



BTB310A

Preliminary

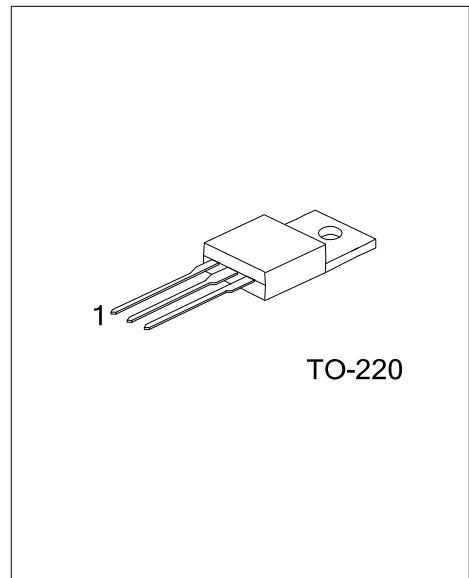
TRIAC

10A TRIACS

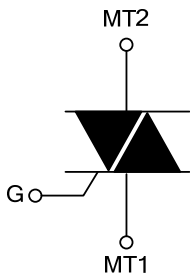
■ DESCRIPTION

The UTC **BTB310A** is a 10A triacs which can be operated in 3 quadrants, it uses UTC's advanced technology to provide customers with high commutation performances.

The UTC **BTB310A** 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.



■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTB310AL-x-xx-TA3-T	BTB310AG-x-xx-TA3-T	TO-220	MT1	MT2	G	Tube

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

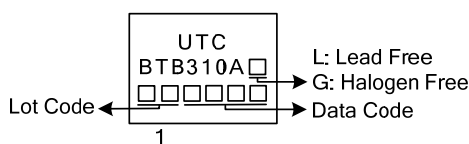
<p>BTB310AL-x-xx-TA3-T</p> <p>(1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Green Package</p>	<p>(1) T: Tube (2) TA3: TO-220 (3) refer to SENSITIVITY AND TYPE (4) 6: 600V, 8: 800V (5) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
BW	⊙	⊙	50mA	SNUBBERLESS
CW	⊙	⊙	35mA	SNUBBERLESS

⊙: Available

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER			SYMBOL	RATINGS	UNIT
RMS On-State Current (Full Sine Wave)	$T_C=95^\circ\text{C}$		$I_{T(RMS)}$	10	A
Non Repetitive Surge Peak On-State Current (Full Cycle T_J initial= 25°C)	F=50Hz	$t=20\text{ms}$	I_{TSM}	100	A
	F=60Hz	$t=16.7\text{ms}$		105	A
I^2t Value for Fusing	$t_P=10\text{ms}$		I^2t	55	A^2s
Critical Rate of Rise of On-State Current: $I_G=2I_{GT}$, $t_r \leq 100\text{ns}$	F=120Hz	$T_J=125^\circ\text{C}$	di/dt	50	$\text{A}/\mu\text{s}$
Non Repetitive Surge Peak Off-State Voltage	$t_P=10\text{ms}$	$T_J=25^\circ\text{C}$	V_{DSM}/V_{RSM}	$V_{DSM}/V_{RSM}+100$	V
Peak Gate Current	$t_P=20\mu\text{s}$	$T_J=125^\circ\text{C}$	I_{GM}	4	A
Average Gate Power Dissipation	$T_J=125^\circ\text{C}$		$P_{G(AV)}$	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 RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	60	$^\circ\text{C}/\text{W}$
Junction to Case (AC)	θ_{JC}	1.5	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

FOR SNUBBERLESS (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS	CW			BW			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	I_{GT}	$V_D=12\text{V}$, $R_L=33\Omega$	I-II-III		35			50	mA
Gate Trigger Voltage	V_{GT}		I-II-III		1.3			1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $T_J=125^\circ\text{C}$	I-II-III	0.2			0.2		V
Holding Current (Note 2)	I_H	$I_T=500\text{mA}$			35			50	mA
Latching Current	I_L	$I_G=1.2I_{GT}$	I-III		50			70	mA
			II		60			80	mA
Critical Rate of Rise of Off-State Voltage (Note 2)	dV/dt	$V_D=67\%V_{DRM}$, Gate Open, $T_J=125^\circ\text{C}$		500			1000		$\text{V}/\mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(di/dt)_c$	Without Snubber, $T_J=125^\circ\text{C}$		5.5			9.0		A/ms

Note: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

2. For both polarities of MT2 referenced to MT1.

■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 2)	V_T	$I_{TM}=14\text{A}$, $t_P=380\mu\text{s}$			1.55	V
Threshold Voltage (Note 2)	V_{TO}				0.85	V
Dynamic Resistance (Note 2)	R_D				40	$\text{m}\Omega$
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$			5	μA
	I_{RRM}				1	mA

Notes: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

2. For both polarities of MT2 referenced to MT1.

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