



## BTB06

Preliminary

TRIAC

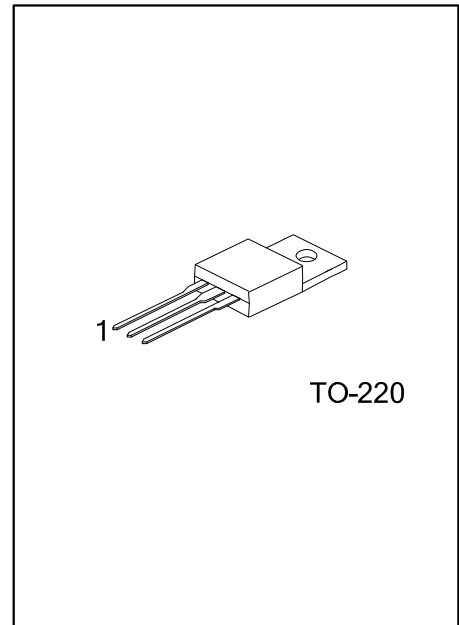
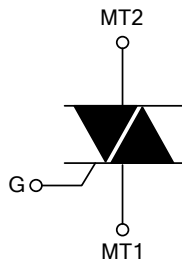
## 6A TRIACS

### DESCRIPTION

The UTC **BTB06** is a 6A triacs, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

The UTC **BTB06** is suitable for inductive loads, general purpose AC switching and an ON/OFF function in applications such as induction motor starting circuits, for phase control operation in light dimmers and static relays, etc.

### SYMBOL



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTB06L-x-xx-TA3-T	BTB06G-x-xx-TA3-T	TO-220	MT1	MT2	G	Tube

BTB06L-x-xx-TA3-T	(1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Lead Free	(1) T: Tube (2) TA3: TO-220 (3) refer to SENSITIVITY AND TYPE (4) 6: 600V, 8: 800V (5) L: Lead Free, G: Halogen Free
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### SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
B	⊙	⊙	50mA	STANDARD
BW	⊙	⊙	50mA	SNUBBERLESS
C	⊙	⊙	25mA	STANDARD
CW	⊙	⊙	35mA	SNUBBERLESS
SW	⊙	⊙	10mA	LOGIC LEVEL
TW	⊙	⊙	5mA	LOGIC LEVEL

⊙: Available

## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
RMS On-State Current (Full Sine Wave)	$T_C=105^{\circ}\text{C}$ $I_{T(RMS)}$	6	A
Non Repetitive Surge Peak On-State Current (Full Cycle $T_J$ initial= $25^{\circ}\text{C}$ )	$F=50\text{Hz}$ $t=20\text{ms}$ $I_{TSM}$	60	A
	$F=60\text{Hz}$ $t=16.7\text{ms}$	63	A
$I^2t$ Value for Fusing	$t_p=10\text{ms}$ $I^2t$	21	$\text{A}^2\text{s}$
Critical Rate of Rise of On-State Current: $I_G=2I_{GT}$ , $t_r \leq 100\text{ns}$	$F=120\text{Hz}$ $T_J=125^{\circ}\text{C}$ $dI/dt$	50	$\text{A}/\mu\text{s}$
Peak Gate Current	$t_p=20\mu\text{s}$ $T_J=125^{\circ}\text{C}$ $I_{GM}$	4	A
Average Gate Power Dissipation	$T_J=125^{\circ}\text{C}$ $P_{G(AV)}$	1	W
Operating Junction Temperature	$T_J$	$-40 \sim +125$	$^{\circ}\text{C}$
Storage Junction Temperature	$T_{STG}$	$-40 \sim +150$	$^{\circ}\text{C}$

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.

## ■ THERMAL RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	60	$^{\circ}\text{C}/\text{W}$
Junction to Case (AC)	$\theta_{JC}$	1.8	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

## FOR SNUBBERLESS AND LOGIC LEVEL (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS	TW			SW			CW			BW			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	$I_{GT}$	$V_D=12\text{V}$ $R_L=30\Omega$			5			10			35			50	mA
Gate Trigger Voltage	$V_{GT}$				1.3			1.3			1.3			1.3	V
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			0.2			0.2			V
Holding Current (Note 2)	$I_H$	$I_T=100\text{mA}$			10			15			35			50	mA
Latching Current	$I_L$	$I_G=1.2I_{GT}$	I-III		10			25			50			70	mA
			II		15			30			60			80	mA
Critical Rate of Rise of Off-State Voltage (Note 2)	$dV/dt$	$V_D=67\%V_{DRM}$ , Gate Open, $T_J=125^{\circ}\text{C}$	20			40			400			1000			$\text{V}/\mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(dI/dt)_c$	$(dV/dt)_c=0.1\text{V}/\mu\text{s}$ $T_J=125^{\circ}\text{C}$	2.7			3.5									A/ms
		$(dV/dt)_c=10\text{V}/\mu\text{s}$ , $T_J=125^{\circ}\text{C}$	1.2			2.4									A/ms
		Without Snubber $T_J=125^{\circ}\text{C}$							3.5			5.3			A/ms

Notes: 1. Minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.  
2. For both polarities of MT2 referenced to MT1.

# ELECTRICAL CHARACTERISTICS(Cont.)

## FOR STANDARD (4 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		C			B			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	$I_{GT}$	$V_D=12V$ , $R_L=30\Omega$	I-II-III			25			50	mA
			IV			50			100	mA
Gate Trigger Voltage	$V_{GT}$		ALL			1.3			1.3	V
Gate Non-Trigger Voltage	$V_{GD}$	$V_D=V_{DRM}$ , $R_L=3.3k\Omega$ , $T_J=125^\circ C$	ALL	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, $T_J=125^\circ C$		200			400			V/ $\mu s$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(dV/dt)_c$	$(dI/dt)_c=2.7A/ms$ , $T_J=125^\circ C$		5			10			V/ $\mu s$

# STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 2)	$V_{TM}$	$I_{TM}=8.5A$ , $t_p=380\mu s$			1.55	V
Threshold Voltage (Note 2)	$V_{TO}$				0.85	V
Dynamic Resistance (Note 2)	$R_D$				60	m $\Omega$
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM}=V_{RRM}$			5	$\mu A$
	$I_{RRM}$				1	mA

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

2. For both polarities of MT2 referenced to MT1.

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