



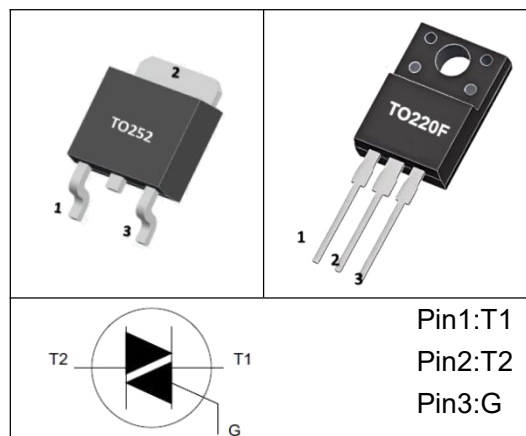
BTB06

TRIAC

GENERAL DESCRIPTION

*The BTB06 is a 6A triacs which can be operated in 4 quadrants, it uses our advanced technology to provide customers with high commutation performances.

*The BTB06 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.



MARKING



HY : HY LOGO

BTB06=Device Code

XXXX=Date Code

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

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	BTB06-600	600	V
		BTB06-800	800	
I _{T(RMS)}	RMS On-State Current(Full Sine Wave)	T _c =110°C	6	A
I _{TSM}	Non Repetitive Surge Peak On-State Current ((Full Cycle T _J initial=25°C)	t=20ms F=50Hz	42	A
		t=16.7ms F=60Hz	40	
I _{GM}	Peak Gate Current	t _p =20μs T _J =125°C	4	A
I ² t	I ² t Value for Fusing	t _p =10ms	8	A ² S
di/dt	Critical Rate of Rise of On-State Current: I _G =2I _{GT} , t _r ≤100ns	F=120Hz T _J =125°C	40	A/μs
P _{G(AV)}	Average Gate Power Dissipation (T _J =125°C)		1	W
T _{stg}	Storage Junction Temperature		-40 to +150	°C
T _J	Operating junction temperature		125	°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-252/TO-220F	R θ JA	62.5	°C/W
Junction to Case	TO-220F	R θ JC	3.31	°C/W
	TO-252		2.6	°C/W

SENSITIVITY AND TYPE

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

⊙ : Available

ELECTRICAL CHARACTERISTICS (T_c=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 =30Ω	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 =30Ω	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-I-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			50	mA
			II			80			100	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 =2.7A/ms, T _J =125°C		5			10			V/μs



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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		$T_J=125^\circ C$			60	m Ω
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$	$T_J=25^\circ C$			5	μA
	I_{RRM}		$T_J=125^\circ C$			1	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)

Figure 1: Maximum power dissipation versus RMS on-state current (full cycle)

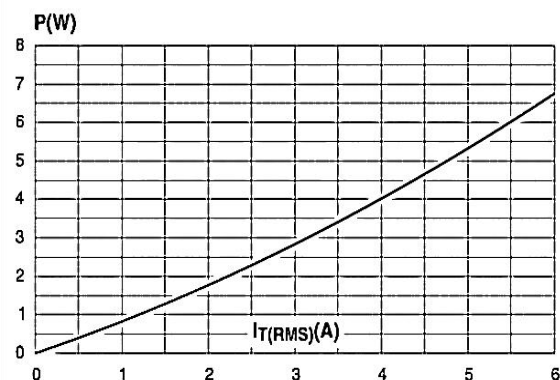


Figure 2: RMS on-state current versus case temperature (full cycle)

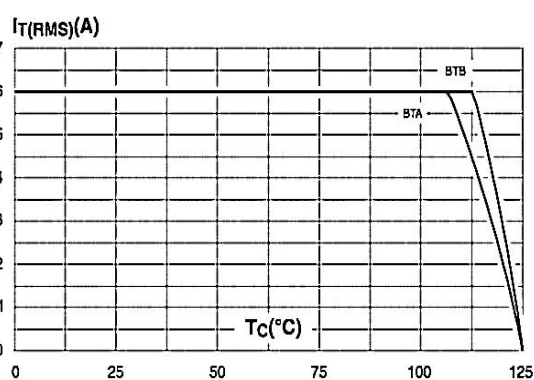


Figure 3: Relative variation of thermal impedance versus pulse duration

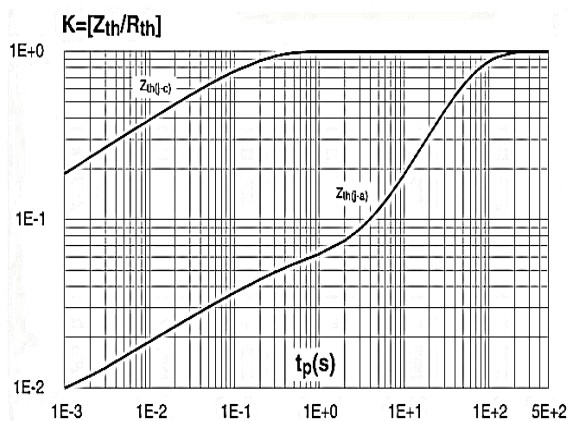
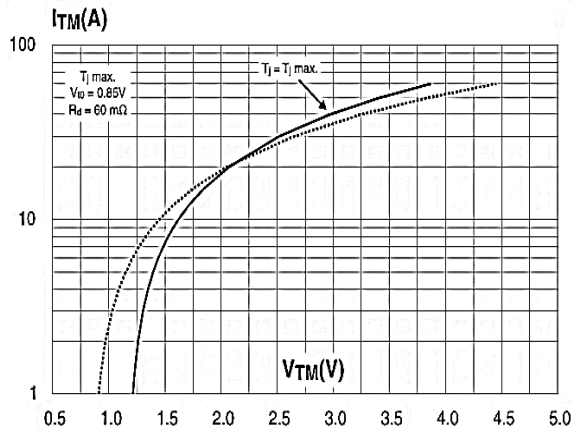


Figure 4: On-state characteristics (maximum values)





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■ TYPICAL CHARACTERISTICS (2)

Figure 5: Surge peak on-state current versus number of cycles

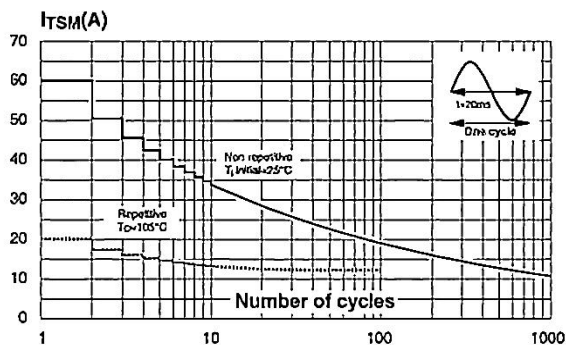


Figure 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms and corresponding value of I^2t

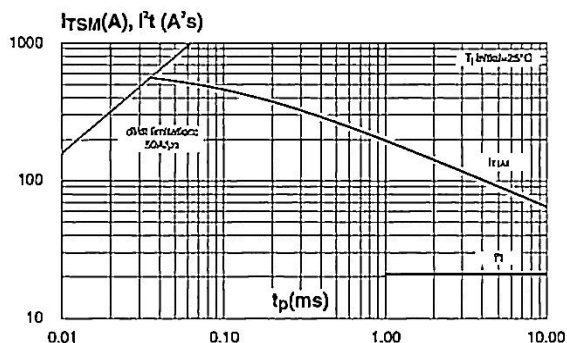


Figure 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

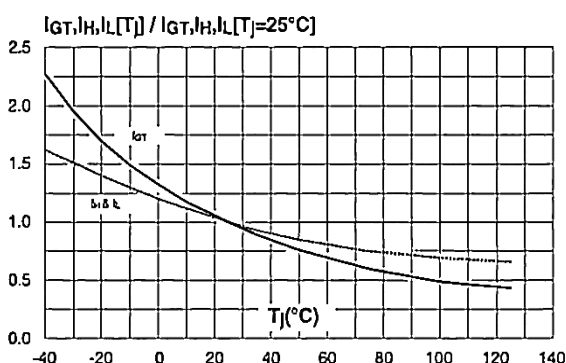


Figure 8: Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values) (Snubberless & logic level types)

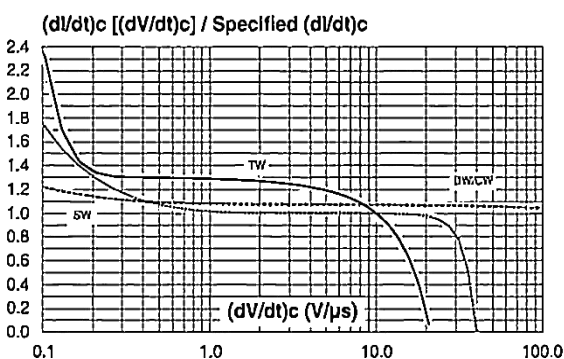


Figure 9: Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values) (Standard types)

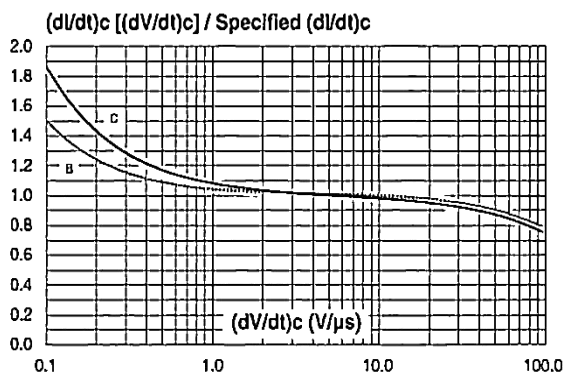
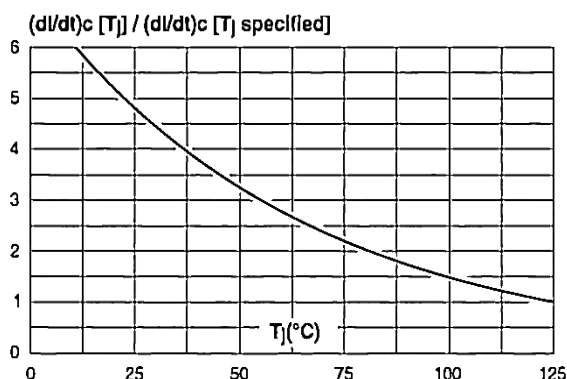


Figure 10: Relative variation of critical rate of decrease of main current versus junction temperature

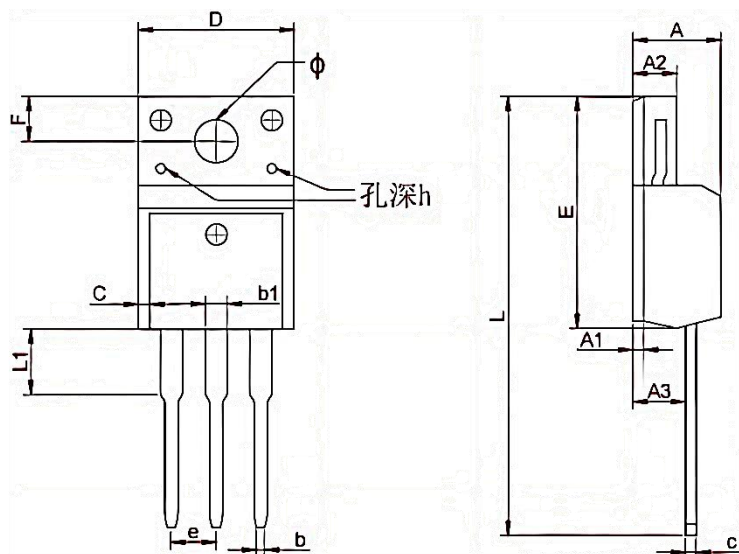




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TO - 220F PACKAGE OUTLINE DIMENSIONS



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		0.101TYP	
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



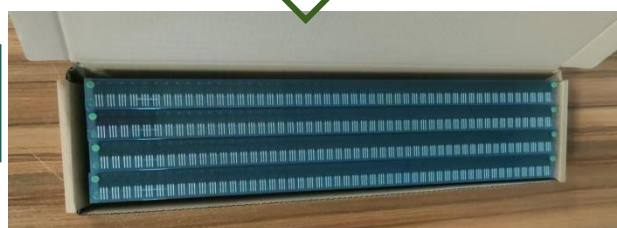
50PCS



20 Tube



5 Inner
Box



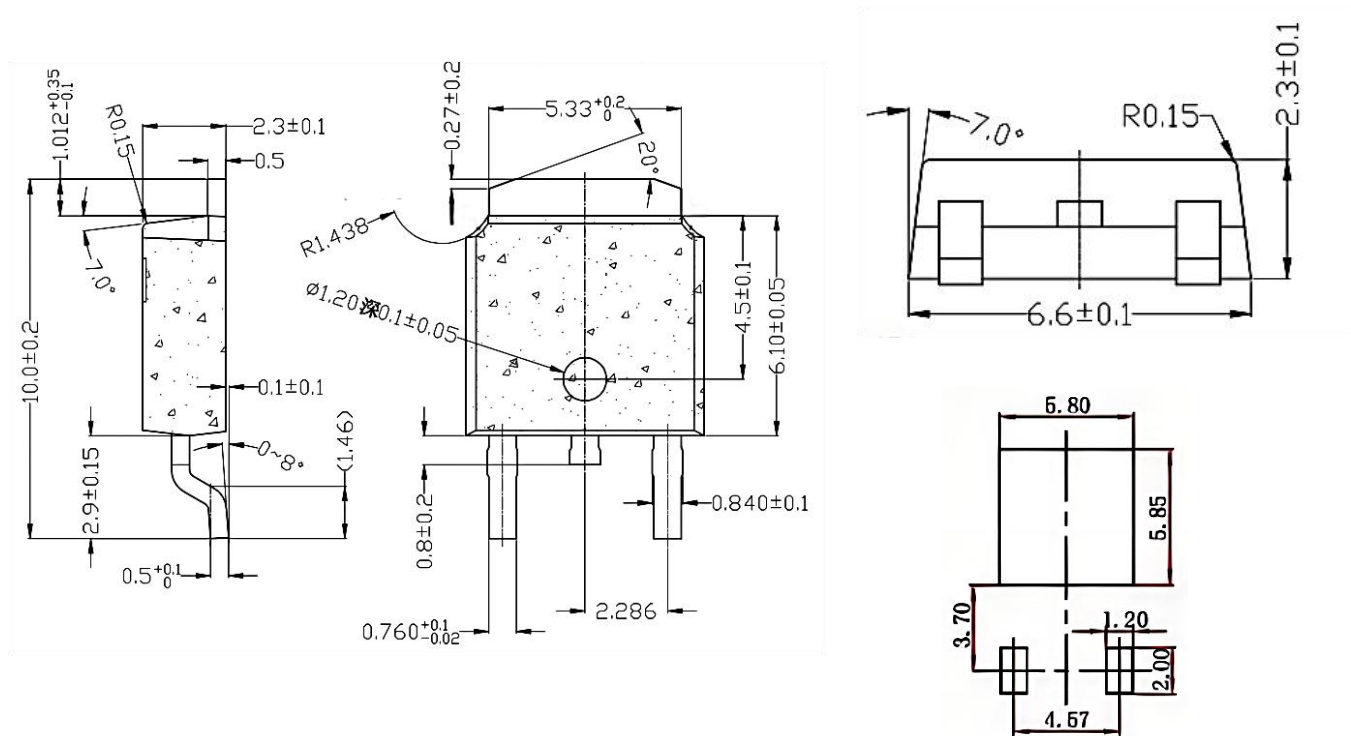
Package version	Tube dimensions LxW×H (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxW×H (mm)	PCS/ Inner box	Outer box dimensions L×W×H(mm)	PCS/ Outer box
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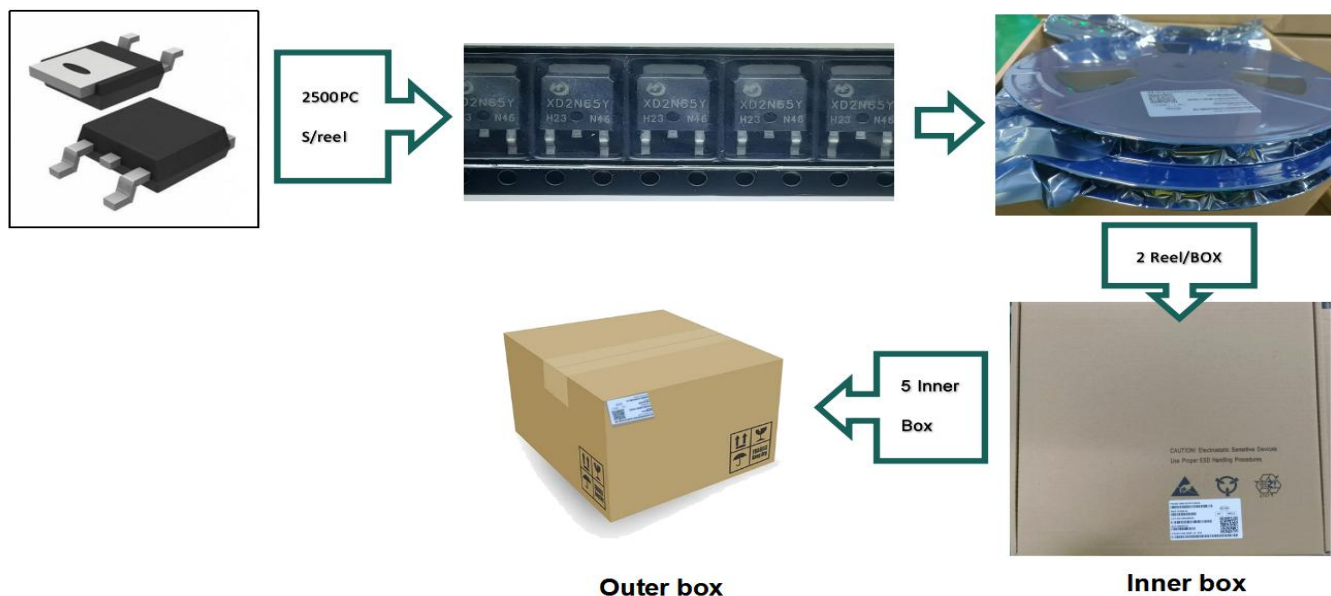
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TRIAC

TO - 252 PACKAGE OUTLINE DIMENSIONS



TO - 252 PACKING INFORMATION



Package version	Reel dimensions $\phi \times H$ (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions L×W×H (mm)	Outer box (pcs)	Outer box dimensions L×W×H (mm)
T0-252	$\phi 330 \times 20$	2500	2	360×340×50	25000	375×375×280