



## BTA04

TRIAC

### SENSITIVE GATE TRIAC

#### DESCRIPTION

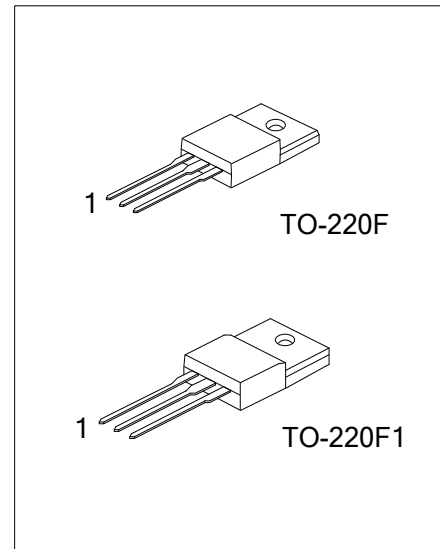
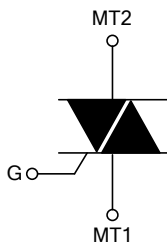
The UTC **BTA04** is a 4A triac, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

The UTC **BTA04** 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	
BTA04L-x-x-TF1-T	BTA04G-x-x-TF1-T	TO-220F1	MT1	MT2	G	Tube
BTA04L-x-x-TF3-T	BTA04G-x-x-TF3-T	TO-220F	MT1	MT2	G	Tube

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

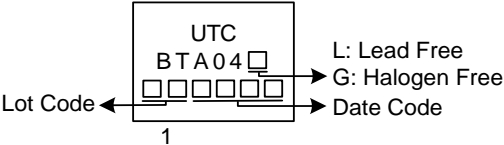
<p>BTA04G-x-x-TF1-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Sensitivity</li> <li>(4) Voltage</li> <li>(5) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) TF1: TO-220F1, TF3: TO-220F</li> <li>(3) refer to SENSITIVITY AND TYPE</li> <li>(4) 4: 400V, 6: 600V, 7: 700V, 8: 800V</li> <li>(5) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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#### SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE				SENSITIVITY	TYPE
	400V	600V	700V	800V		
A	⊙				10mA	STANDARD
S			⊙	⊙	10mA	STANDARD
D		⊙			5mA	STANDARD
T	⊙	⊙	⊙	⊙	5mA	STANDARD

⊙: Available

■ 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= $25^{\circ}\text{C}$ )	$t_p=8.3\text{ms}$	$I_{TSM}$	42	A
	$t_p=10\text{ms}$		40	A
$I^2t$ Value	$t_p=10\text{ms}$	$I^2t$	8	$\text{A}^2\text{s}$
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 ( $T_J=125^{\circ}\text{C}$ )	400 T/A	$V_{DRM}/V_{RRM}$	400	V
	600 T/D		600	V
	700 T/S		700	V
	800 T/S		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 ~ +125	$^{\circ}\text{C}$
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

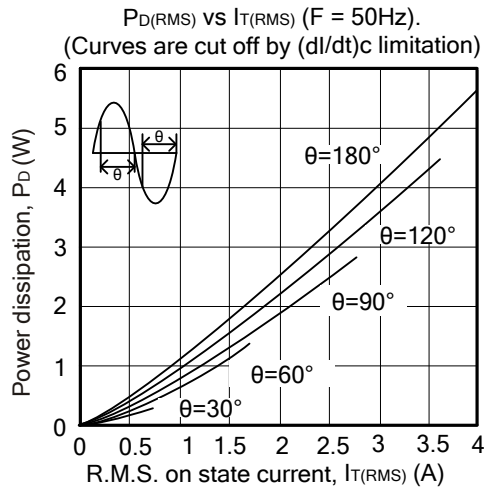
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	60	$^{\circ}\text{C}/\text{W}$
Junction to Case for 360° Conduction Angle ( $F=50\text{Hz}$ ) (AC)	$\theta_{JC}$	3.3	$^{\circ}\text{C}/\text{W}$
Junction to Case (DC)		4.4	$^{\circ}\text{C}/\text{W}$

## ■ 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) $R_L=33\Omega$ $T_J=25^\circ C$	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	$V_{GD}$	$V_D=V_{DRM}$ , $R_L=3.3k\Omega$ , $T_J=125^\circ C$	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	$\mu s$
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	$I_{DRM}$ $I_{RRM}$	$V_{DRM}$ Rated $V_{RRM}$ Rated	$T_J=25^\circ C$			0.01			0.01			0.01			0.01	mA
			$T_J=125^\circ C$			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, $T_J=125^\circ C$			10			10			10			10		V/ $\mu s$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 1)	$(dV/dt)_c$	$(di/dt)_c=1.8A/ms$ , $T_J=125^\circ C$			1			1			5			5		V/ $\mu s$

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

■ TYPICAL CHARACTERISTICS



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