



BTB04

Preliminary

TRIAC

SENSITIVE GATE TRIACS

■ **DESCRIPTION**

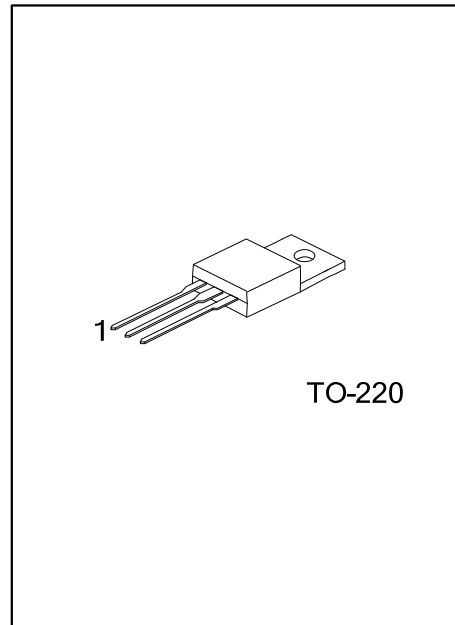
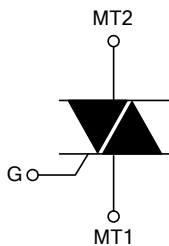
The UTC **BTB04** is a 4A triacs, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

The UTC **BTB04** 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.

■ **FEATURES**

- * Low gate trigger current
- * Low holding current

■ **SYMBOL**



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTB04L-x-x-TA3-T	BTB04G-x-x-TA3-T	TO-220	MT1	MT2	G	Tube

<p>BTB04L-x-x-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) Sensitivity (4) Voltage (5) Lead Free</p>	<p>(1) T: Tube (2) TA3: TO-220 (3) refer to SENSITIVITY AND TYPE (4) 4: 400V, 6: 600V (5) L: Lead Free, G: Halogen Free</p>
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■ **SENSITIVITY AND TYPE**

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	400V	600V		
S		⊙	10mA	STANDARD
D	⊙		5mA	STANDARD
T	⊙	⊙	5mA	STANDARD

⊙: Available

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
RMS On-State Current (360° Conduction Angle)	$T_C=90^{\circ}\text{C}$	$I_{T(RMS)}$	4	A
Non Repetitive Surge Peak On-State Current (T_J initial= 25°C)	$t_p=8.3\text{ms}$	I_{TSM}	42	A
	$t_p=10\text{ms}$		40	A
I^2t Value	$t_p=10\text{ms}$	I^2t	8	A^2s
Critical Rate of Rise of On-State Current: $I_G=50\text{mA}$, $dI_G/dt=0.1\text{A}/\mu\text{s}$	Repetitive $F=50\text{Hz}$	dI/dt	10	$\text{A}/\mu\text{s}$
	Non Repetitive		50	$\text{A}/\mu\text{s}$
Repetitive Peak Off-State Voltage ($T_J=110^{\circ}\text{C}$)	400 T/D	V_{DRM}/V_{RRM}	400	V
	600 T/S		600	V
Peak Gate Current	$t_p=20\mu\text{s}$	I_{GM}	4	A
Peak Positive Gate Voltage	$t_p=20\mu\text{s}$	V_{GM}	16	V
Peak Positive Gate Power Dissipation	$t_p=20\mu\text{s}$	P_{GM}	40	W
Average Gate Power Dissipation		$P_{G(AV)}$	1	W
Operating Junction Temperature		T_J	-40~+110	$^{\circ}\text{C}$
Storage Junction Temperature		T_{STG}	-40~+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	θ_{JA}	60	$^{\circ}\text{C}/\text{W}$
Junction to Case for 360° Conduction Angle ($F=50\text{Hz}$) (AC)	θ_{JC}	2.4	$^{\circ}\text{C}/\text{W}$
Junction to Case (DC)		3.2	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	T			D			S			A			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX		
Gate Trigger Current	I_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$ $T_J=25^\circ C$	I-II-III			5			5			10			10	mA
			IV			5			10			10			25	mA
Gate Trigger Voltage	V_{GT}	$T_J=25^\circ C$	ALL			1.5			1.5			1.5			1.5	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3k\Omega$, $T_J=110^\circ C$	ALL	0.2			0.2			0.2			0.2			V
Time Gate Trigger	t_{GT}	$V_D=V_{DRM}$, $I_G=40mA$, $dI_G/dt=0.5A/\mu s$, $T_J=25^\circ C$	ALL		2			2			2			2		μs
Holding Current (Note 1)	I_H	$I_T=100mA$, Gate Open, $T_J=25^\circ C$				15			15			25			25	mA
Latching Current	I_L	$I_G=1.2I_{GT}$, $T_J=25^\circ C$	I-III-IV		10			10			20			20		mA
			II		20			20			40			40		mA
Peak On-State Voltage (Note 1)	V_{TM}	$I_{TM}=5.5A$, $t_p=380\mu s$, $T_J=25^\circ C$			1.65			1.65			1.65			1.65	V	
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, $T_J=25^\circ C$			0.01			0.01			0.01			0.01	mA	
	I_{RRM}	V_{RRM} Rated, $T_J=110^\circ C$			0.75			0.75			0.75			0.75	mA	
Critical Rate of Rise of Off-State Voltage (Note 1)	dV/dt	Linear Slope up to $V_D=67\%V_{DRM}$, Gate Open, $T_J=110^\circ C$		10			10			10			10		$V/\mu s$	
Critical Rate of Rise of Off-State Voltage at Commutation (Note 1)	$(dV/dt)_c$	$(dI/dt)_c=1.8A/ms$, $T_J=110^\circ C$		1			1			5			5		$V/\mu s$	

Note: 1. For either polarity of electrode MT2 voltage with reference to electrode MT1.

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