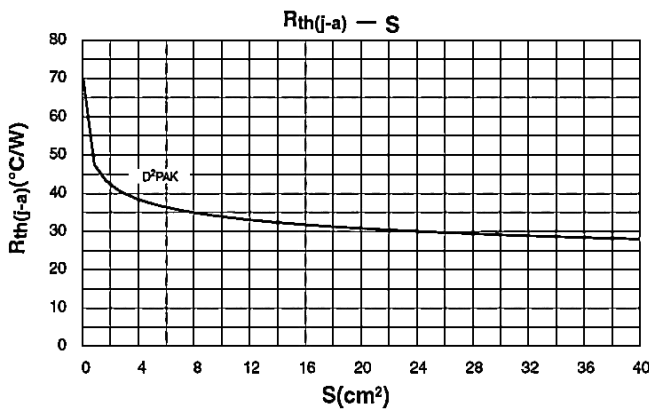
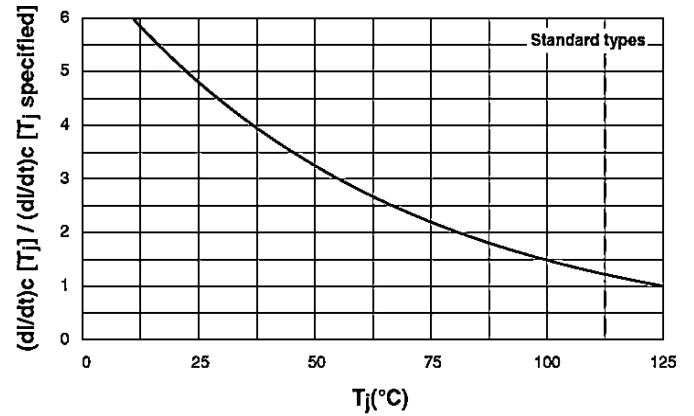
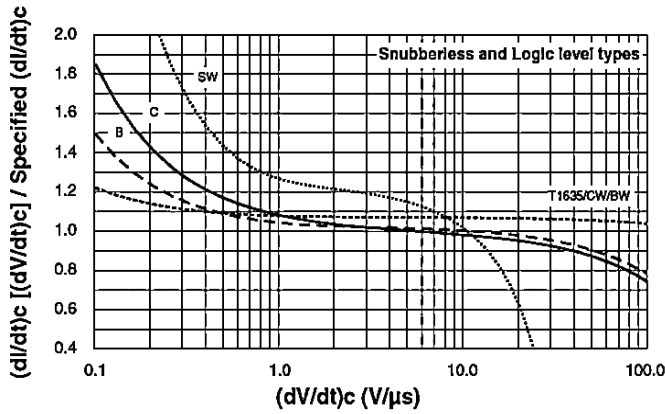
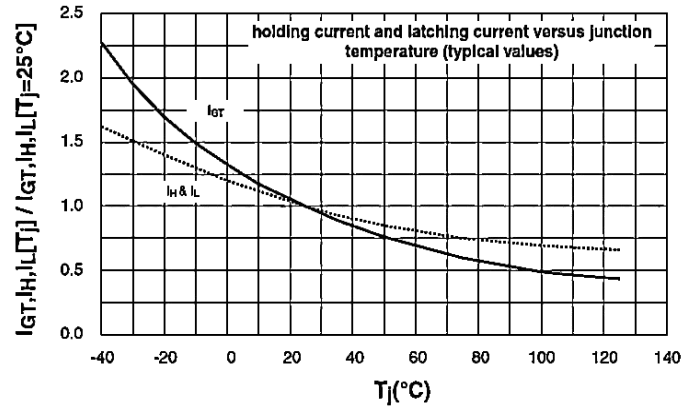
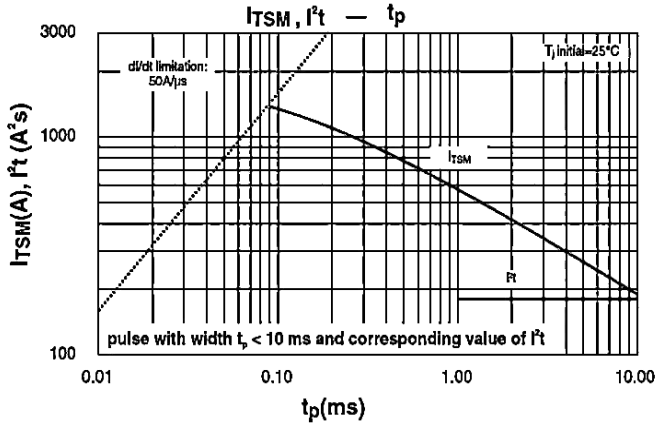




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■ TYPICAL CHARACTERISTICS (2)

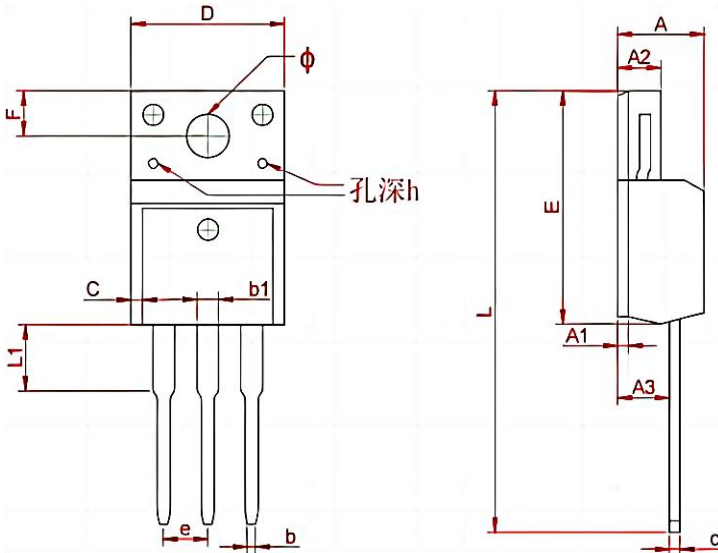




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TO-220F PACKAGE OUTLINE DIMENSIONS



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		0.101 TYP	
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



Outer Box

5 Inner Box



Inner Box

Package version	Tube dimensions LxWxH (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxWxH (mm)	PCS/ Inner box	Outer box dimensions LxWxH(mm)	PCS/ Outer box