

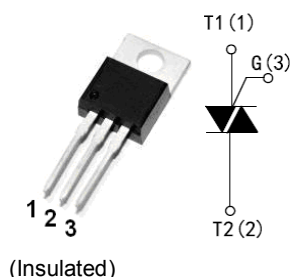
BTA20

20A TRIACS

Description

- Package: TO-220AB
- High current density due to double mesa technology, SIPOS and Glass passivation . BTA20 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits or phase control operation light dimmers, motor speed controllers.
- BTA20 series are 3 Quadrants triacs, They are specially recommended for use on inductive loads.

DRAWING



Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	°C
Operating junction temperature range		Tj	-40 to + 125	°C
Repetitive Peak OFF-state Voltage	Tj=25°C	V _{DRM}	600 and 800	V
Repetitive Peak Reverse Voltage	Tj=25°C	V _{RRM}	600 and 800	V
Non repetitive surge peak off-state voltage	Tp=10ms, Tj=25°C	V _{DSM}	700 and 900	V
Non repetitive peak reverse voltage		V _{RSM}	700 and 900	V
RMS on-state current(full sine wave)	TC=90°C	IT(RMS)	20	A
	TC=70°C			
Non repetitive surge peak on-state current(full cycle, Tj=25°C)	f=60Hz, t=16.7ms	ITSM	210	A
	f=50Hz, t=20ms		200	
I ² t Value for fusing	Tp=10ms	I ² t	200	A ² s
Critical rate of rise of on-state current IG=2*IGT, tr≤100ns, f=120Hz, Tj=125°C		di/dt	100	A/us
Peak gate current(tp=20us, Tj=125°C)		IGM	4	A
Peak gate power dissipation(tp=20us, Tj=125°C)		PGM	10	W
Average gate power dissipation(Tj=125°C)		PG(AV)	1	W

Electrical Characteristics ($T_j=25^{\circ}\text{C}$, unless otherwise specified)

Symbol	Test Condition	Quadrant		Limit		Unit
				CW(C)	BW(B)	
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	I - II -III	MAX	35	50	mA
V_{GT}		I - II -III	MAX	1.5		V
V_{GD}	$V_D=V_{DRM} R_L=3.3\text{K}\Omega T_j=125^{\circ}\text{C}$	I - II -III	MIN	0.2		V
IL	$I_G=1.2I_{GT}$	I -III	MAX	50	70	mA
		II	MAX	60	80	mA
IH	$I_T=100\text{mA}$		MAX	40	60	mA
Dv/dt	$V_D=67\%V_{DRM}$ gate open $T_j=125^{\circ}\text{C}$		MIN	250	500	V/us
(Dv/dt)c	(dl/dt)c=8.8A/ms $T_j=125^{\circ}\text{C}$		MIN	7	12.5	V/us

Static Characteristics

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=28\text{A}, t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	2.5	mA

Thermal Resistances

Symbol	Parameter	Value	Unit
$R_{th}(J-C)$	Junction to case(AC)	2.1	$^{\circ}\text{C}/\text{W}$

Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current(full cycle)

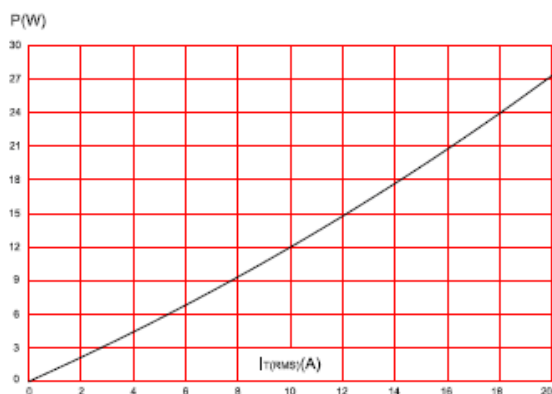


FIG.2: RMS on-state current versus case temperature(full cycle)

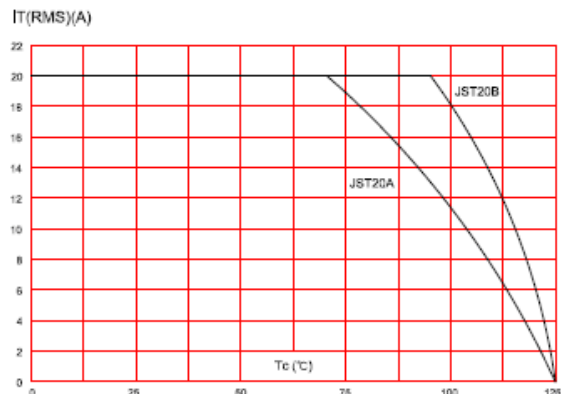


FIG.3: On-state characteristics (maximum values).

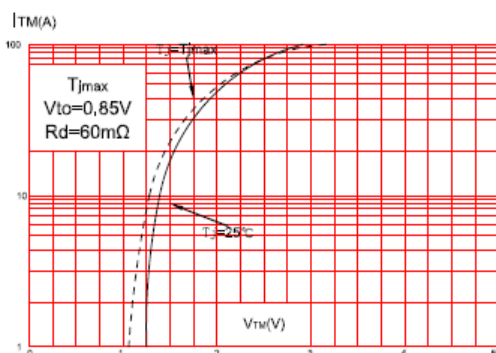


FIG.4: Surge peak on-state current versus number of cycles.

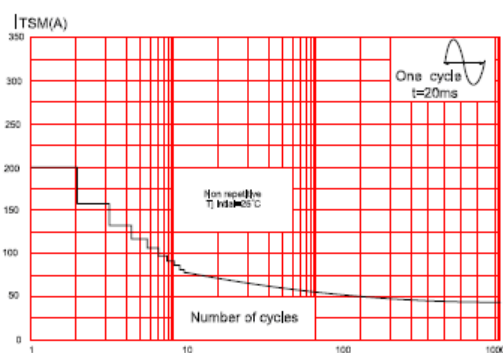


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

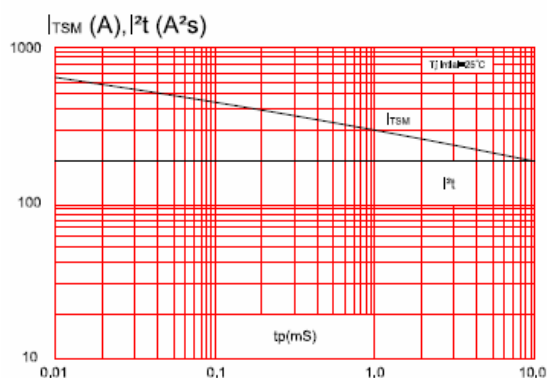
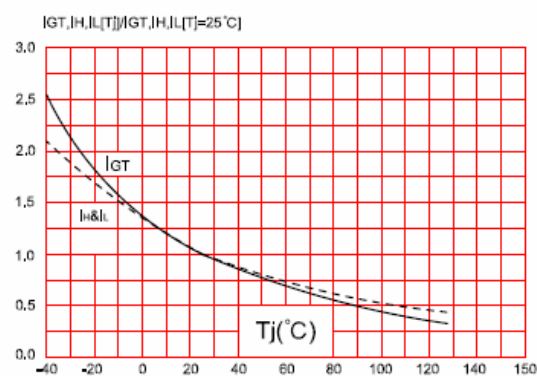


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)



Package Mechanical Data

