

BTA41 Series
Description:

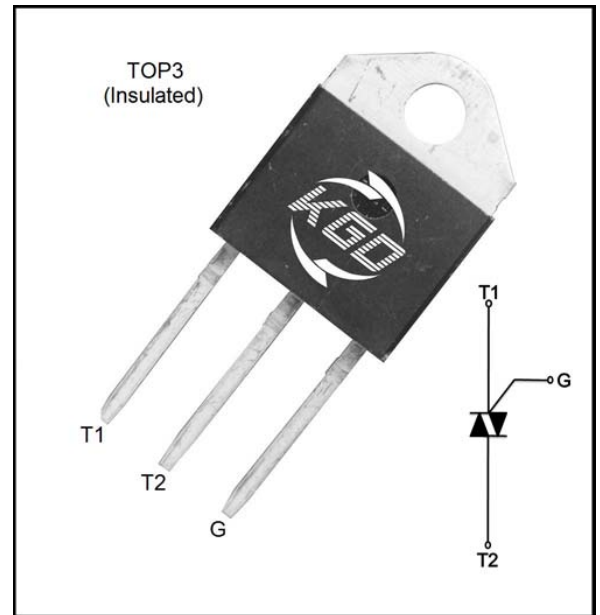
High current density due to double mesa technology; SIPOS and Glass Passivation.

Applications:

BTA41 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation light dimmers, motor speed controllers.

Features:

BTA41-xxxxBW are 3 Quadrants TRIACS, They are specially recommended for use on inductive loads. BTA41 are isolated internally, they provide a 2500V RMS isolation voltage from all three terminals to external heatsink. Blocking voltage to 600/800/1200/1600V On-state RMS current to 40A Non-repetitive peak on-state current to 400A


Absolute Maximum Ratings

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DRM}	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	600	1600	V
V_{RRM}	Repetitive peak Reverse voltage	$T_J=25^\circ\text{C}$	600	1600	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	$T_c=80^\circ\text{C}$	-	40	A
I_{TSM}	Non-repetitive peak On-state current (full cycle, $T_J=25^\circ\text{C}$)	$F=50\text{Hz}$, $t=20\text{ms}$	-	400	A
		$F=60\text{Hz}$, $t=16.7\text{ms}$	-	420	A
I^2t	I^2t Value for fusing	$T_p=10\text{ms}$	-	880	A^2S
di/dt	Rate of rise of on-state current	$I_G=2 \times I_{GT}$, $t_r \leq 100\text{ns}$, $T_J=125^\circ\text{C}$	-	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$T_p = 20\mu\text{s}$, $T_J=125^\circ\text{C}$	-	4	A
$P_{G(AV)}$	Average gate power		-	1	W
P_{GM}	Peak gate power dissipation	$T_J=125^\circ\text{C}$	-	10	W
T_{STG}	Storage temperature		-40	150	$^\circ\text{C}$
T_J	Junction temperature		-40	125	$^\circ\text{C}$

Electrical Characteristics

Symbol	Conditions	Quadrant	BTA41		Unit	
			BW	B		
I_{GT}	$V_D=12V, R_L=33\Omega$	I-II-III IV	MAX	50 -	50 100	mA
V_{GT}		I-II-III IV	MAX	1.3 -	1.3	V
V_{GD}	$V_D=V_{DRM}, R_L=3.3K\Omega, T_j=125^\circ C$	I-II-III IV	MIN	0.2 -	0.2	V
I_L	$I_T=1.2I_{GT}$	I-III IV	MAX	80 -	70	mA
		II	MAX	100	90	mA
I_H	$I_T=100mA$		MAX	60	60	mA
dv/dt	$V_{DM}=67\%V_{DRM}, \text{gate open}, T_j=125^\circ C$		MIN	1000	500	V/ μs
(di/dt) _c	Without snubber, $T_j=125^\circ C$		MIN	20	5	A/ms

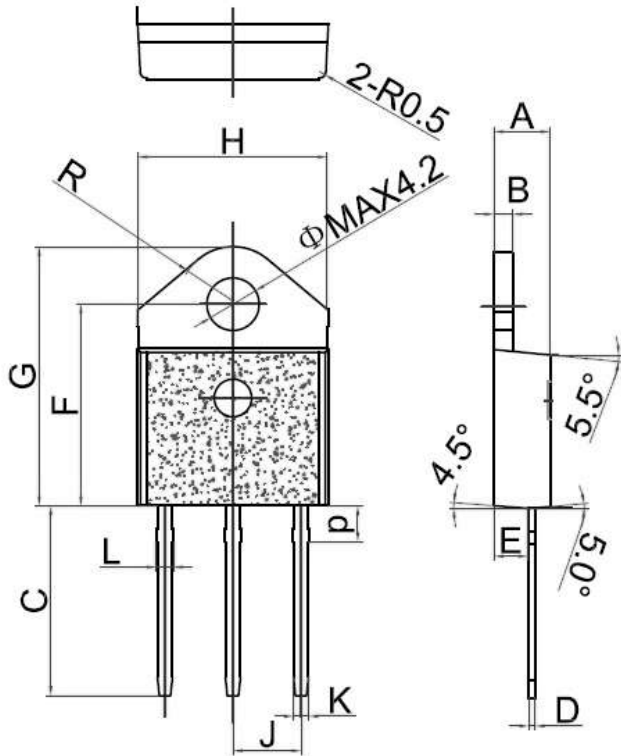
Static Characteristics

Symbol	Conditions	Quadrant	Value	Unit	
V_{TM}	$I_T=60A, t_p=380\mu s$	$T_j=25^\circ C$	MAX	1.55	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^\circ C$	MAX	10	μA
I_{RRM}		$T_j=125^\circ C$	MAX	5	mA

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{th(j-mb)}$	Junction to Case(AC) TOP3	0.9	$^\circ C/W$

● Package Outline Dimensions

TOP3(TO-218)


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.6	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	1.2		1.4	0.047		0.055
L	1.35		1.50	0.053		0.059
P	2.8		3.0	0.110		0.118
R		4.6			0.181	

● Marking

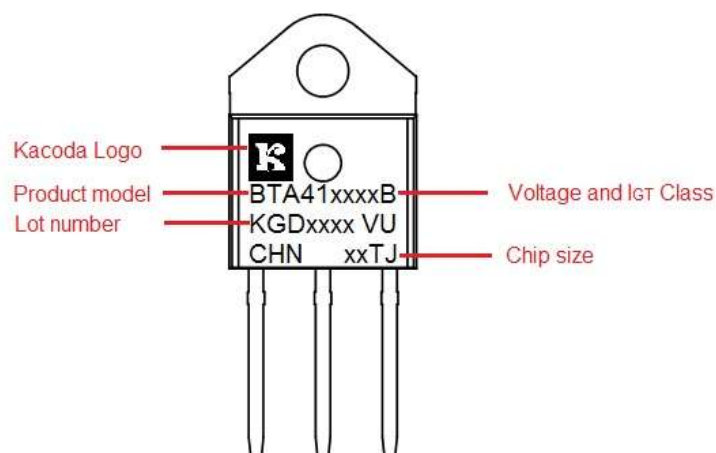


FIG.1:Maximum power dissipation versus RMS on-state current(full cycle)

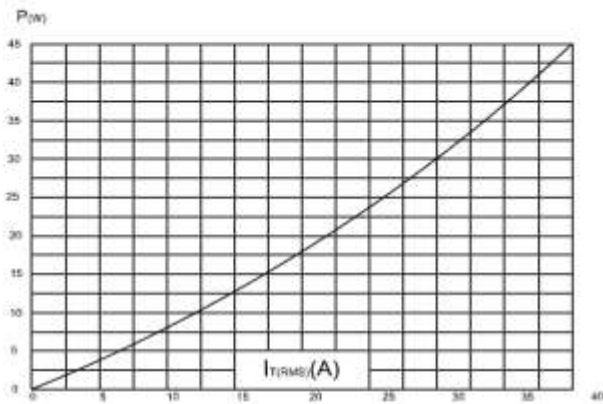


FIG.2:RMS on-state current versus case temperature(full cycle)

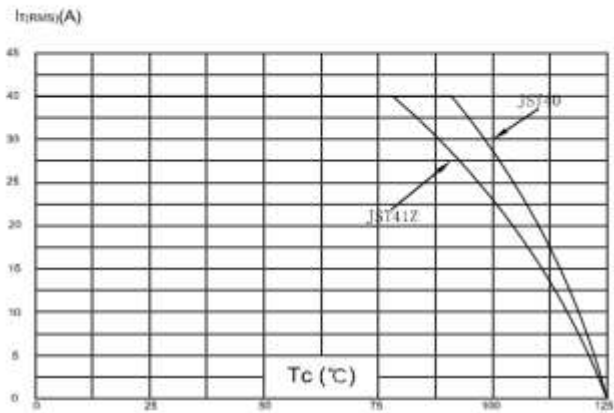


FIG.3:On-state characteristics (maximum values).

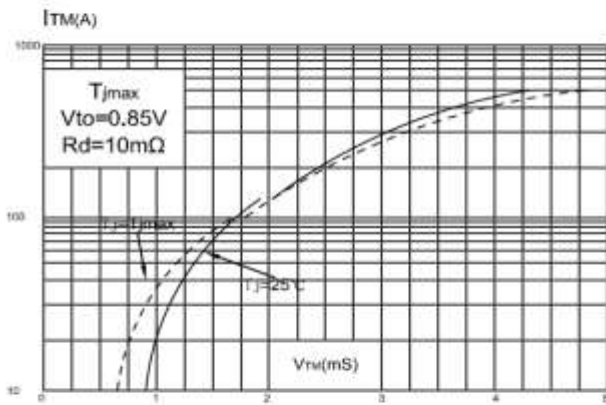


FIG.4:Surge peak on-state current versus number of cycles.

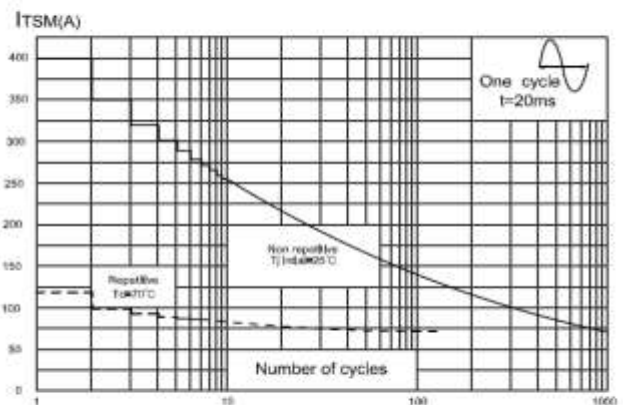


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

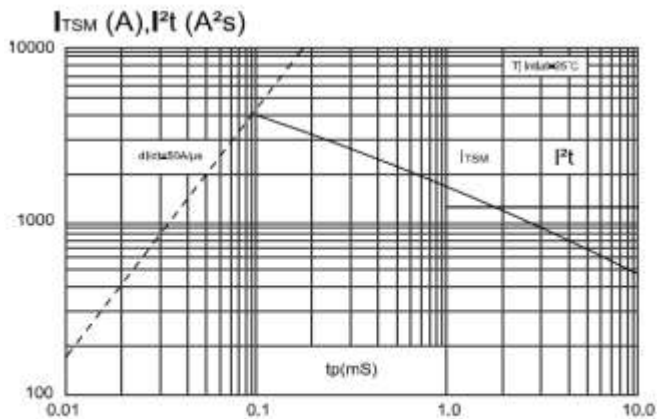


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)

