



BTB40

Preliminary

TRIAC

40A STANDARD TRIAC

■ DESCRIPTION

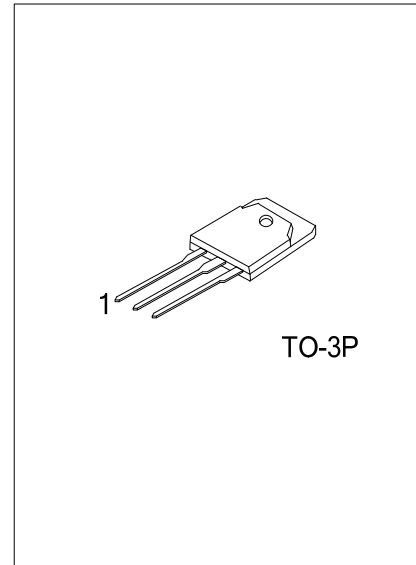
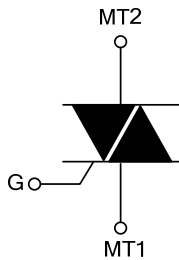
The UTC **BTB40** is a 40A standard triac, it uses UTC's advanced technology to provide customers with low thermal resistance with clip bonding and high commutation capability, etc.

The UTC **BTB40** 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	
BTB40L-x-xx-T3P-T	BTB40G-x-xx-T3P-T	TO-3P	MT1	MT2	G	Tube

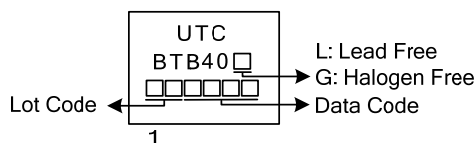
<p>BTB40L-x-x-T3P-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Sensitivity and type (4) Voltage (5) Green Package 	<ul style="list-style-type: none"> (1) T: Tube (2) T3P: TO-3P (3) refer to SENSITIVITY AND TYPE (4) 6: 600V, 8: 800V (5) L: Lead Free, G: Halogen Free and Lead Free
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■ 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)	$F=50\text{Hz}$, $t=20\text{ms}$	I_{TSM}	400	A
	$F=60\text{Hz}$, $t=16.7\text{ms}$		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: $I_G=2xI_{GT}$, $t_r \leq 100\text{ns}$	$F=120\text{Hz}$, $T_J=125^{\circ}\text{C}$	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}	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			$\text{V}/\mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(dV/dt)_c$	$(di/dt)_c=20\text{A}/\text{ms}$, $T_J=125^{\circ}\text{C}$	10			$\text{V}/\mu\text{s}$

■ 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.

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