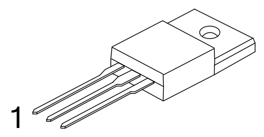
BTA320A

Preliminary ***TRIAC***

20A TRIACS

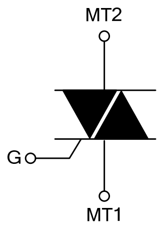


■ DESCRIPTION

The UTC **BTA320A** is a 20A 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 **BTA320A** 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	
BTA320AL-x-xx-TF3-T	BTA320AG-x-xx-TF3-T	TO-220F	MT1	MT2	G	Tube

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

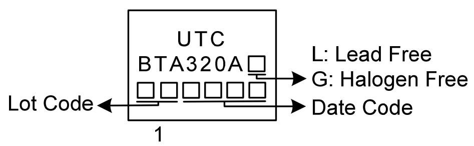
BTA320AG-x-xx-TF3-T	
(1)Packing Type	(1) T: Tube
(2)Package Type	(2) TF3: TO-220F
(3)Sensitivity and type	(3) refer to SENSITIVITY AND TYPE
(4)Voltage	(4) 6: 600V, 7: 700V, 8: 800V
(5)Green Package	(5) G: Halogen Free and Lead Free, L: Lead Free

■ SENSITIVITY AND TYPE

PART NUMBER	VOLTAGE			SENSITIVITY	TYPE
	600V	700V	800V		
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=70°C	$I_{T(RMS)}$	20	A
Non Repetitive Surge Peak On-State Current (Full Cycle, T_J initial=25°C)	F=50 Hz	t=10ms	I_{TSM}	210	A
	F=60 Hz	t=8.3ms		200	A
I^2t Value for Fusing	t_P=10ms		I^2t	200	A^2s
Critical Rate of Rise of On-State Current I_G=500mA, dI_G/dt =1A/µs	Repetitive, F=50 Hz	T_J=125°C	dI/dt	50	A/µs
	Non Repetitive			100	A/µs
Non Repetitive Surge Peak Off-State Voltage	t_P=10ms	T_J=25°C	V_{DSM}/V_{RSM}	V_{DSM}/V_{RSM}+100	V
Peak Gate Current	t_P=20µs	T_J=125°C	I_{GM}	4	A
Peak Positive Gate Voltage	t_P=20µs		V_{GM}	16	V
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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	60	°C/W
Junction to Case (AC)	θ_{JC}	2.0	°C/W
Junction to Case (DC)		2.8	°C/W

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

FOR SNUBBERLESS (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, R_L=33Ω	I-II-III			5			10	1		35	2		50	mA
Gate Trigger Voltage	V_{GT}		I-II-III			1.5			1.5			1.5			1.5	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=500mA, Gate Open				10			15			50			75	mA
Latching Current	I_L	I_G=1.2I_{GT}	I-III			10			25					50		mA
			II			15			30					90		mA
			I-II-III									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			250	500		500	750		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°C		1.0			2.0			11	22		18	36		A/ms

Note: 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 2)	V_{TM}	I_{TM}=28A, t_p=380μs	T_J=25°C			1.70	V
Repetitive Peak Off-State Current	I_{DRM}	V_{DRM}=V_{RRM}	T_J=25°C			10	μA
	I_{RRM}		T_J=125°C			3	mA

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

■ ISOLATION CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
RMS Isolation Voltage	$V_{ISOL(RMS)}$	From all terminals to external heatsink; Sinusoidal waveform; clean and dust free; 50 Hz ≤ f ≤ 60 Hz; RH ≤ 65 %; Th = 25 °C			2500	V