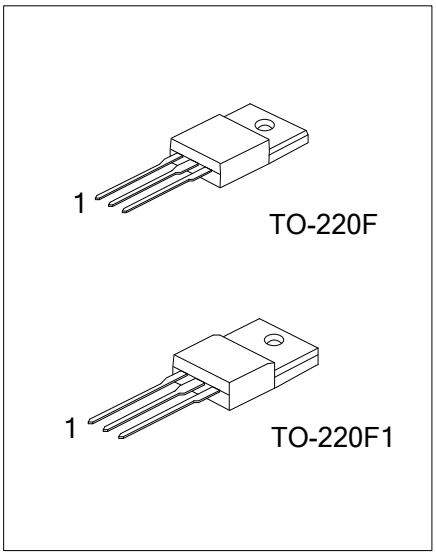
BTA308A

TRIAC

8A TRIACS

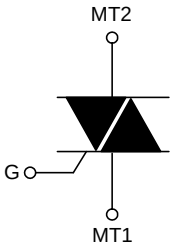


■ DESCRIPTION

The UTC **BTA308A** is a 8A triacs which can be operated in 3 quadrants, it uses UTC's advanced technology to provide customers with high commutation performances, etc.

The UTC **BTA308A** 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	
BTA308AL-xx-xx-TF3-T	BTA308AG-xx-xx-TF3-T	TO-220F	MT1	MT2	G	Tube
BTA308AL-xx-xx-TF1-T	BTA308AG-xx-xx-TF1-T	TO-220F1	MT1	MT2	G	Tube

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

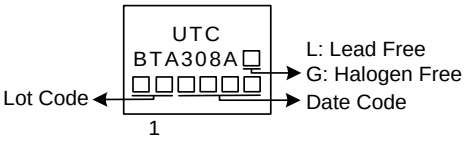
BTA308AG-xx-xx-TF3-T (1)Packing Type (2)Package Type (3)Sensitivity and type (4)Voltage (5)Green Package	(1) T: Tube (2) TF3: TO-220F, TF1: TO-220F1 (3) refer to SENSITIVITY AND TYPE (4) 6: 600V, 8: 800V, 10: 1000V (5) G: Halogen Free and Lead Free, L: Lead Free

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE			SENSITIVITY	TYPE
	600V	800V	1000V		
BW	◎	◎		50mA	SNUBBERLESS
CW	◎	◎	◎	35mA	SNUBBERLESS
SW	◎	◎		10mA	LOGIC LEVEL
TW	◎	◎		5mA	LOGIC LEVEL

◎: Available

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER			SYMBOL	RATINGS	UNIT
RMS On-State Current (Full Sine Wave)	T_C=100°C		$I_{T(RMS)}$	8	A
Non Repetitive Surge Peak On-State Current (Full Cycle T_J initial=25°C)	F=50Hz	t=20ms	I_{TSM}	80	A
	F=60Hz	t=16.7ms		84	A
I^2t Value for Fusing	t_P=10ms		I^2t	36	A^2s
Critical Rate of Rise of On-State Current: I_G=2xI_{GT}, tr≤100ns	F=120Hz	T_J=125°C	dI/dt	50	A/µs
Peak Gate Current	t_P=20µs	T_J=125°C	I_{GM}	4	A
Average Gate Power Dissipation		T_J=125°C	$P_{G(AV)}$	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}	3.4	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J= 25°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=12V, I_T=0.1A	I-II-III	0.5		5	1		10	2		35	2		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=3.3kΩ, T_J=125°C	I-II-III	0.2			0.2			0.2			0.2			V
Holding Current (Note 2)	I_H	I_T=100mA				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°C		20			40			400			1000			V/µs
Critical Rate of Rise of Off-State Voltage at Commutation (Note 2)	(dI/dt)c	(dV/dt)c=0.1V/µs, T_J=125°C		3.5			5.4									A/ms
		(dV/dt)c=10V/µs, T_J=125°C		1.5			2.98									A/ms
		Without Snubber T_J= 125°C								4.5			7			A/ms

Notes: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.
2. For both polarities of MT2 referenced to MT1.

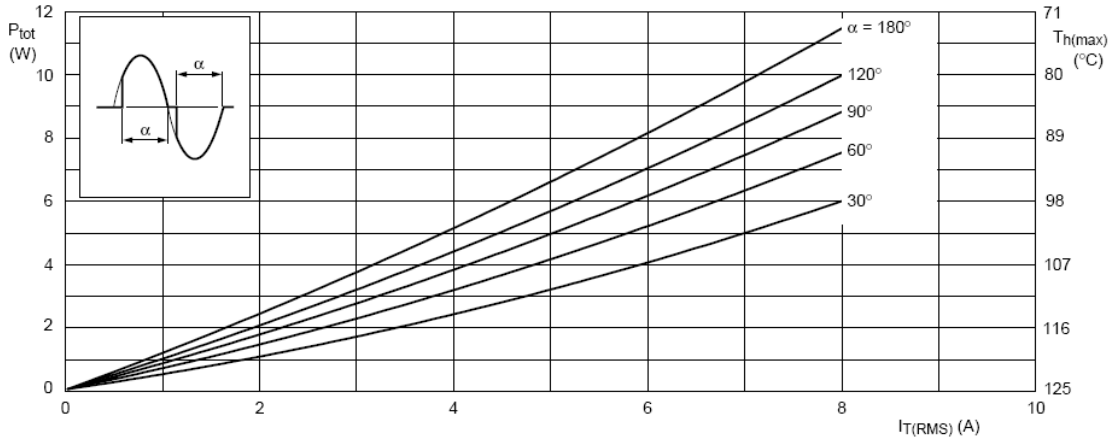
■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Peak On-State Voltage (Note 1)	V_{TM}	I_{TM}=11A, t_p=380μs	T_J=25°C			1.55	V
Threshold Voltage (Note 2)	V_{TO}		T_J=125°C			0.85	V
Dynamic Resistance (Note 2)	R_D		T_J=125°C			50	mΩ
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM}=V_{RRM}	T_J=25°C			5	μA
	I_{RRM}		T_J=125°C			1	mA

Note: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.
2. For both polarities of MT2 referenced to MT1.

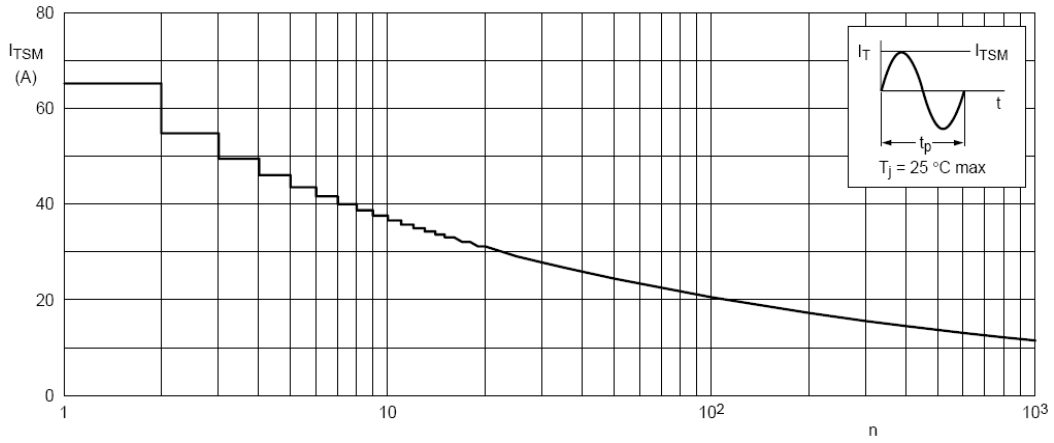
■ TYPICAL CHARACTERISTICS

Total power dissipation as a function of RMS on-state current; maximum values



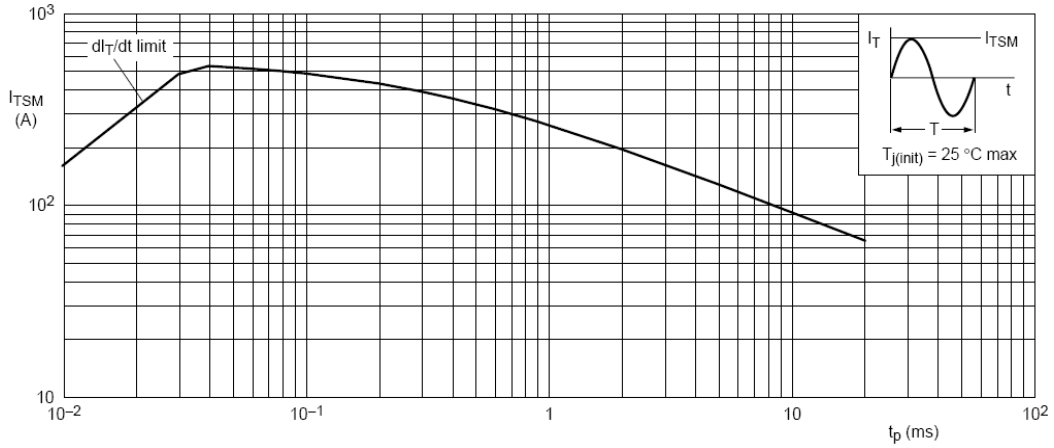
α = Conduction Angle

Non-repetitive peak on-state current as a function of the number of sinusoidal current cycles; maximum values



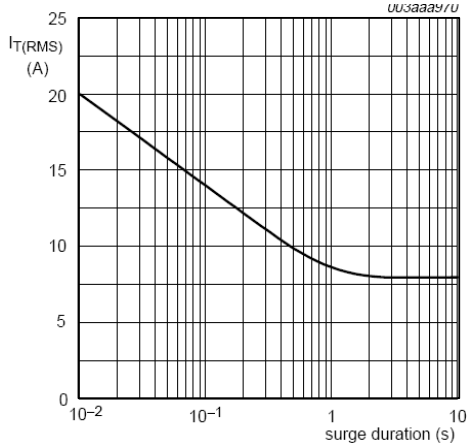
f = 50 Hz

Non-repetitive peak on-state current as a function of pulse width; maximum values



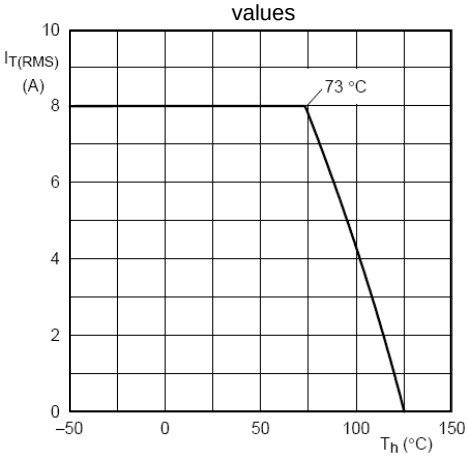
■ TYPICAL CHARACTERISTICS (Cont.)

RMS on-state current as a function of surge duration; maximum values

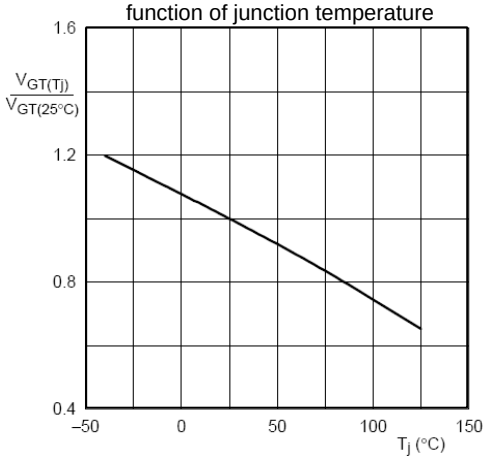


f = 50 Hz; $T_h \leq 73$ °C

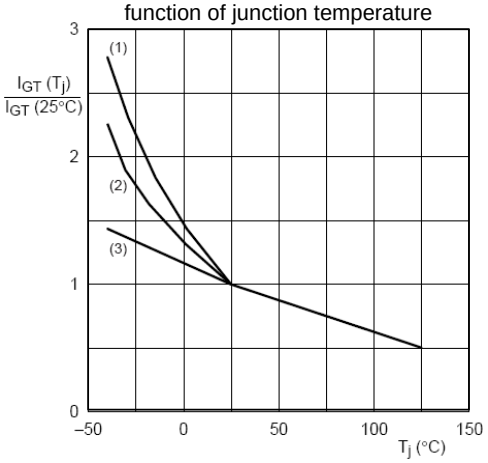
RMS on-state current as a function of heatsink temperature; maximum values



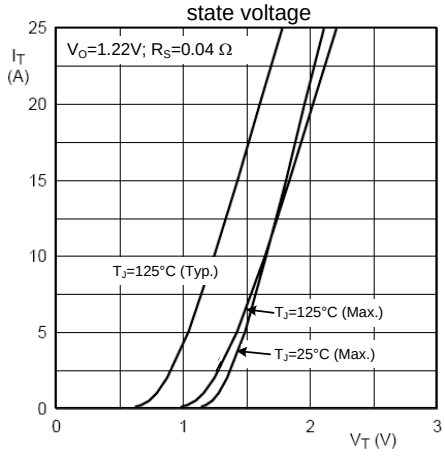
Normalized gate trigger voltage as a function of junction temperature



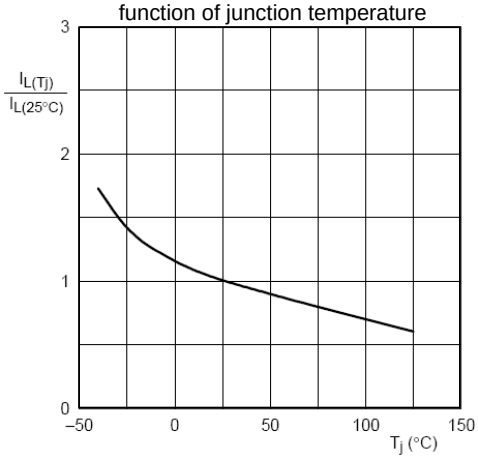
Normalized gate trigger current as a function of junction temperature



On-state current as a function of on-state voltage

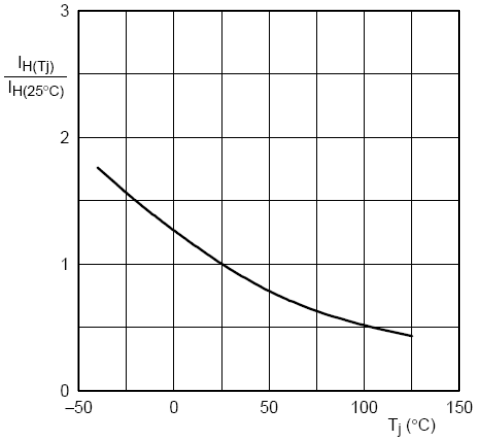


Normalized latching current as a function of junction temperature

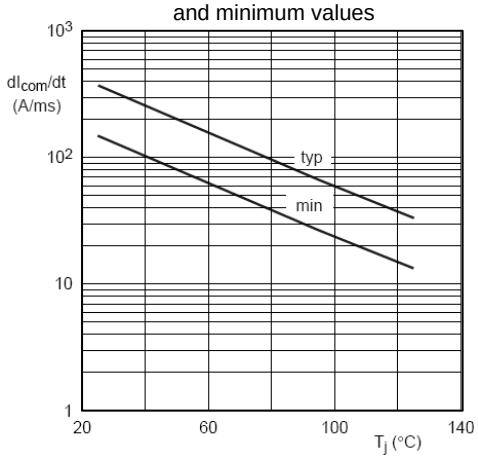


■ TYPICAL CHARACTERISTICS (Cont.)

Normalized holding current as a function of junction temperature



Rate of change of commutating current as a Function of junction temperature; typical and minimum values



$P_{D(RMS)}$ vs $I_{T(RMS)}$ (F = 50Hz).
(Curves are cut off by (dI/dt)c limitation)