



**BTB04**

Preliminary

**TRIAC**

**SENSITIVE GATE TRIACS**

■ DESCRIPTION

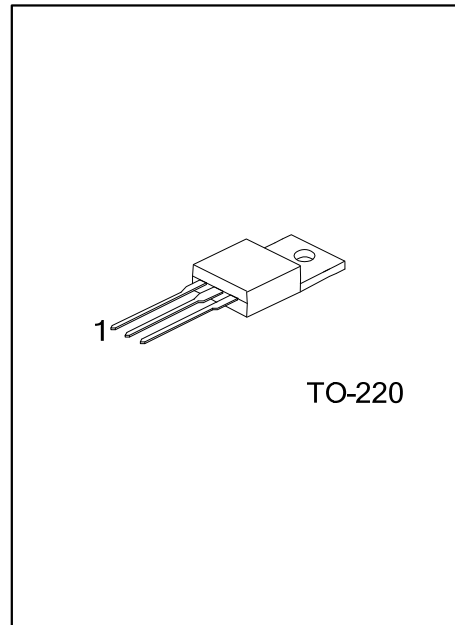
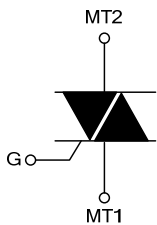
The UTC **BTB04** is a 4A triacs, it uses UTC's advanced technology to provide customers with high commutation performances.

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

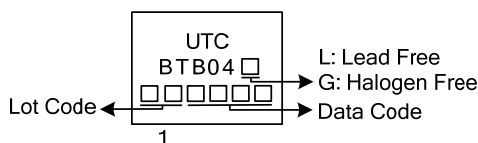
<p>BTB04L-x-x-TA3-T</p> <p>(1)Packing Type (2)Package Type (3)Sensitivity (4)Voltage (5)Lead Free</p>	<p>(1) T: Tube (2) TA3: TO-220 (3) refer to SENSITIVITY AND TYPE (4) 4: 400V, 6: 600V (5) L: Lead Free, G: Halogen Free</p>
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■ SENSITIVITY AND TYPE

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

⊙: Available

■ MARKING



■ 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= $25^{\circ}\text{C}$ )	$t_p=8.3\text{ms}$	$I_{TSM}$	42	A
	$t_p=10\text{ms}$		40	A
$I^2t$ Value	$t_p=10\text{ms}$	$I^2t$	8	$\text{A}^2\text{s}$
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	$\theta_{JA}$	60	$^{\circ}\text{C}/\text{W}$
Junction to Case for 360° Conduction Angle ( $F=50\text{Hz}$ ) (AC)	$\theta_{JC}$	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	$\mu s$
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: For either polarity of electrode MT2 voltage with reference to electrode MT1.

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