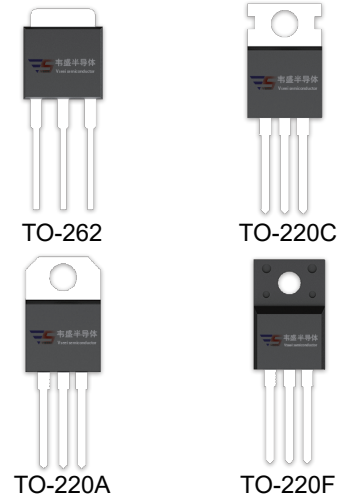## DESCRIPTION:

With high ability to withstand the shock loading of large current, BTA12-800BW series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

TO-262   TO-220C

TO-220A   TO-220F

T2(2)   G(3)   T1(1)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600/800/1200	V
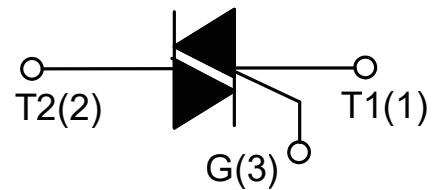
ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	℃
Operating junction temperature range		T_j	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)		V_{DRM}	600/800/1200	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	600/800/1200	V
Non repetitive surge peak Off-state voltage		V_{DSM}	V_{DRM} +100	V
Non repetitive peak reverse voltage		V_{RSM}	V_{RRM} +100	V
RMS on-state current	TO-220A(Ins) (T_C=85℃)	$I_{T(RMS)}$	12	A
	TO-262/ TO-220A(Non-Ins)/ TO-220C(T_C=100℃)			
	TO-220F(Ins) (T_C=80℃)			

Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	120	A
I^2t value for fusing (tp=10ms)		I^2t	78	A^2s
Critical rate of rise of on-state current (I_G =2×I_{GT})	I - II -III	dI/dt	50	A/μs
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	5	W

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value				Unit
				BW	CW	SW	TW	
I_{GT}	V_D =12V R_L =33Ω	I - II -III	MAX	50	35	10	5	mA
V_{GT}		I - II -III	MAX	1.3				V
V_{GD}	V_D =V_{DRM} T_j =125℃ R_L =3.3KΩ	I - II -III	MIN	0.2				V
I_L	I_G =1.2I_{GT}	I -III	MAX	80	50	30	20	mA
		II		90	60	40	30	
I_H	I_T =100mA		MAX	60	40	20	15	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j =125℃		MIN	1000	500	200	100	V/μs
(dI/dt)c	Without snubber T_j =125℃		MIN	12	6.5	-	-	A/ms

4 Quadrants

Symbol	Test Condition	Quadrant		Value		Unit
				B	C	
I_{GT}	V_D =12V R_L =33Ω	I - II -III	MAX	50	25	mA
		IV		70	50	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	V_D =V_{DRM} T_j =125℃ R_L =3.3KΩ	ALL	MIN	0.2		V
I_L	I_G =1.2I_{GT}	I -III-IV	MAX	50	40	mA
		II		100	80	

I_H	I_T =100mA	MAX	50	25	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j=125℃	MIN	500	200	V/µs
(dV/dt)c	(dI/dt)c=5.3A/ms T_j=125℃	MIN	10	5	V/µs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM} =17A tp=380µs	T_j=25℃	1.5	V
I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	5	µA
I_{RRM}		T_j=125℃	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.3	℃/W
		TO-262/ TO-220A(Non-Ins)/ TO-220C	1.4	
		TO-220F(Ins)	2.5	

FIG.1 Maximum power dissipation versus RMS on-state current

P(w) vs $I_{T(RMS)}$ (A)
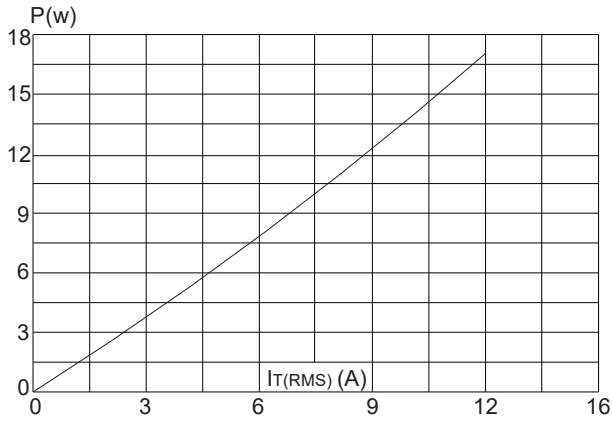
FIG.2: RMS on-state current versus case temperature

$I_{T(RMS)}$ (A) vs Tc (℃), α=180°, TO-262/TO-220C/TO-220A(Non-Ins), TO-220A(Ins), TO-220F(Ins)
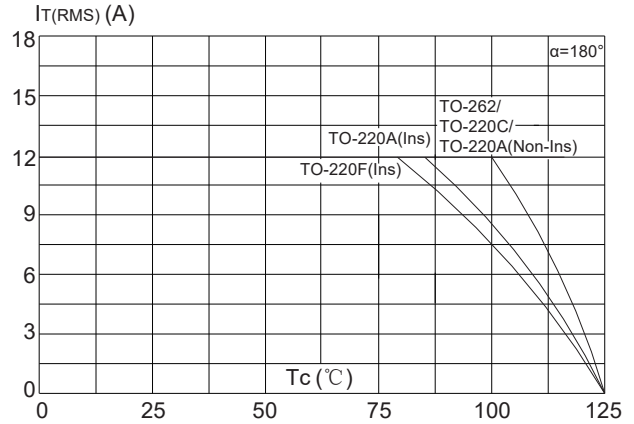
FIG.3: Surge peak on-state current versus number of cycles

I_{TSM} (A) vs Number of cycles, t=20ms One cycle
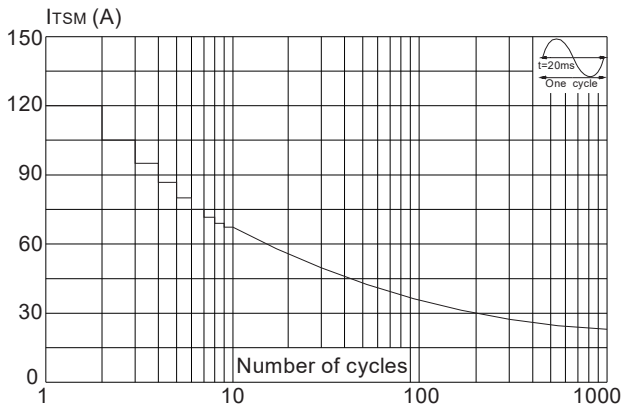
FIG.4: On-state characteristics (maximum values)

I_{TM} (A) vs V_{TM} (V), Tj=Tjmax, Tj=25℃
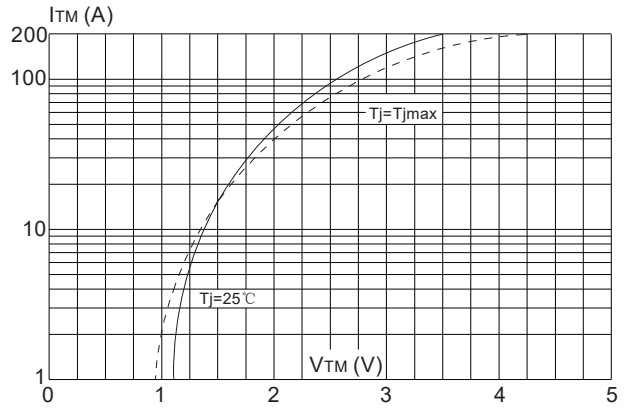
FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I²t (dI/dt(Ⅰ-Ⅱ-Ⅲ) < 50A/µs)

I$_{TSM}$ (A), I²t (A²s)

dI/dt(Ⅰ-Ⅱ-Ⅲ)

I$_{TSM}$

I²t

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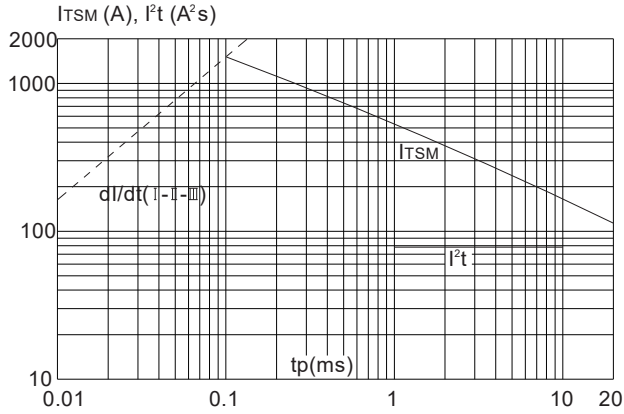
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

I$_{GT}$,I$_H$,I$_L$(Tj) /I$_{GT}$,I$_H$,I$_L$(Tj=25℃)

I$_{GT}$

I$_H$&I$_L$

Tj (℃)