

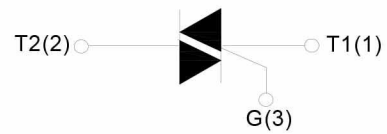
## DESCRIPTION:

With high ability to withstand the shock loading of large current, **BTA41-TP** 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.



## MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	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-3P(Ins)/ TO-3PF ( $T_c=60^{\circ}\text{C}$ )	$I_{T(RMS)}$	40	A
	TG-C ( $T_c=85^{\circ}\text{C}$ )			
	TO-247J ( $T_c=75^{\circ}\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )		$I_{TSM}$	400	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )		$I^2t$	880	$\text{A}^2\text{s}$
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)

**3 Quadrants**

Symbol	Test Condition	Quadrant		Value				Unit
				GW	BW	CW	TW	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	70	50	35	5	mA
$V_{GT}$		I - II -III	MAX	1.3				V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	I - II -III	MIN	0.2				V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	100	80	70	20	mA
		II		150	100	80	35	
$I_H$	$I_T=100\text{mA}$		MAX	80	60	50	15	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	1500	1500	1000	100	V/ $\mu\text{s}$

**4 Quadrants**

Symbol	Test Condition	Quadrant		Value		Unit
				B	C	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	50	25	mA
		IV		70	50	
$V_{GT}$		ALL	MAX	1.3		V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I -III-IV	MAX	90	60	mA
		II		100	80	
$I_H$	$I_T=100\text{mA}$		MAX	80	30	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	1000	500	V/ $\mu\text{s}$

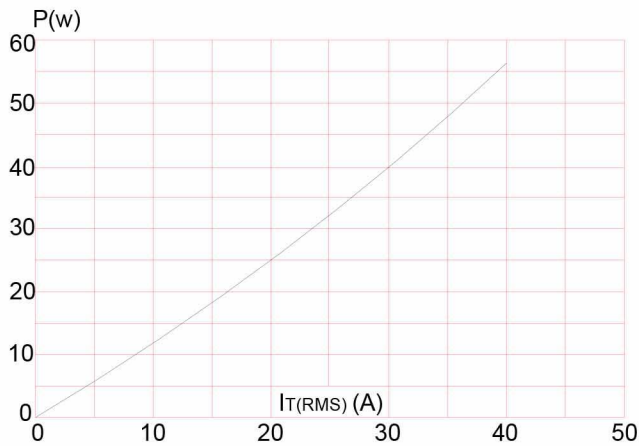
## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM} = 60A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.5	V
$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	10	$\mu A$
$I_{RRM}$		$T_j = 125^\circ C$	5	mA

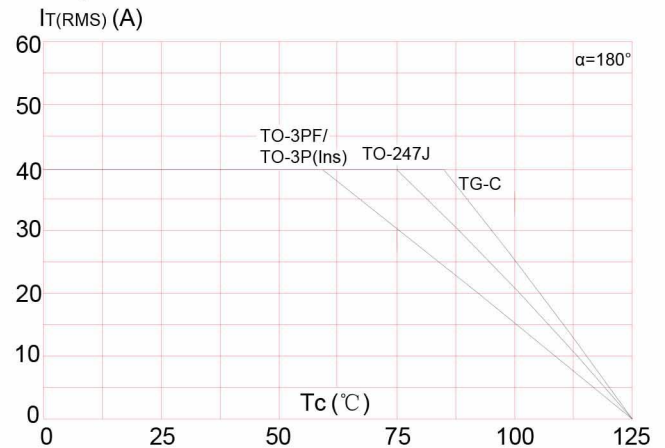
## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	1.1	$^\circ C/W$
		TO-3PF	1.13	
		TG-C	0.65	
		TO-247J	0.9	

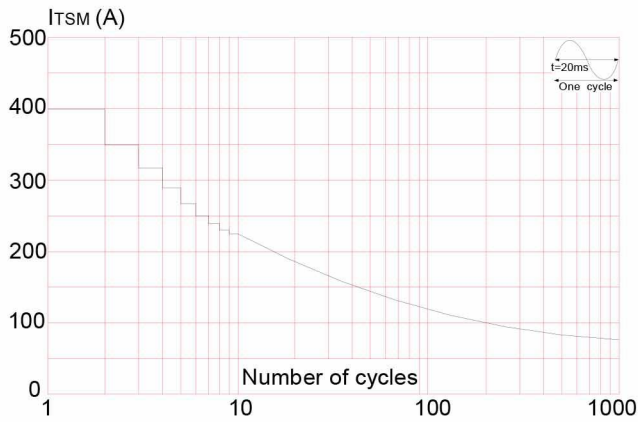
**FIG.1** Maximum power dissipation versus RMS on-state current



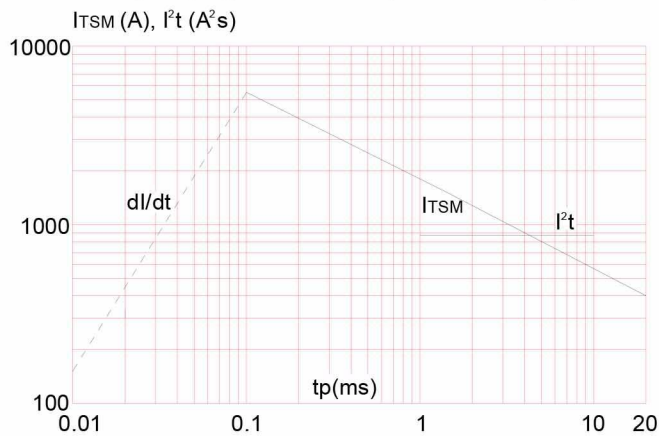
**FIG.2:** RMS on-state current versus case temperature



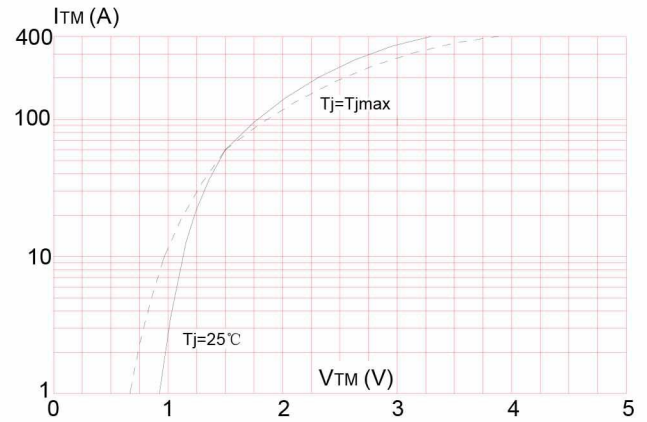
**FIG.3:** Surge peak on-state current versus number of cycles



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



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



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

