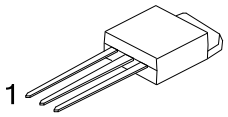
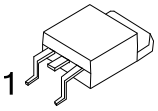
SENSITIVE GATE TRIACS



TO-251



TO-252

■ DESCRIPTION

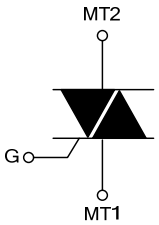
The UTC **BTB04A** is a 4A triacs which can be operated in 3 quadrants only, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

The UTC **BTB04A** 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	
BTB04AL-x-xx-TM3-T	BTB04AG-x-xx-TM3-T	TO-251	MT1	MT2	G	Tube
BTB04AL-x-xx-TN3-R	BTB04AG-x-xx-TN3-R	TO-252	MT1	MT2	G	Tape Reel

BTB04AL-x-xx-TM3-T

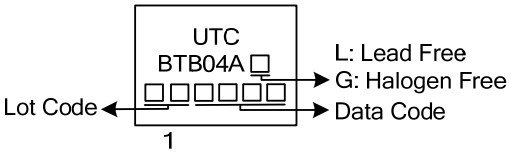
(1)Packing Type
(2)Package Type
(3)Sensitivity and type
(4)Voltage
(5)Lead Free

(1) T: Tube, R: Tape Reel
(2) TM3: TO-251, TN3: TO-252
(3) refer to SENSITIVITY AND TYPE
(4) 9: 900V
(5) L: Lead Free, G: Halogen Free

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE	SENSITIVITY	TYPE
SW	900V	10mA	LOGIC LEVEL

■ MARKING INFORMATION

PACKAGE	MARKING
TO-220	

■ 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

FOR LOGIC LEVEL (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		SW			UNIT
				MIN	TYP	MAX	
Gate Trigger Current	I_{GT}	V_D=12V (DC) R_L=33Ω T_J=25°C	I-II-III			10	mA
Gate Trigger Voltage	V_{GT}		I-II-III			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			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		μs
Holding Current (Note 1)	I_H	I_T=100mA, Gate Open, T_J=25°C				25	mA
Latching Current	I_L	I_G=1.2I_{GT}, T_J=25°C	I-III		20		mA
			II		40		mA
Peak On-State Voltage (Note 1)	V_{TM}	I_{TM}=5.5A, t_p=380μs, T_J=25°C				1.65	V
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, T_J=25°C				0.01	mA
	I_{RRM}	V_{RRM} Rated, T_J=110°C				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			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			5		V/μs

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