

DESCRIPTION:

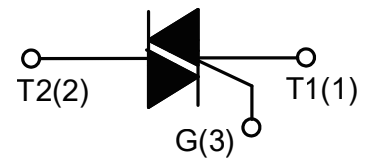
With high ability to withstand the shock loading of large current, BTA225B-600B series triacs provide high dv/dt rate with strong resistance to electro-magnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.



TO-263

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	600/800/1200/1600	V



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	°C
Operating junction temperature range		T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)		V_{DRM}	600/800/1200/1600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)		V_{RRM}	600/800/1200/1600	V
RMS on-state current	TO-263 ($T_C=75^\circ\text{C}$)	$I_{T(RMS)}$	25	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	250	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	340	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	10	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

 $V_{\text{DRM}}/V_{\text{RRM}}$: 600/800V

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				BW	CW	
I_{GT}	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II - III	MAX	50	35	mA
V_{GT}		I - II - III	MAX	1.3		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	I - II - III	MIN	0.2		V
I_{L}	$I_{\text{G}}=1.2I_{\text{GT}}$	I - III	MAX	80	70	mA
		II		100	80	
I_{H}	$I_{\text{T}}=100\text{mA}$		MAX	75	50	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_j=125^\circ\text{C}$		MIN	1000	500	V/ μs

 $V_{\text{DRM}}/V_{\text{RRM}}$: 1200/1600V

Symbol	Test Condition	Quadrant		JST24-1200V/1600V		Unit
				BW	CW	
I_{GT}	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II - III	MAX	50	35	mA
V_{GT}		I - II - III	MAX	1.5		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	I - II - III	MIN	0.2		V
I_{L}	$I_{\text{G}}=1.2I_{\text{GT}}$	I - III	MAX	90	70	mA
		II		100	80	
I_{H}	$I_{\text{T}}=100\text{mA}$		MAX	80	60	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_j=125^\circ\text{C}$		MIN	1500	1000	V/ μs

 $V_{\text{DRM}}/V_{\text{RRM}}$: 600/800V

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				B	C	
I_{GT}	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II - III	MAX	50	25	mA
		IV		70	50	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	ALL	MIN	0.2		V

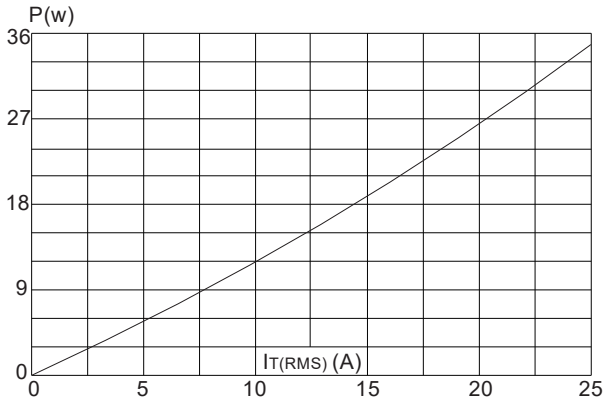
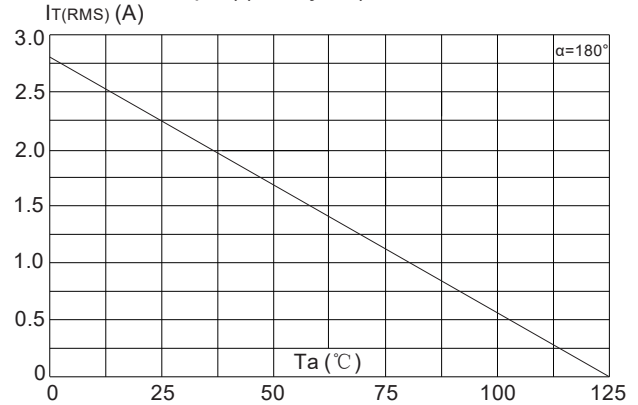
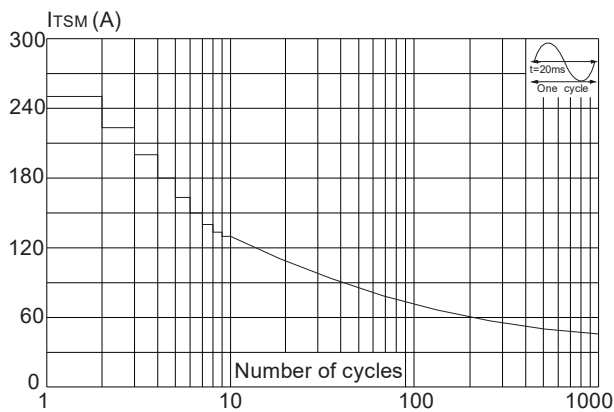
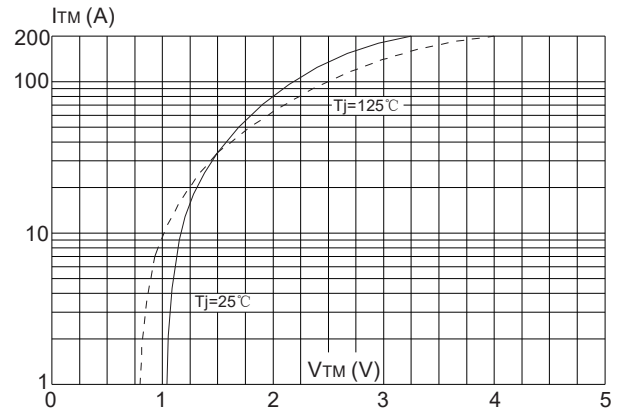
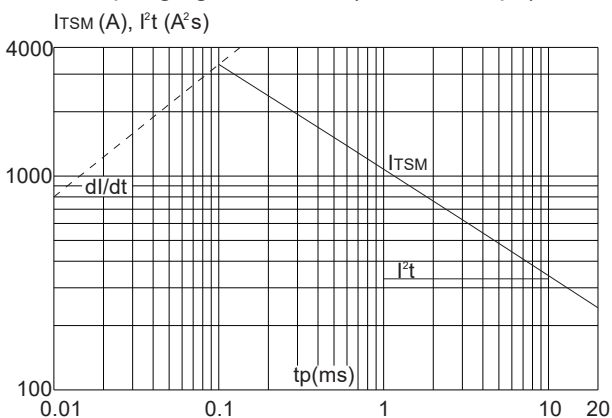
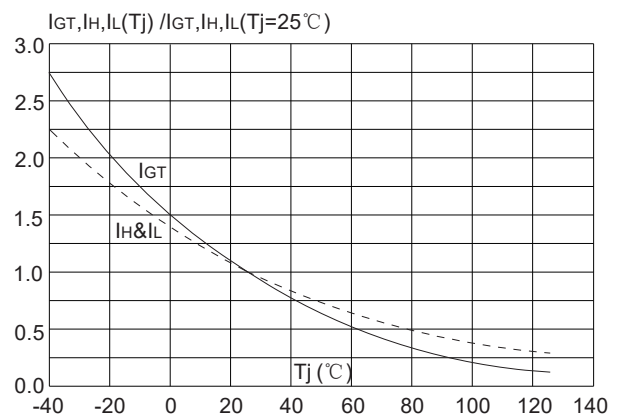
I _L	I _G = 1.2I _{GT}	I -III-IV	MAX	80	70	mA
		II	MAX	100	90	
I _H	I _T = 100mA		MAX	75	60	mA
dV/dt	V _D = 2/3V _{DRM} Gate Open T _j = 125°C		MIN	500	200	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V _{TM}	I _{TM} = 35A tp = 380μs	T _j = 25°C	1.5	V
I _{DRM}	V _D = V _{DRM} V _R = V _{RDM}	T _j = 25°C	5	μA
I _{RRM}		T _j = 125°C	3	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	junction to case(AC)	TO-263	1.3	°C/W
R _{th(j-a)}	junction to ambient		45	

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

FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35μm)(full cycle)

FIG.3: Surge peak on-state current versus number of cycles

FIG.4: On-state characteristics (maximum values)

FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

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


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

