



BTB303A

Preliminary

TRIAC

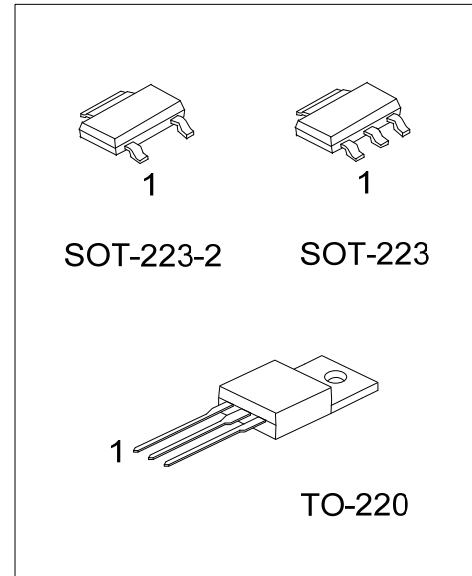
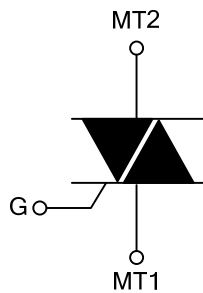
3A TRIACS

DESCRIPTION

The UTC **BTB303A** is a 3A triacs which can be operated in 3 quadrants, it uses UTC's advanced technology to provide customers with high commutation performances.

The UTC **BTB303A** 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	
BTB303AL-x-xx-AA2-R	BTB303AG-x-xx-AA2-R	SOT-223-2	MT1	MT2	G	Tape Reel
BTB303AL-x-xx-AA3-R	BTB303AG-x-xx-AA3-R	SOT-223	MT1	MT2	G	Tape Reel
BTB303AL-x-xx-TA3-T	BTB303AG-x-xx-TA3-T	TO-220	MT1	MT2	G	Tube

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

BTB303AG-x-xx-AA2-R	(1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Green Package	(1) R: Tape Reel, T: Tube (2) AA2: SOT-223-2, AA3: SOT-223, TA3: TO-220 (3) refer to SENSITIVITY AND TYPE (4) 8: 800V, 10: 1000V (5) G: Halogen Free and Lead Free, L: Lead Free
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SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	800V	1000V		
BW	◎		50mA	SNUBBERLESS
TW		◎	5mA	LOGIC LEVEL

◎: Available

MARKING

SOT-223-2 / SOT-223	TO-220
BTB303A□ □□□□ 1 L: Lead Free G: Halogen Free Date Code	UTC BTB303A□ □□□□□□ 1 Lot Code L: Lead Free G: Halogen Free Date Code

■ ABSOLUTE MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
RMS On-State Current (Full Sine Wave)	$T_C=105^\circ\text{C}$		$I_{T(RMS)}$	3	A
Non Repetitive Surge Peak On-State Current (Full Cycle T_J initial= 25°C)	F=50Hz	t=20ms	I_{TSM}	20	A
	F=60Hz	t=16.7ms		25	A
I^2t Value for Fusing	$t_P=10\text{ms}$		I^2t	1.4	A^2s
Critical Rate of Rise of On-State Current: $I_G=2 \times I_{GT}$, $t_r \leq 100\text{ns}$			di/dt	50	$\text{A}/\mu\text{s}$
Peak Gate Current	$t_P=20\mu\text{s}$		I_{GM}	2	A
Average Gate Power Dissipation			$P_{G(AV)}$	0.5	W
Operating Junction Temperature			T_J	$-40 \sim +125$	$^\circ\text{C}$
Storage Junction Temperature			T_{STG}	$-40 \sim +150$	$^\circ\text{C}$

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	SOT-223-2	θ_{JA}	156	$^\circ\text{C}/\text{W}$
	SOT-223			
	TO-220		60	$^\circ\text{C}/\text{W}$
Junction to Case (AC)	SOT-223-2	θ_{JC}	14	$^\circ\text{C}/\text{W}$
	SOT-223			
	TO-220		4	$^\circ\text{C}/\text{W}$

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

FOR SNUBBERLESS AND LOGIC LEVEL (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		TW			SW			CW			BW			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	I_{GT}	$V_D=12\text{V}$ $I_L=0.1\text{A}$	I-II-III			5			10			35			50	mA
Gate Trigger Voltage	V_{GT}		I-II-III			1.3			1.3			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			0.2			0.2			V
Holding Current (Note 2)	I_H	$I_T=100\text{mA}$				10			15			35			50	mA
Latching Current	I_L	$I_G=1.2I_{GT}$	I-III			10			25			50			70	mA
			II			15			30			60			80	mA
Critical Rate of Rise of Off-State Voltage (Note 2)	dV/dt	$V_D=67\%V_{DRM}$, Gate Open, $T_J=125^\circ\text{C}$		20			40			400			1000			$\text{V}/\mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(di/dt)_c$	$(dV/dt)_c=0.1\text{V}/\mu\text{s}$, $T_J=125^\circ\text{C}$		2.7			3.5									A/ms
		$(dV/dt)_c=10\text{V}/\mu\text{s}$, $T_J=125^\circ\text{C}$		1.2			2.4									A/ms
		Without Snubber $T_J=125^\circ\text{C}$								3.5			5.3			A/ms

Notes: 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_{TM}	$I_{TM}=4.1A$, $t_P=380\mu s$	$T_J=25^{\circ}C$			1.7	V
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$	$T_J=25^{\circ}C$			5	μA
	I_{RRM}		$T_J=125^{\circ}C$			2	mA

Note: 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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