



BTB16

DESCRIPTION:

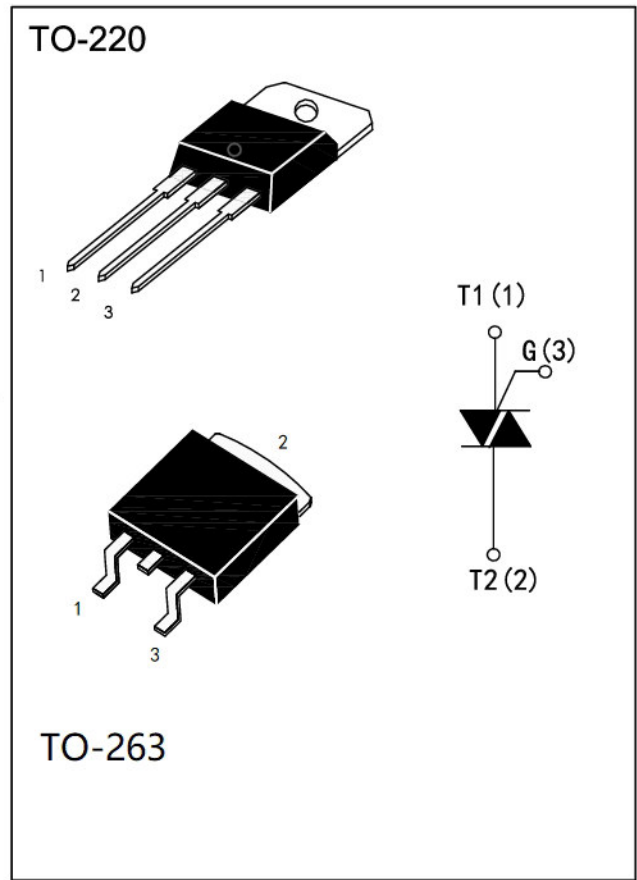
High current density due to double mesa technology; SIPOS and Glass Passivation.

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 starting 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 external heatsink.

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	T_{stg}	-40 to +150	$^{\circ}C$
Operating junction temperature range	T_j	-40 to +125	
Repetitive Peak Off-state Voltage	V_{DRM}	600and800	V
Repetitive Peak Reverse Voltage	V_{RRM}	600and800	V
Non repetitive Surge Peak Off-state Voltage	V_{DSM}	700and900	V
Non repetitive Peak Reverse Voltage	V_{RSM}	700and900	V
RMS on-state current (full sine wave)	$T_c=110^{\circ}C$ DPAK / TO-220AB	16	A
	$T_c=105^{\circ}C$ TO-220AB Ins		
Non repetitive surge peak on-state current (full cycle, $T_j=25^{\circ}C$)	$f = 50 \text{ Hz}$ $t=20\text{ms}$	60	A
	$f = 60 \text{ Hz}$ $t=16.7\text{ms}$	63	
I^2t Value for fusing $t_p=10\text{ms}$	I^2t	21	A^2s
Critical rate of rise of on-state current $I_G=2 \times I_{GT}$, $t_r \leq 100 \text{ ns}$, $f=120\text{Hz}$, $T_j=125^{\circ}C$	di/dt	50	A/us
Peak gate current $t_p=20\mu s$, $T_j=125^{\circ}C$	I_{GM}	4	A
Average gate power dissipation $T_j=125^{\circ}C$	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS (T_j=25°C 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 _D DRM R _L =3.3KΩ T _j =125°C	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 _D DRM gate open T _j =125°C		MIN.	20	40	400	1000	V/μs
(dI/dt) _c	(dV/dt) c=0.1V/μs T _j =125°C		MIN.	3.5	6.5	----	----	A/ms
	(dV/dt) c=10V/μs T _j =125°C			1.0	2.9	----	----	
	Without snubber T _j =125°C			----	----	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 _D DRM R _L =3.3KΩ T _j =125°C	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 _D DRM gate open T _j =125°C		MIN.	200	400	V/μs
(dI/dt) _c	(dV/dt) c=0.1V/μs T _j =125°C		MIN.	----	----	
	(dV/dt) c=10V/μs T _j =125°C			----	----	
	Without snubber T _j =125°C			----	----	

STATIC CHARACTERISTICS

Symbol	Test Conditions		Value (MAX.)	Unit
V_{TM}	$I_{TM}=5.5A$, $t_p=380\mu S$	$T_j=25^\circ C$	1.55	V
I_{DRM}	$V_D=V_{DRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}	$V_R=V_{RRM}$	$T_j=125^\circ C$	1	mA

THERMAL RESISTANCES

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

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

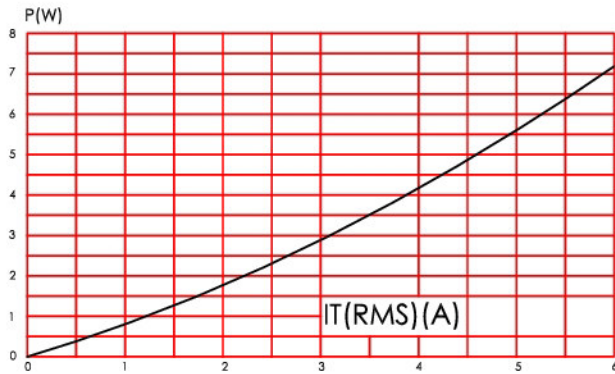


FIG.2: RMS on-state current versus case temperature(full cycle)

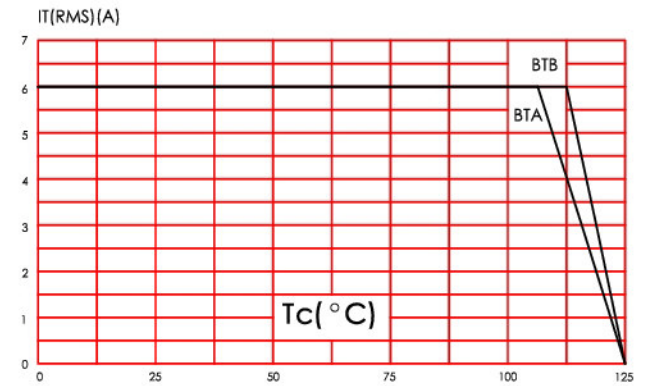


FIG.3: On-state characteristics (maximum values)

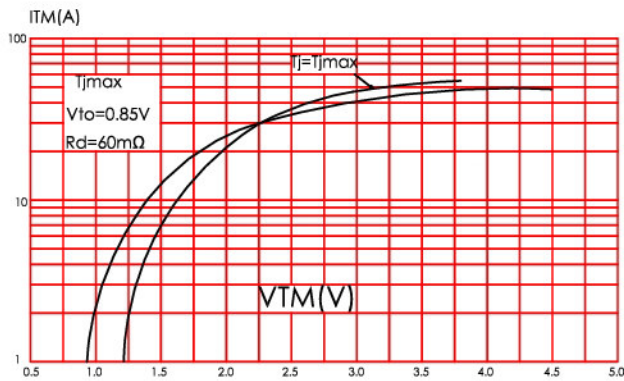


FIG.4: Surge peak on-state current versus number of cycles

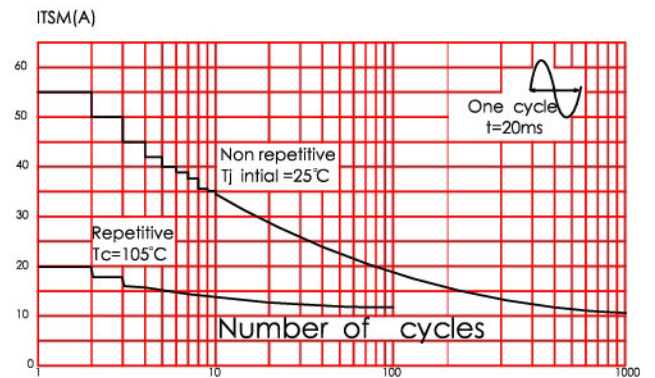


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

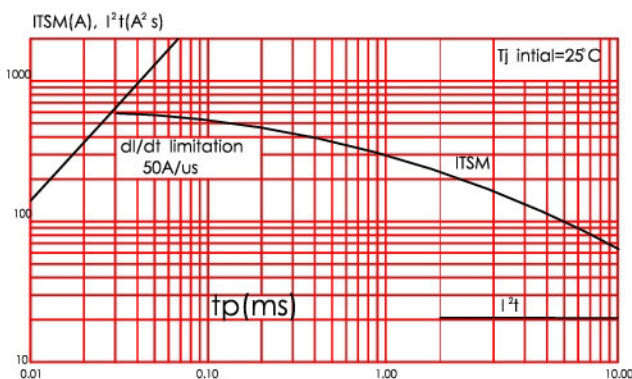


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)

