



BTB04A

Preliminary

TRIAC

SENSITIVE GATE TRIACS

■ DESCRIPTION

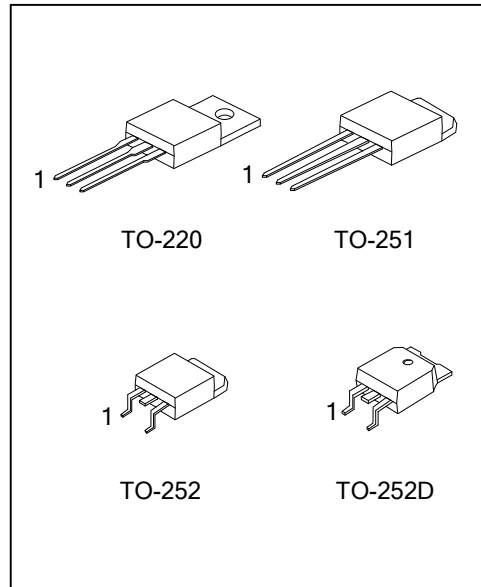
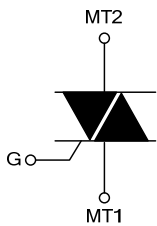
The UTC **BTB04A** is a 4A triacs which can be operated in 3 quadrants, it uses UTC's advanced technology to provide customers with high commutation performances.

The UTC **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

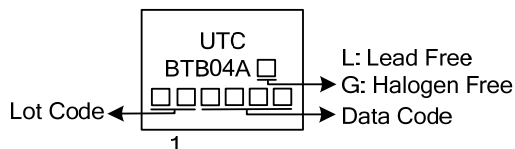
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTB04AL-x-xx-TA3-T	BTB04AG-x-xx-TA3-T	TO-220	MT1	MT2	G	Tube
BTB04AL-x-xx-TM3-T	BTB04AG-x-xx-TM3-T	TO-251	MT1	MT2	G	Tube
BTB04AL-x-xx-TN3-R	BTB04AG-x-xx-TN3-R	TO-252	MT1	MT2	G	Tape Reel
BTB04AL-x-xx-TND-R	BTB04AG-x-xx-TND-R	TO-252D	MT1	MT2	G	Tape Reel

<p>BTB04AL-x-xx-TM3-T</p> <p>(1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Lead Free</p>	<p>(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) 9: 900V (5) L: Lead Free, G: Halogen Free</p>
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■ SENSITIVITY AND TYPE

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

■ 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°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
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		$P_{G(AV)}$	0.5	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		θ_{JA}	60	$^{\circ}\text{C}/\text{W}$
Junction to Case for 360° Conduction Angle ($F=50\text{Hz}$) (AC)	TO-220	θ_{JC}	3	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		3.6	
	TO-252D			

■ **ELECTRICAL CHARACTERISTICS**

FOR LOGIC LEVEL (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS	SW			UNIT
			MIN	TYP	MAX	
Gate Trigger Current	I_{GT}	$V_D=12\text{V}$ (DC)	I-II-III		10	mA
Gate Trigger Voltage	V_{GT}	$R_L=33\Omega$, $T_J=25^{\circ}\text{C}$	I-II-III		1.5	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $T_J=110^{\circ}\text{C}$	I-II-III	0.2		V
Time Gate Trigger	t_{GT}	$V_D=V_{DRM}$, $I_G=40\text{mA}$, $dI_G/dt=0.5\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$	I-II-III		2	μs
Holding Current (Note)	I_H	$I_T=100\text{mA}$, Gate Open, $T_J=25^{\circ}\text{C}$			25	mA
Latching Current	I_L	$I_G=1.2I_{GT}$, $T_J=25^{\circ}\text{C}$	I-III		20	mA
			II		40	mA
Peak On-State Voltage (Note)	V_{TM}	$I_{TM}=5.5\text{A}$, $t_p=380\mu\text{s}$, $T_J=25^{\circ}\text{C}$			1.65	V
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, $T_J=25^{\circ}\text{C}$			0.01	mA
	I_{RRM}	V_{RRM} Rated, $T_J=110^{\circ}\text{C}$			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, $T_J=110^{\circ}\text{C}$		10		$\text{V}/\mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation (Note)	$(dV/dt)_c$	$(dI/dt)_c=1.8\text{A}/\text{ms}$, $T_J=110^{\circ}\text{C}$		5		$\text{V}/\mu\text{s}$

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

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