

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} V_{RRM}$	600 / 800	V
V_{TM}	1.55	V

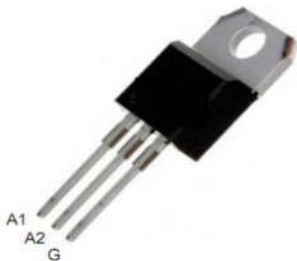
Feature

With high ability to withstand the shock loading of large current, With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

Application

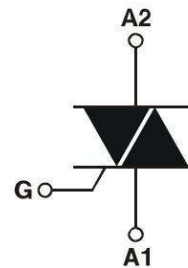
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

Package

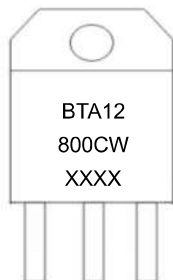


TO-220A Insulated

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600 / 800	V
Repetitive peak reverse voltage	V_{RRM}	600 / 800	V
RMS on-state current	$I_{T(RMS)}$	12	A
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 ² s
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di_T/dt	I - II - III 50	A/ μ s
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Junction Temperature	T_J	-40 ~ +125	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Value		Unit	
			SW	CW		
Gate trigger current	I_{GT}	$V_D = 12V$ $R_L = 33\Omega$ $T_J = 25^\circ C$	I - II - III	≤ 10	≤ 35	mA
Gate trigger voltage	V_{GT}	$T_J = 25^\circ C$	I - II - III	≤ 1.3		V
Gate non-trigger voltage	V_{GD}	$V_D = V_{DRM}$ $T_J = 125^\circ C$		≥ 0.2		V
latching current	I_L	$I_G = 1.2I_{GT}$	I - III	≤ 25	≤ 50	mA
			II	≤ 30	≤ 60	
Holding current	I_H	$I_T = 100mA$		≤ 15	≤ 35	mA
Critical-rate of rise of commutation voltage	dV_D/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_J = 125^\circ C$		≥ 40	≥ 500	V/ μ s
STATIC CHARACTERISTICS						
Forward "on" voltage	V_{TM}	$I_{TM} = 17A$ $tp = 380\mu s$		≤ 1.55		V
Repetitive Peak Off-State Current	I_{DRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_J = 25^\circ C$	≤ 5		μA
Repetitive Peak Reverse Current	I_{RRM}		$T_J = 125^\circ C$	≤ 1		mA
THERMAL RESISTANCES						
Thermal resistance	$R_{th(j-c)}$	Junction to case(AC)		2.3		°C/W
	$R_{th(j-a)}$	Junction to ambient		60		°C/W

Typical Characteristics

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

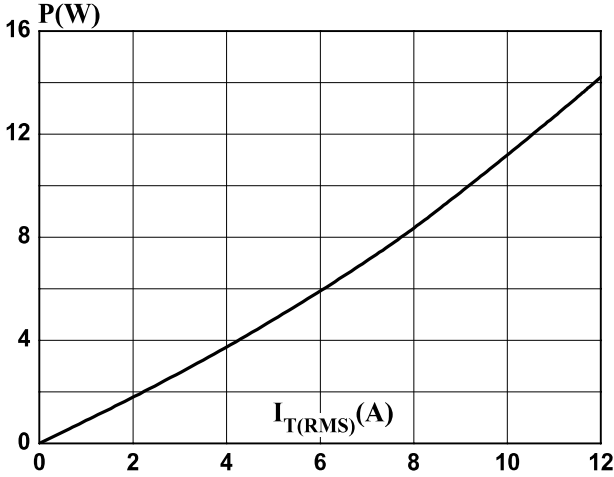


FIG.2: RMS on-state current versus case temperature (full cycle)

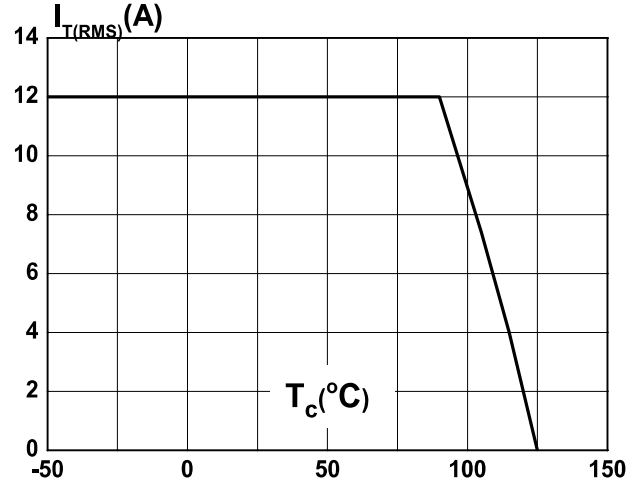


FIG.3: Surge peak on-state current versus number of cycles

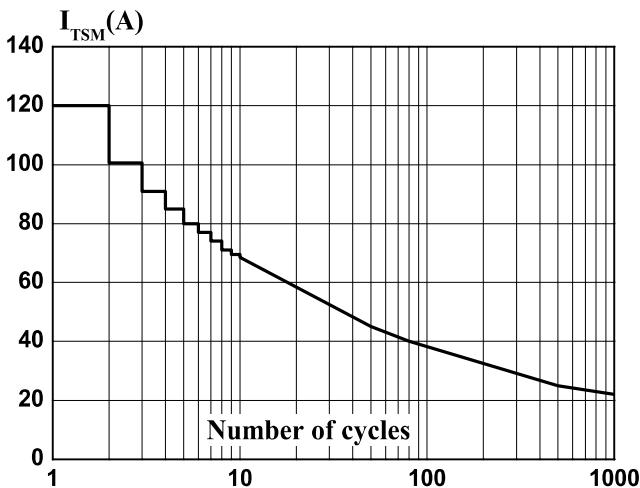


FIG.4: On-state characteristics (maximum values)

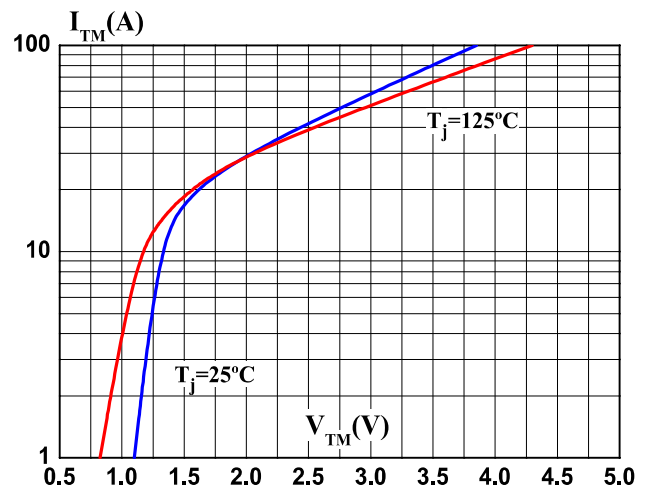


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

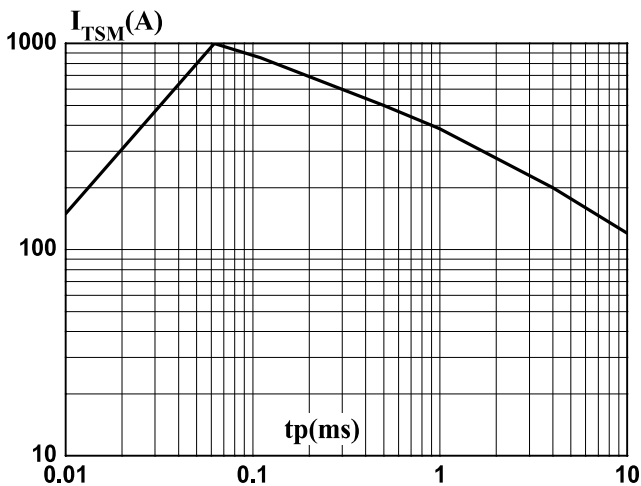
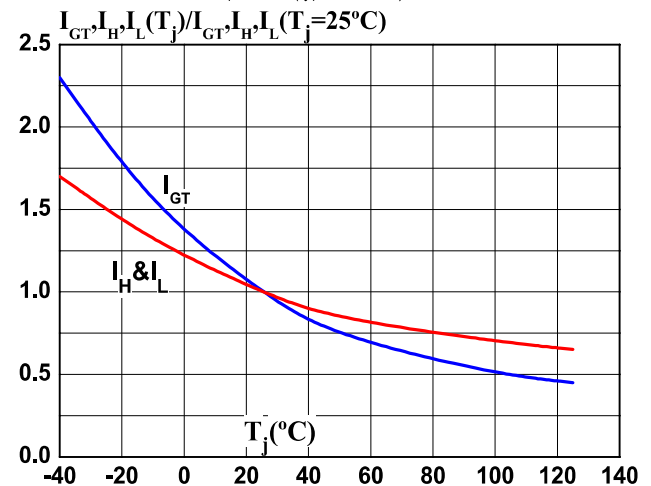
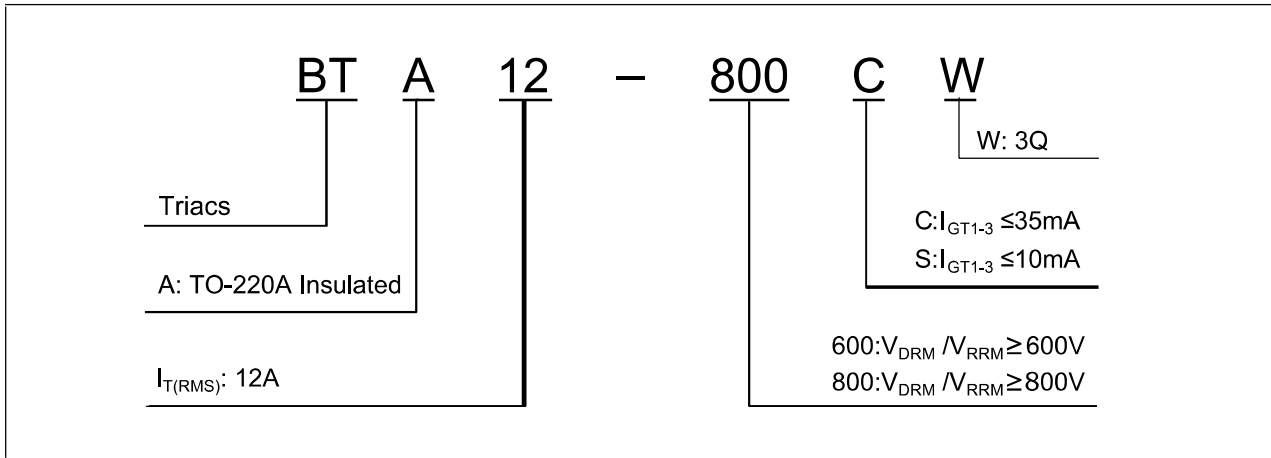


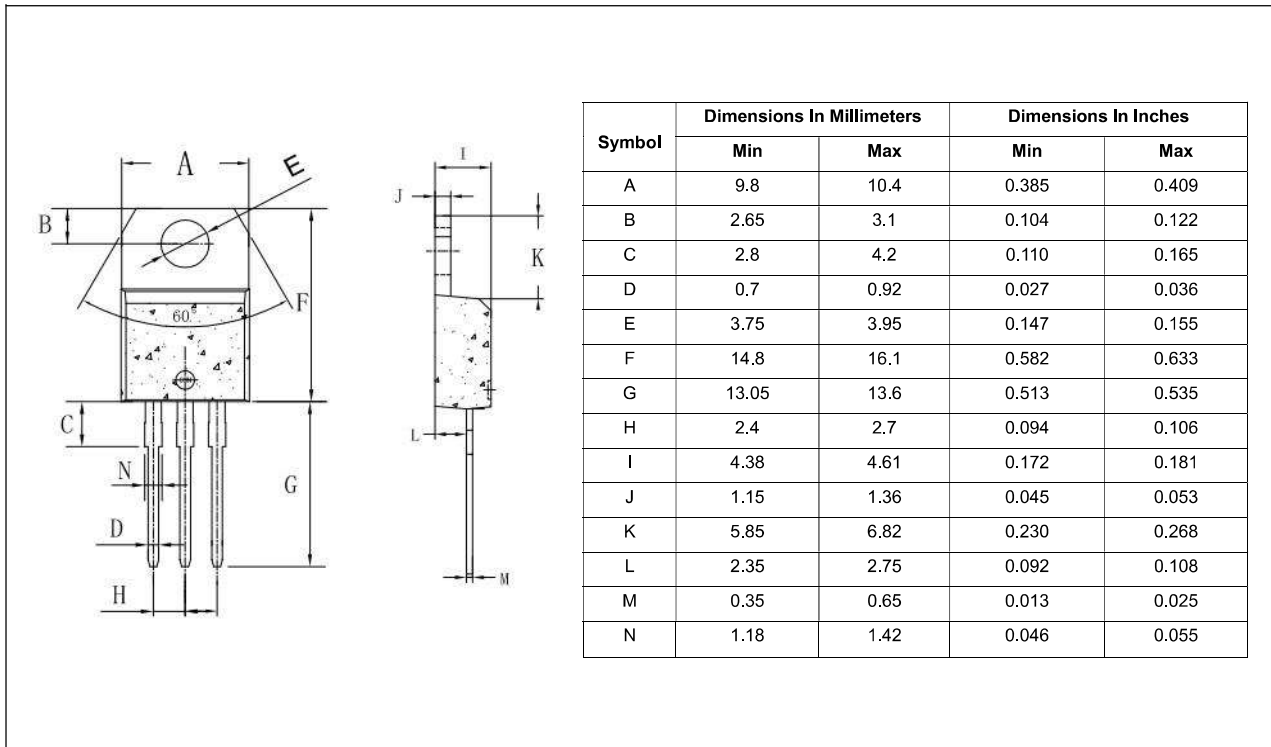
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Ordering Information



TO-220A Insulated Package Information



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