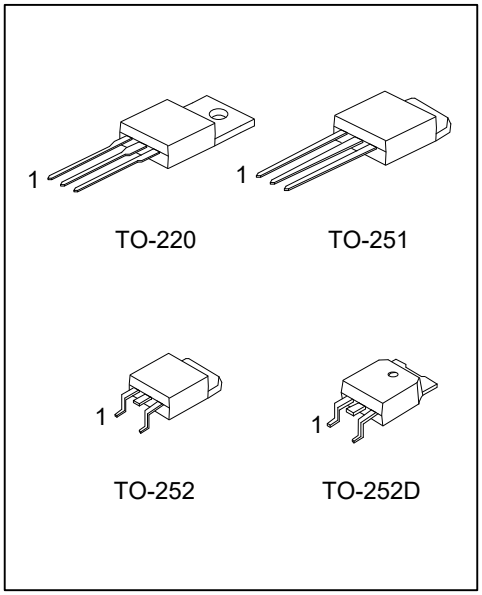
SENSITIVE GATE TRIACS



■ DESCRIPTION

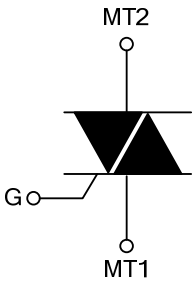
The UTC **BTB304A** is a 4A triacs which can be operated in 3 quadrants, it uses UTC's advanced technology to provide customers with high commutation performances.

The UTC **BTB304A** is suitable for inductive load switching operations, also can be used in ON/OFF function applications such as induction motor starting circuits, heating regulation, 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	
BTB304AL-x-xx-TA3-T	BTB304AG-x-xx-TA3-T	TO-220	MT1	MT2	G	Tube
BTB304AL-x-xx-TM3-T	BTB304AG-x-xx-TM3-T	TO-251	MT1	MT2	G	Tube
BTB304AL-x-xx-TN3-R	BTB304AG-x-xx-TN3-R	TO-252	MT1	MT2	G	Tape Reel
BTB304AL-x-xx-TND-R	BTB304AG-x-xx-TND-R	TO-252D	MT1	MT2	G	Tape Reel

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

BTB304AG-x-xx-TM3-T
(1)Packing Type
(2)Package Type
(3)Sensitivity and type
(4)Voltage
(5)Green Package

(1) T: Tube, R: Tape Reel
(2) 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

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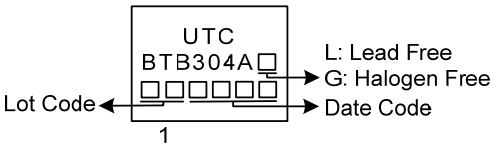
■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE			SENSITIVITY	TYPE
	400V	600V	800V		
BW			◎	50mA	SNUBBERLESS
CW			◎	35mA	SNUBBERLESS
SW	◎	◎	◎	10mA	LOGIC LEVEL

■ MARKING



■ 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
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		$P_{G(AV)}$	0.5	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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	60	°C/W
	TO-251/TO-252 TO-252D		70 (Note)	°C/W
Junction to Case for 360° Conduction Angle (F=50Hz) (AC)	TO-220	θ_{JC}	3	°C/W
	TO-251/TO-252 TO-252D		3.6 (Note)	°C/W

Note: Surface Mounted on 1"x1" FR4 board.

■ ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

FOR SNUBBERLESS TYPE and LOGIC LEVEL TYPE (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		SW			CW			BW			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	I_{GT}	V_D=12V (DC) R_L=33Ω T_J=25°C	I-II-III			10			35			50	mA
Gate Trigger Voltage	V_{GT}		I-II-III			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	I-II-III	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	I-II-III		2			2			2		μs
Holding Current (Note)	I_H	I_T=100mA, Gate Open, T_J=25°C				25			35			50	mA
Latching Current	I_L	I_G=1.2I_{GT}, T_J=25°C	I-III		20				50			70	mA
			II		40				60			80	mA
Peak On-State Voltage (Note)	V_{TM}	I_{TM}=5.5A, t_p=380μs, T_J=25°C				1.65			1.65			1.65	V/μs
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, T_J=25°C				0.01			0.01			0.01	mA
	I_{RRM}	V_{RRM} Rated, T_J=110°C				0.75			0.75			0.75	mA
Critical Rate of Rise of Off-State Voltage (Note)	dV/dt	Linear Slope up to V_D=67%V_{DRM}, Gate Open, T_J=110°C		10									V/μs
Critical Rate of Rise of Off-State Voltage at Commutation (Note)	(dV/dt)c	(dI/dt)c=1.8A/ms, T_J=110°C			5			3.5			5.3		V/μs

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

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