



BTB41

Preliminary

TRIAC

40A STANDARD TRIAC

■ DESCRIPTION

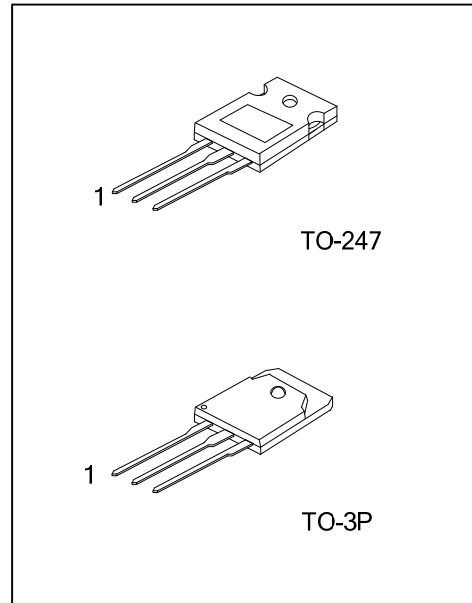
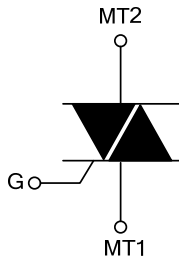
The UTC **BTB41** is a 40A standard triac, it uses UTC's advanced technology to provide customers with low thermal resistance with clip bonding and high commutation capability, etc.

The UTC **BTB41** is suitable for general purpose AC switching, heating regulation and on/off function in static relays, etc.

■ FEATURES

- * Low thermal resistance with clip bonding
- * High current capability
- * High commutation capability

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTB41L-x-xx-T3P-T	BTB41G-x-xx-T3P-T	TO-3P	MT1	MT2	G	Tube
BTB41L-x-xx-T47-T	BTB41G-x-xx-T47-T	TO-247	MT1	MT2	G	Tube

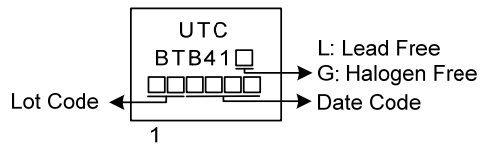
<p>BTB41G-x-xx-T3P-T</p> <p>(1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Green Package</p>	<p>(1) T: Tube (2) T3P: TO-3P, T47:TO-247 (3) refer to SENSITIVITY AND TYPE (4) 6: 600V, 8: 800V (5) G: Halogen Free and Lead Free, L: Lead Free</p>
---	--

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
B	⊙	⊙	50mA	STANDARD

⊙: Available

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
On-State RMS Current (Full Sine Wave)	$T_C=95^{\circ}\text{C}$	$I_{T(RMS)}$	40	A
Non Repetitive Surge Peak On-State Current (Full Cycle, T_J initial= 25°C)	F=50Hz, t=20ms	I_{TSM}	400	A
	F=60Hz, t=16.7ms		420	A
I^2t Value for Fusing	$t_p=10\text{ms}$	I^2t	1000	A^2s
Critical Rate of Rise of On-State Current: $I_G=2 \times I_{GT}$, $t_r \leq 100\text{ns}$	F=120Hz, $T_J=125^{\circ}\text{C}$	dI/dt	50	A/ μs
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}	8	A
Average Gate Power Dissipation	$T_J=125^{\circ}\text{C}$	$P_{G(AV)}$	1	W
Storage Junction Temperature		T_{STG}	-40~+150	$^{\circ}\text{C}$
Operating Junction Temperature		T_J	-40~+125	$^{\circ}\text{C}$

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.

■ DEVICE SUMMARY

PARAMETER	SYMBOL	RATINGS	UNIT
On-State RMS Current	$I_{T(RMS)}$	40	A
Repetitive Peak Off-State Voltage	V_{DRM}/V_{RRM}	600	V
Triggering Gate Current	I_{GT}	50	mA

■ THERMAL RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	50	$^{\circ}\text{C}/\text{W}$
Junction to Case (AC)	θ_{JC}	0.6	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current (Note 1)	I_{GT}	$V_D=12\text{V}$, $R_L=33\Omega$	I-II-III		50	mA
			IV		100	mA
Gate Trigger Voltage	V_{GT}				1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $T_J=125^{\circ}\text{C}$	ALL	0.2		V
Holding Current (Note 2)	I_H	$I_T=500\text{mA}$			80	mA
Latching Current	I_L	$I_G=1.2I_{GT}$	I-III-IV		70	mA
			II		160	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			V/ μs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	(dV/dt) _c	(dI/dt) _c =20A/ms, $T_J=125^{\circ}\text{C}$	10			V/ μs

■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 1)	V_T	$I_{TM}=60\text{A}$, $t_p=380\mu\text{s}$, $T_J=25^{\circ}\text{C}$			1.55	V
Threshold Voltage (Note 2)	V_{TO}	$T_J=125^{\circ}\text{C}$			0.85	V
Dynamic Resistance (Note 2)	R_D	$T_J=125^{\circ}\text{C}$			10	m Ω
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$, $T_J=25^{\circ}\text{C}$			5	μA
	I_{RRM}	$V_{DRM}=V_{RRM}$, $T_J=125^{\circ}\text{C}$			5	mA

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

2. For both polarities of MT2 referenced to MT1.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.