



BTA10

Preliminary

TRIAC

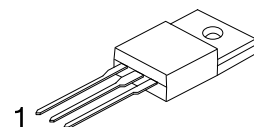
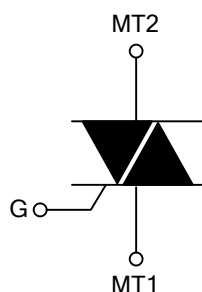
10A TRIACS

DESCRIPTION

The UTC **BTA10** is a 10A triacs, it uses UTC's advanced technology to provide customers with high commutation performances and voltage insulated tab, etc.

The UTC **BTA10** is suitable for general purpose AC switching, inductive loads and an ON/OFF function in applications such as motor speed controllers, heating regulation and static relays, etc.

SYMBOL



TO-220F

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTA10L-x-xx-TF3-T	BTA10G-x-xx-TF3-T	TO-220F	MT1	MT2	G	Tube

	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TF3: TO-220F
	(3)Sensitivity and type	(3) refer to SENSITIVITY AND TYPE
	(4)Voltage	(4) 6: 600V, 8: 800V
	(5)Lead Free	(5) L: Lead Free, G: Halogen Free

SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
B	◎	◎	50mA	STANDARD
BW	◎	◎	50mA	SNUBBERLESS
C	◎	◎	25mA	STANDARD
CW	◎	◎	35mA	SNUBBERLESS

◎: Available

■ 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=20ms	I_{TSM}	100	A
	F=60Hz	t=16.7ms		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}	2.4	$^{\circ}\text{C}/\text{W}$

■ 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}	$V_D=12\text{V}$, $R_L=33\Omega$			35			50	mA
Gate Trigger Voltage	V_{GT}				1.3			1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $T_J=125^{\circ}\text{C}$							V
Holding Current (Note 2)	I_H	$I_T=500\text{mA}$			35			50	mA
Latching Current	I_L	$I_G=1.2I_{GT}$			50			70	mA
					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

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

2. For both polarities of MT2 referenced to MT1.

ELECTRICAL CHARACTERISTICS(Cont.)

FOR STANDARD (4 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS	C			B			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current (Note 1)	I_{GT}	$V_D=12V$, $R_L=33\Omega$	I-II-III					50	mA
			IV					100	mA
Gate Trigger Voltage	V_{GT}	ALL			1.3			1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D=V_{DRM}$, $R_L=3.3k\Omega$, $T_J=125^\circ C$	0.2			0.2			V
Holding Current (Note 2)	I_H	$I_T=500mA$			25			50	mA
Latching Current	I_L	$I_G=1.2I_{GT}$	I-III-IV					50	mA
			II					100	mA
Critical Rate of Rise of Off-State Voltage (Note 2)	dV/dt	$V_D=67\%V_{DRM}$, Gate Open, $T_J=125^\circ C$	200			400			V/ μs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	$(dV/dt)_c$	$(dI/dt)_c=4.4A/ms$, $T_J=125^\circ C$	5			10			V/ μs

STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 2)	V_T	$I_{TM}=14A$, $t_p=380\mu s$, $T_J=25^\circ C$			1.55	V
Threshold Voltage (Note 2)	V_{TO}	$T_J=125^\circ C$			0.85	V
Dynamic Resistance (Note 2)	R_D	$T_J=125^\circ C$			40	$m\Omega$
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}$	$T_J=25^\circ C$		5	μA
	I_{RRM}		$T_J=125^\circ C$		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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