



BTB04

TRIAC

SENSITIVE GATE TRIACS

DESCRIPTION

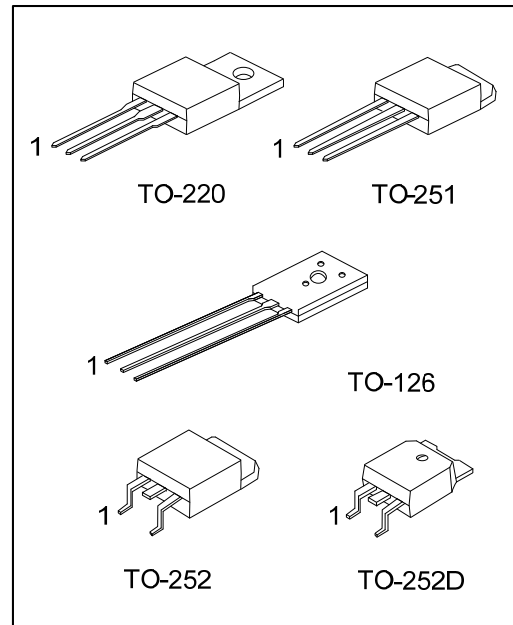
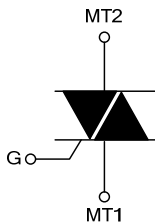
The UTC **BTB04** is a 4A triacs, it uses UTC's advanced technology to provide customers with high commutation performances.

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-T60-K	BTB04G-x-x-T60-K	TO-126	MT1	MT2	G	Bulk
BTB04L-x-x-TA3-T	BTB04G-x-x-TA3-T	TO-220	MT1	MT2	G	Tube
BTB04L-x-x-TM3-T	BTB04G-x-x-TM3-T	TO-251	MT1	MT2	G	Tube
BTB04L-x-x-TN3-R	BTB04G-x-x-TN3-R	TO-252	MT1	MT2	G	Tape Reel
BTB04L-x-x-TND-T	BTB04G-x-x-TND-T	TO-252D	MT1	MT2	G	Tube

Note: Pin Assignment: MT1: MT1 MT2: MT2 G: Gate

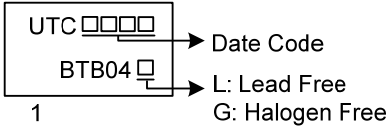
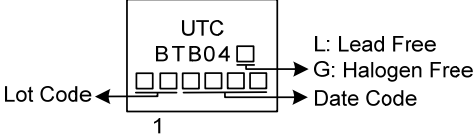
<p>BTB04G-x-x-T60-K</p> <p>(1)Packing Type (2)Package Type (3)Sensitivity (4)Voltage (5)Green Package</p>	<p>(1) K: Bulk, T: Tube, R: Tape Reel (2) T60: TO-126, TA3: TO-220, TM3: TO-251 TN3: TO-252, TND: TO-252D (3) refer to SENSITIVITY AND TYPE (4) 4: 400V, 6: 600V, 8: 800V (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE			SENSITIVITY	TYPE
	400V	600V	800		
A	⊙	⊙		10mA	STANDARD
S		⊙		10mA	STANDARD
D	⊙			5mA	STANDARD
T	⊙	⊙	⊙	5mA	STANDARD

⊙: Available

■ MARKING

TO-126	TO-220 / TO-251 / TO-252 / TO-252D
 <p>The diagram shows a rectangular marking area on a TO-126 package. It contains the text 'UTC' followed by three empty boxes, and 'BTB04' followed by one empty box. An arrow points from the three boxes to the text 'Date Code'. Another arrow points from the one box to the text 'L: Lead Free' and 'G: Halogen Free'. The number '1' is located below the marking area.</p>	 <p>The diagram shows a rectangular marking area on a TO-220 / TO-251 / TO-252 / TO-252D package. It contains the text 'UTC' followed by one empty box, 'BTB04' followed by one empty box, and five empty boxes. An arrow points from the one box after 'UTC' to the text 'L: Lead Free' and 'G: Halogen Free'. An arrow points from the one box after 'BTB04' to the text 'Date Code'. An arrow points from the five boxes to the text 'Lot Code'. The number '1' is located below the marking area.</p>

■ 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
	800 T		800	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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-126	θ_{JA}	100	$^{\circ}\text{C}/\text{W}$
	TO-220		60	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		100	$^{\circ}\text{C}/\text{W}$
	TO-252D			
Junction to Case (AC)	TO-126	θ_{JC}	3.7	$^{\circ}\text{C}/\text{W}$
	TO-220		2.4	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		2.6	$^{\circ}\text{C}/\text{W}$
	TO-252D			

■ 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/ μs
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/ μs

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

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