BTB16

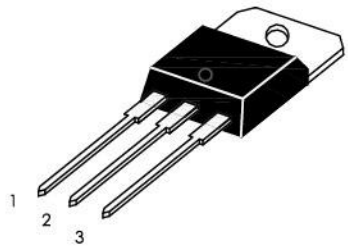
DESCRIPTION:

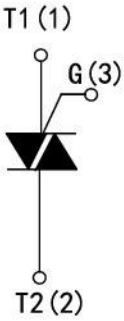
High current density due to double mesa technology; SIPOS and Glass Passivation.

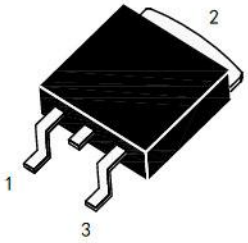
BTB16 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF Function in applications such as static relays, heating regulation, induction motor stating circuits...or for phase control operation light dimmers, motorspeed controllers.

BTB16 are isolated internally, they provides a 2500V RMS isolation voltage from all three terminals to extemal heetsink.

TO-220







TO-263

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	600and800	V
$I_{G(Q1)}$	5 to 50	mA

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range Operrating junction temperature range		Tstg Tj	-40 to +150 -40 to +125	˚C
Repetitive Peak Off-state Voltage Repetitive Peak Reverse Voltage	Tj=25˚C	V_{DRM} V_{RRM}	600and800 600and800	V
Non repetitive Surge Peak Off-state Voltage Non repetitive Peak Reverse Voltage	Tj=25˚C	V_{DSM} V_{RSM}	700and900 700and900	V
RMS on-state current (full sine wave)	DPAK / TO-220AB Tc=110˚C TO-220AB Ins Tc=105˚C	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, Tj=25˚C)	f = 50 Hz t=20ms f = 60 Hz t=16.7ms	I_{TSM}	60 63	A
I^2t Value for fusing	tp=10ms	I^2t	21	A^2s
Critical rate of rise of on-state current $I_G=2\times I_{GT}$, tr≤100 ns, f=120Hz, Tj=125˚C		dI /dt	50	A/us
Peak gate current	tp=20us, Tj=125˚C	I_{GM}	4	A
Average gate power dissipation	Tj=125˚C	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS(Tj=25℃ unless otherwise specified)

● 3 Quadrants

Symbol	Test Condition	Quadrant		BTB16S				Unit
				TW	SW	CW	BW	
I_{GT}	V_D=12V R_L=30Ω	I - II - III	MAX.	5	10	35	50	mA
V_{GT}		I - II - III	MAX.	1.3				V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	I - II - III	MIN..	0.2				V
I_L	I_G=1.2I_{GT}	I - III	MAX.	10	25	50	70	mA
		II		15	30	60	80	
I_H	I_T=100mA		MAX.	10	15	35	50	mA
dV/dt	V_D=67%V_{DRM} gate open Tj=125℃		MIN.	20	40	400	1000	V/μs
(dI/dt)c	(dV/dt) c=0.1V/μs Tj=125℃		MIN.	3.5	6.5	----	----	A/ms
	(dV/dt) c=10V/μs Tj=125℃			1.0	2.9	----	----	
	Without snubber Tj=125℃			----	----	3.5	5.3	

● 4 Quadrants

Symbol	Test Condition	Quadrant		BTB16S		Unit
				C	B	
I_{GT}	V_D=12V R_L=30Ω	I - II - III IV	MAX.	25 50	50 100	mA
V_{GT}		ALL	MAX.	1.3		V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	ALL	MIN.	0.2		V
I_L	I_G=1.2I_{GT}	I - III - IV	MAX.	40	50	mA
		II		80	100	
I_H	I_T=100mA		MAX.	25	50	mA
dV/dt	V_D=67%V_{DRM} gate open Tj=125℃		MIN.	200	400	V/μs
(dI/dt)c	(dV/dt) c=0.1V/μs Tj=125℃		MIN.	----	----	
	(dV/dt) c=10V/μs Tj=125℃			----	----	
	Without snubber Tj=125℃			----	----	

STATIC CHARACTERISTICS

Symbol	Test Conditions		Value (MAX.)	Unit
V_{TM}	I_{TM}=5.5A, tp=380uS	Tj=25℃	1.55	V
I_{DRM}	$V_D=V_{DRM}$	Tj=25℃	5	uA
I_{RRM}	$V_R=V_{RRM}$	Tj=125℃	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	DPAK/TO-220AB	1.8	℃/W
		TO-220AB Insulated	2.7	

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

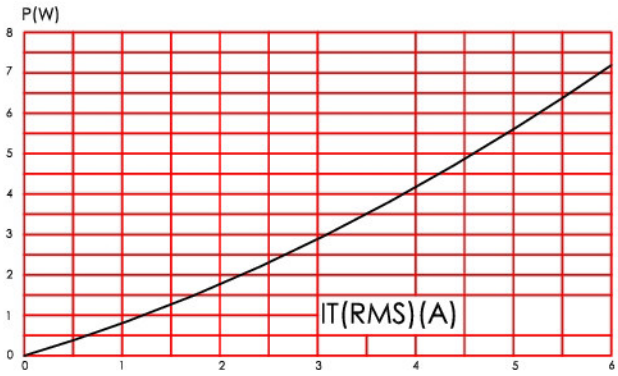


FIG.2: RMS on-state current versus case temperature(full cycle)

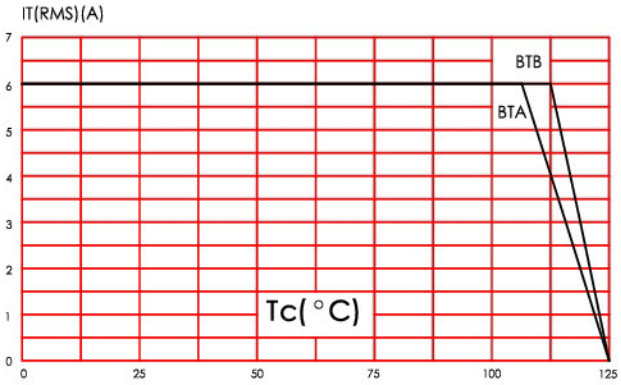


FIG.3: On-state characteristics (maximum values)

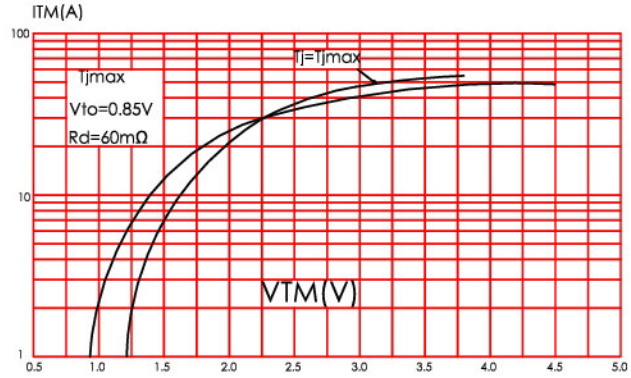


FIG.4: Surge peak on-state current versus number of cycles

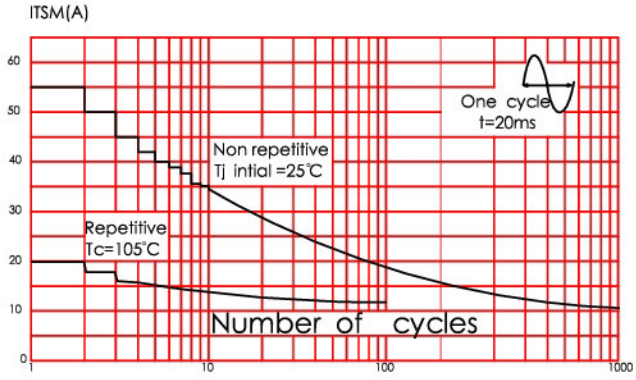


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

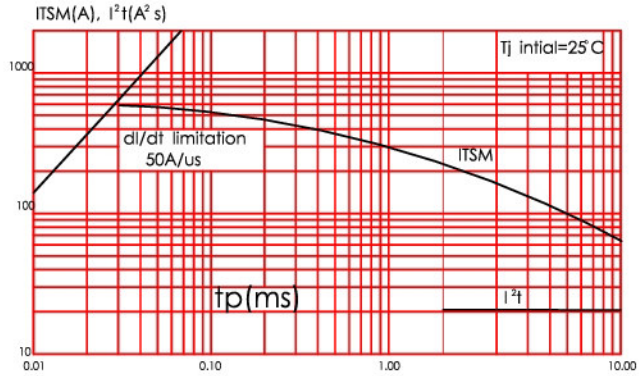


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)