

## Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
$V_{DRM} / V_{RRM}$	800/1200/1600	V
$V_{TM}$	1.55	V

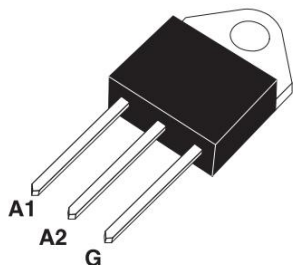
## Feature

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

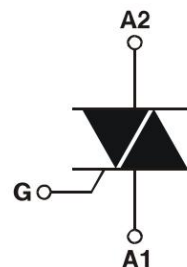
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

## Package

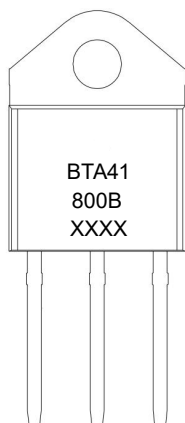


TO-3P Insulated

## Circuit diagram



## Marking



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

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	$V_{DRM}$	800/1200/1600	V
Repetitive peak reverse voltage	$V_{RRM}$	800/1200/1600	V
RMS on-state current	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{TSM}$	400	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	880	A <sup>2</sup> s
Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	$di/dt$	50	A/ $\mu$ 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	
Gate trigger current	$I_{GT}$	$V_D = 12V$ $R_L = 33\Omega$	I - II -III	MAX. 50	mA
Gate trigger voltage	$V_{GT}$		I - II -III	MAX. 1.3	V
Gate non-trigger voltage	$V_{GD}$	$V_D = V_{DRM}$ $T_J = 125^\circ C$ $R_L = 3.3K\Omega$	I - II -III	MIN. 0.2	V
latching current	$I_L$	$I_G = 1.2I_{GT}$	I -III	MAX. 80	mA
			II		
Holding current	$I_H$	$I_T = 100mA$	MAX.	60	mA
Critical-rate of rise of commutation voltage	$dV/dt$	$V_D = 2/3V_{DRM}$ Gate Open $T_J = 125^\circ C$	MIN.	1000	V/ $\mu$ s
<b>STATIC CHARACTERISTICS</b>					
Forward "on" voltage	$V_{TM}$	$I_{TM} = 60A$ tp=380 $\mu$ s	MAX.	1.55	V
Repetitive Peak Off-State Current	$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_J = 25^\circ C$	MAX. 10	$\mu$ A
Repetitive Peak Reverse Current	$I_{RRM}$		$T_J = 125^\circ C$	MAX. 5	mA
<b>THERMAL RESISTANCES</b>					
Thermal resistance	$R_{th(j-c)}$	Junction to case(AC)	TYP.	0.9	°C/W
	$R_{th(j-a)}$	Junction to ambient	TYP.	50	°C/W

**Typical Characteristics**

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

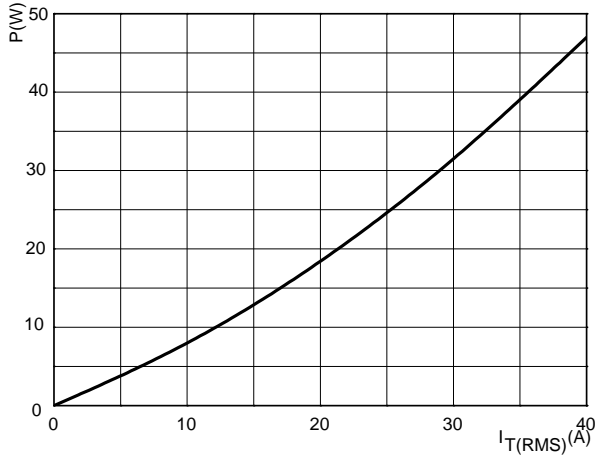


FIG.2: RMS on-state current versus case temperature (full cycle)

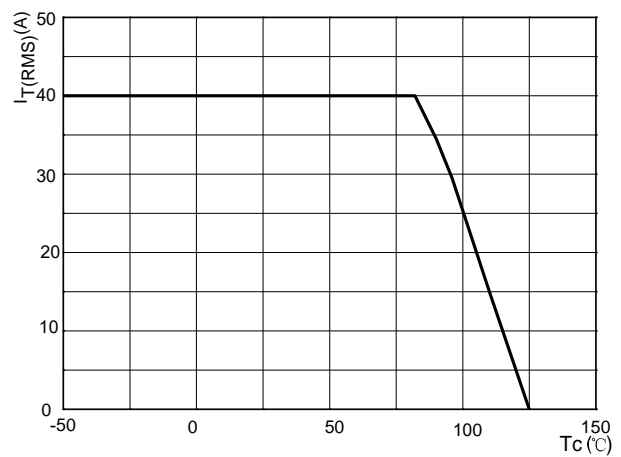


FIG.3: Surge peak on-state current versus number of cycles

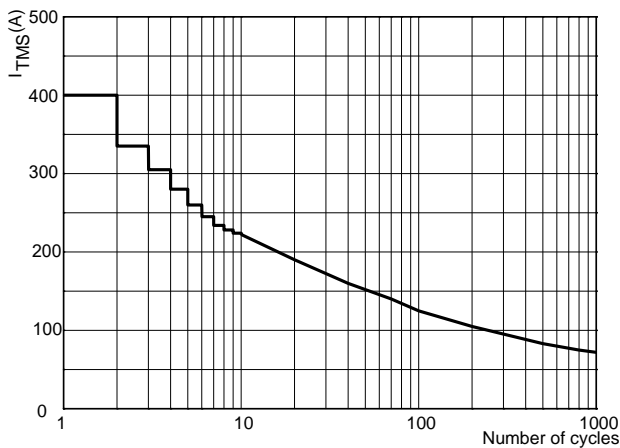


FIG.4: On-state characteristics (maximum values)

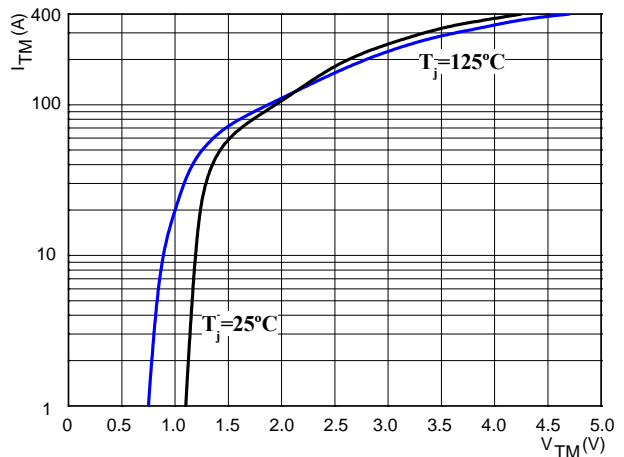


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

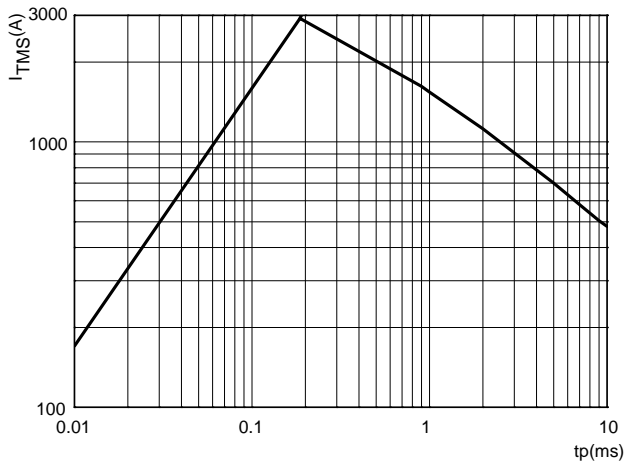
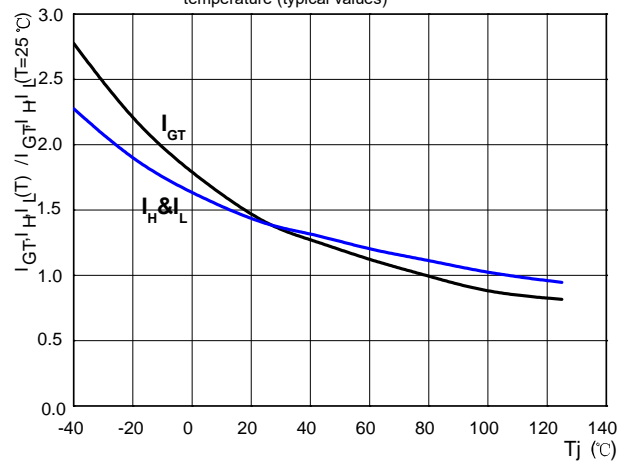
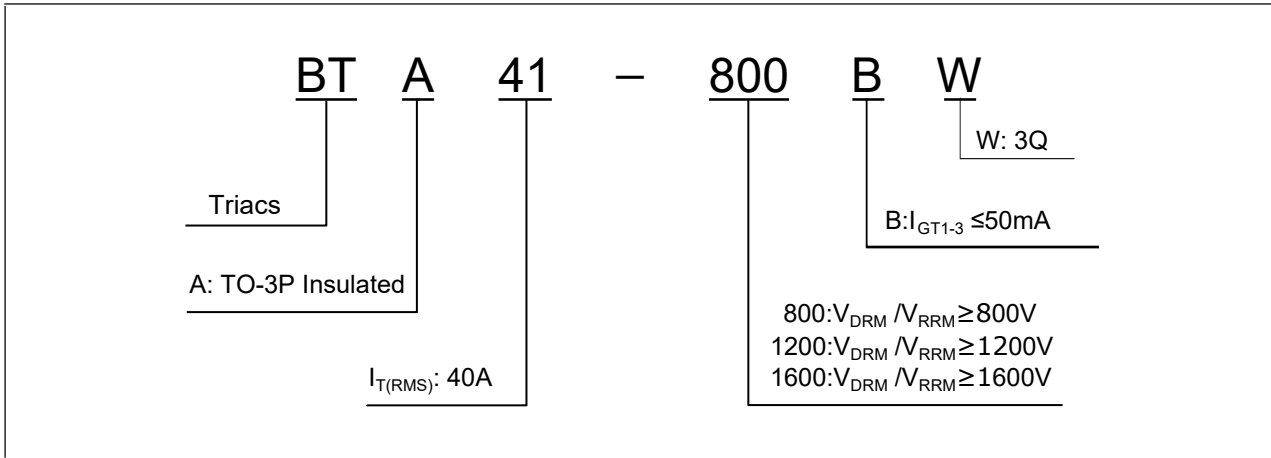


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**Ordering Information**



**TO-3P Insulated Package Information**

