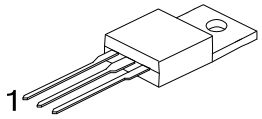
SENSITIVE GATE TRIACS



TO-220

■ DESCRIPTION

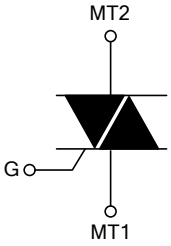
The UTC **BTB04** is a 4A triacs, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

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

BTB04L-x-x-TA3-T (1)Packing Type (2)Package Type (3)Sensitivity (4)Voltage (5)Lead Free	(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

■ 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°C	$I_{T(RMS)}$	4	A
Non Repetitive Surge Peak On-State Current (T_J initial=25°C)	t_p=8.3ms	I_{TSM}	42	A
	t_p=10ms		40	A
I^2t Value	t_p=10ms	I^2t	8	A^2s
Critical Rate of Rise of On-State Current: I_G=50mA, dI_G/dt=0.1A/μs	Repetitive F=50Hz	dI/dt	10	A/μs
	Non Repetitive		50	A/μs
Repetitive Peak Off-State Voltage (T_J=110°C)	400 T/D	V_{DRM}/V_{RRM}	400	V
	600 T/S		600	V
Peak Gate Current	t_p=20μs	I_{GM}	4	A
Peak Positive Gate Voltage	t_p=20μs	V_{GM}	16	V
Peak Positive Gate Power Dissipation	t_p=20μs	$P_{GM)}$	40	W
Average Gate Power Dissipation		$P_{G(AV)}$	1	W
Operating Junction Temperature		T_J	-40~+110	°C
Storage Junction Temperature		T_{STG}	-40~+150	°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	°C/W
Junction to Case for 360° Conduction Angle (F=50Hz) (AC)	θ_{JC}	2.4	°C/W
Junction to Case (DC)		3.2	°C/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=33Ω T_J=25°C	I-II-III			5			5			10			10	mA
			IV			5			10			10			25	mA
Gate Trigger Voltage	V_{GT}		ALL			1.5			1.5			1.5			1.5	V
Gate Non-Trigger Voltage	V_{GD}	V_D=V_{DRM}, R_L=3.3kΩ, T_J=110°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/μs, T_J=25°C	ALL		2			2			2			2		μs
Holding Current (Note 1)	I_H	I_T=100mA, Gate Open, T_J=25°C				15			15			25			25	mA
Latching Current	I_L	I_G=1.2I_{GT}, T_J=25°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=380μs, T_J=25°C				1.65			1.65			1.65			1.65	V
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, T_J=25°C				0.01			0.01			0.01			0.01	mA
	I_{RRM}	V_{RRM} Rated, T_J=110°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°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°C			1			1			5			5		V/μs

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