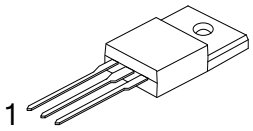
BTA304A

TRIAC

4A TRIACS



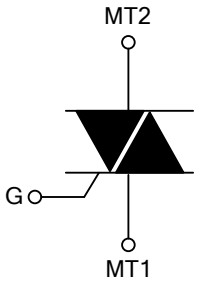
TO-220F

■ DESCRIPTION

The UTC **BTA304A** is a 4A triacs which can be operated in 3 quadrants only, it uses UTC's advanced technology to provide customers with high commutation performances, etc.

The UTC **BTA304A** 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	
BTA304AL-x-xx-TF3-T	BTA304AG-x-xx-TF3-T	TO-220F	MT1	MT2	G	Tube

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

BTA304AG-x-xx-TF3-T

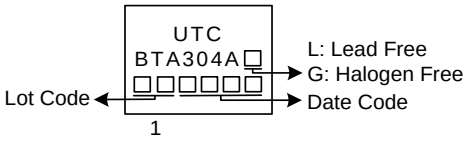
(1)Packing Type	(1) T: Tube
(2)Package Type	(2) TF3: TO-220F
(3)Sensitivity and type	(3) refer to SENSITIVITY AND TYPE
(4)Voltage	(4) 6: 600V
(5)Green Package	(5) G: Halogen Free and Lead Free, L: Lead Free

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
CW	◎	◎	35mA	SNUBBERLESS
SW	◎	◎	10mA	LOGIC LEVEL

◎: Available

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
RMS On-State Current (360° Conduction Angle)	T_C=90°C	$I_{T(RMS)}$	4	A
Non Repetitive Surge Peak On-State Current (T_J initial=25°C)	t_p=8.3ms	I_{TSM}	42	A
	t_p=10ms		40	A
I^2t Value	t_p=10ms	I^2t	8	A^2s
Critical Rate of Rise of On-State Current: I_G=50mA, dI_G/dt=0.1A/µs	Repetitive F=50Hz	dI/dt	10	A/µs
	Non Repetitive		50	A/µs
Repetitive Peak Off-State Voltage (T_J=125°C)		V_{DRM}/V_{RRM}	600	V
Peak Gate Current	t_p=20µs	I_{GM}	4	A
Peak Positive Gate Voltage	t_p=20µs	V_{GM}	16	V
Peak Positive Gate Power Dissipation	t_p=20µs	$P_{GM)}$	40	W
Average Gate Power Dissipation		$P_{G(AV)}$	1	W
Operating Junction Temperature		T_J	-40 ~ +125	°C
Storage Junction Temperature		T_{STG}	-40 ~ +150	°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	°C/W
Junction to Case (AC)	θ_{JC}	2.7	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J= 25°C, unless otherwise specified)

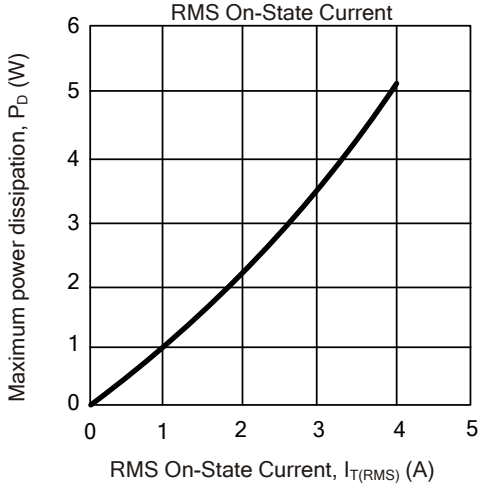
FOR SNUBBERLESS AND LOGIC LEVEL (3 QUADRANTS)

PARAMETER	SYMBOL	TEST CONDITIONS		SW			CW			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
Gate Trigger Current	I_{GT}	V_D=12V (DC)	I-II-III			10			35	mA
Gate Trigger Voltage	V_{GT}	R_L=33Ω T_J=25°C	I-II-III			1.5			1.3	V
Gate Non-Trigger Voltage	V_{GD}	V_D=V_{DRM}, R_L=3.3kΩ, T_J=125°C	I-II-III	0.2			0.2			V
Time Gate Trigger	t_{GT}	V_D=V_{DRM}, I_G=40mA, dI_G/dt=0.5A/µs, T_J=25°C	I-II-III		2			2		µs
Holding Current (Note 1)	I_H	I_T=100mA, Gate Open, T_J=25°C				15			35	mA
Latching Current	I_L	I_G=1.2I_{GT}, T_J=25°C	I-III		10				50	mA
			II		20				60	mA
Peak On-State Voltage (Note 1)	V_{TM}	I_{TM}=5.5A, t_p=380µs, T_J=25°C				1.65			1.65	V
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM} Rated, T_J=25°C				0.01			0.01	mA
	I_{RRM}	V_{RRM} Rated, T_J=125°C				0.75			0.75	mA
Critical Rate of Rise of Off-State Voltage (Note 1)	dV/dt	Linear Slope up to V_D=67%V_{DRM}, Gate Open, T_J=125°C		10			10			V/µs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 1)	(dV/dt)c	(dI/dt)c=1.8A/ms, T_J=125°C			1			1		V/µs

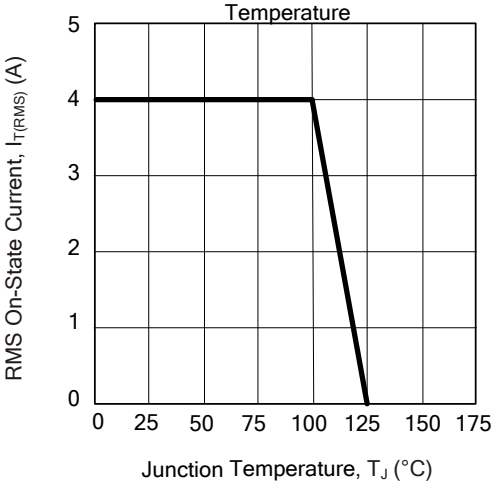
Note: For either polarity of electrode MT2 voltage with reference to electrode MT1.

■ TYPICAL CHARACTERISTICS

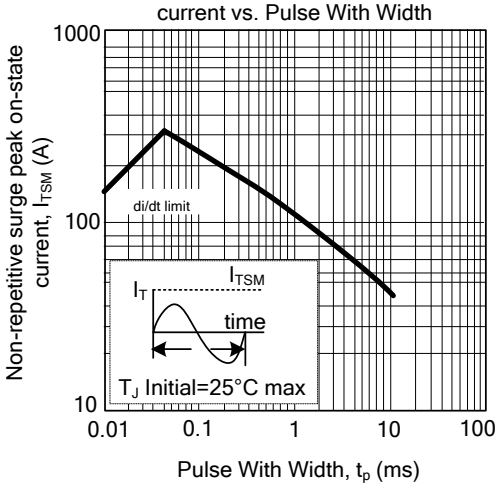
Maximum power dissipation vs. RMS On-State Current



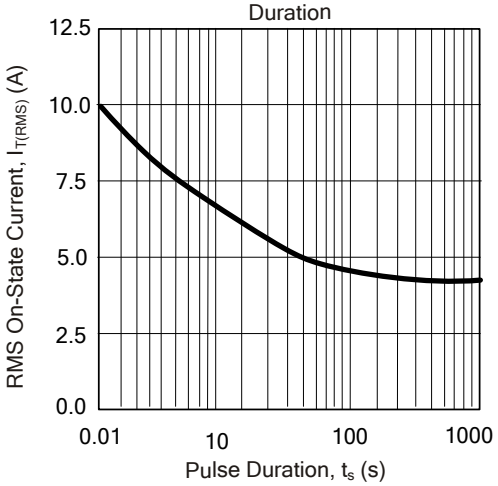
RMS On-State Current vs. Junction Temperature



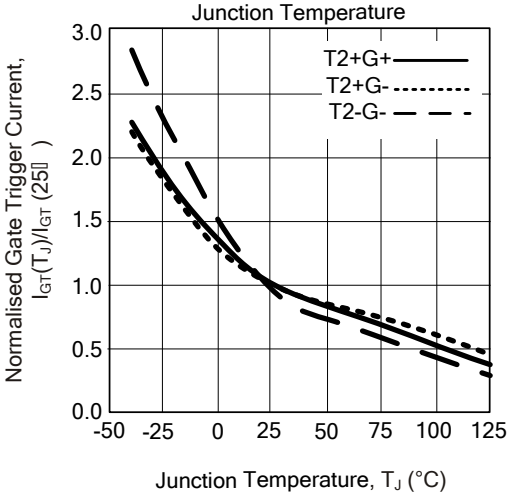
Non-repetitive surge peak on-state current vs. Pulse With Width

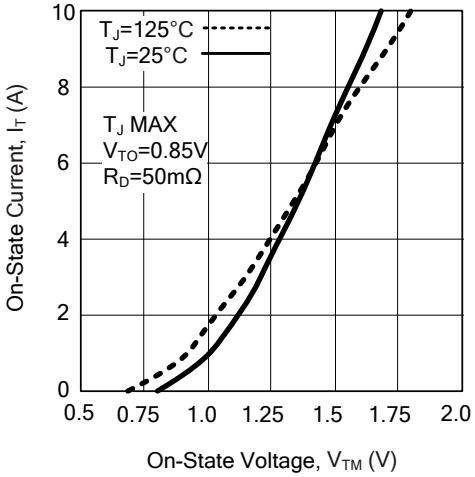


RMS On-State Current vs. Pulse Duration



Normalised Gate Trigger Current vs. Junction Temperature





■ TYPICAL CHARACTERISTICS (Cont.)