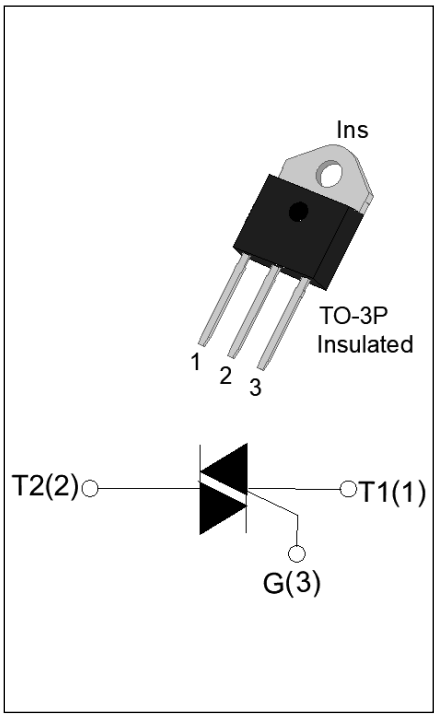
DESCRIPTION:

The BTA41-600B triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. By using an internal ceramic pad, BTA41-600B provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-3P is RoHS compliant.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III/IV}$	50/50/50/70	mA

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	℃
Operating junction temperature range		T_j	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)		V_{DRM}	600	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	600	V
RMS on-state current (T_C≤81℃)		$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)		I_{TSM}	420	A
Non repetitive surge peak on-state current (full cycle , t_p=16.6ms , T_j=25℃)			462	
I^2t value for fusing (t_p=10ms , T_j=25℃)		I^2t	1000	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT} , f=100Hz , T_j=125℃)	I - II	dI/dt	100	A/μs
	III-IV		50	
Peak gate current (t_p=20μs , T_j=125℃)		I_{GM}	8	A
Average gate power dissipation (T_j=125℃)		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	40	W

Peak pulse voltage (T_j=25℃; non-repetitive,off-state;FIG.7)	V_{pp}	0.9	kV

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	V_D=12V R_L=33Ω	Ⅰ-Ⅱ-Ⅲ	MAX.	50	mA
		Ⅳ		70	
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	V_D=V_{DRM} T_j=125℃ R_L=3.3kΩ	ALL	MIN.	0.2	V
I_L	I_G=1.2I_{GT}	Ⅰ-Ⅲ-Ⅳ	MAX.	80	mA
		Ⅱ		160	
I_H	I_T=500mA		MAX.	80	mA
dV/dt	V_D=400V Gate Open T_j=125℃		MIN.	1500	V/μs
(dV/dt)c	(dI/dt)c=20A/ms, T_j=125℃		MIN.	20	V/μs
t_{on}	I_G=80mA I_A=400mA I_R=40mA T_j=25℃		TYP.	10	μs
t_{off}				70	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=60A t_p=380μs	T_j=25℃	1.4	V
V_{TO}	Threshold voltage	T_j=125℃	0.73	V
R_D	Dynamic resistance	T_j=125℃	10	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=125℃	3	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.85	℃/W
$R_{th(j-a)}$	junction to ambient (AC)	50	℃/W

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

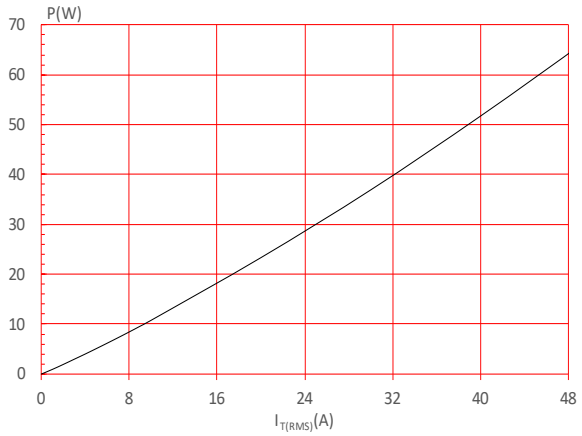


FIG.2: RMS on-state current versus case temperature

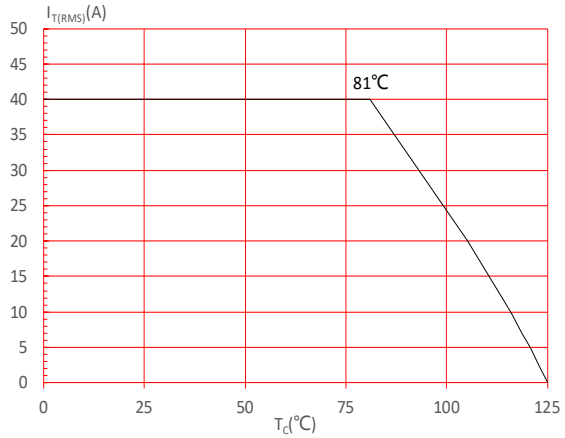


FIG.3: Surge peak on-state current versus number of cycles

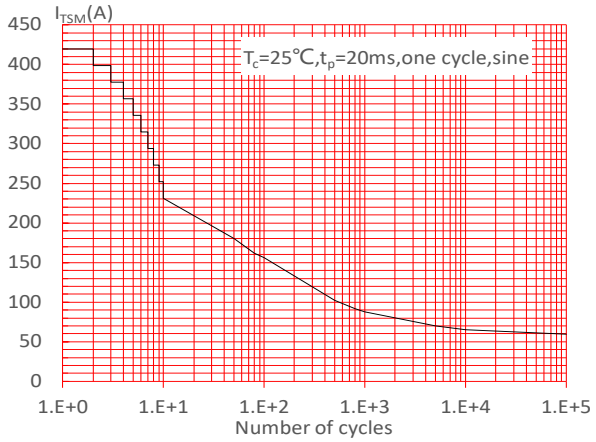


FIG.4: On-state characteristics

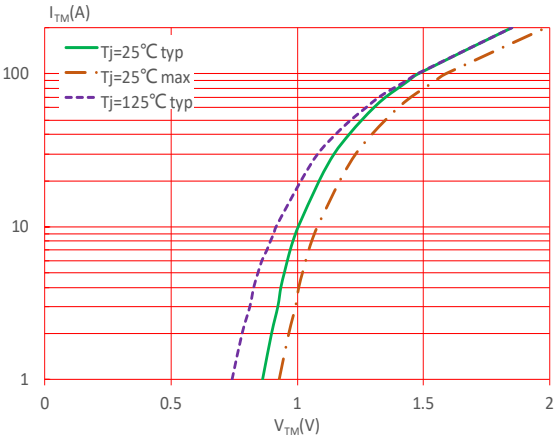


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<20ms, and corresponding value of I^2t
(Ⅰ-Ⅱ: dI/dt<100A/μs;Ⅲ-Ⅳ: dI/dt<50A/μs)

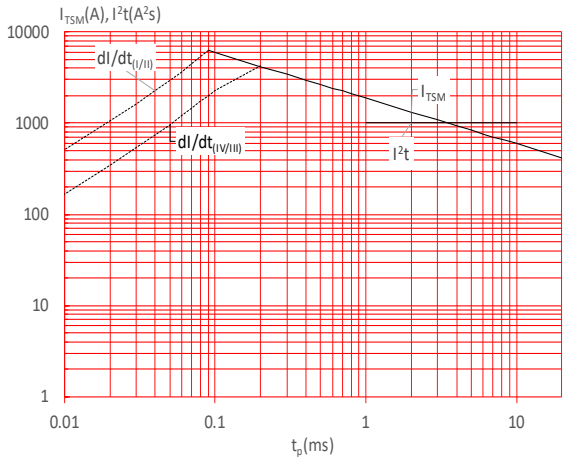


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

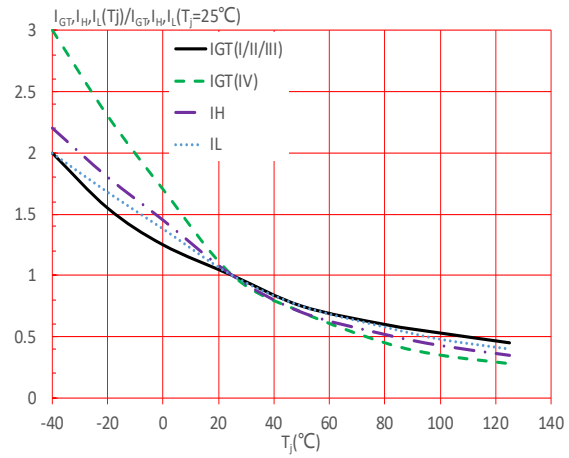
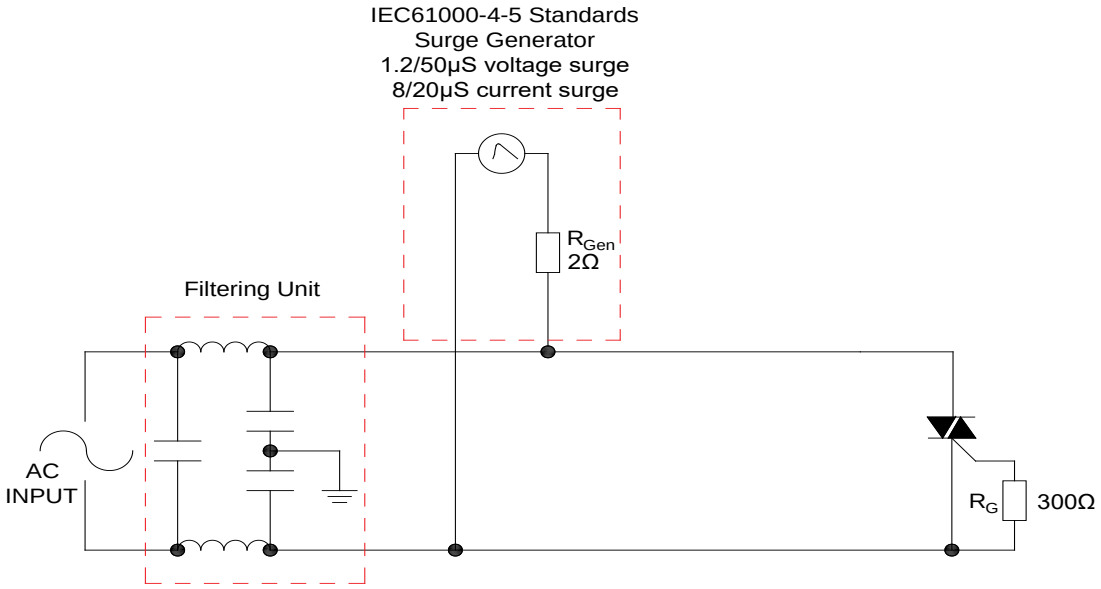
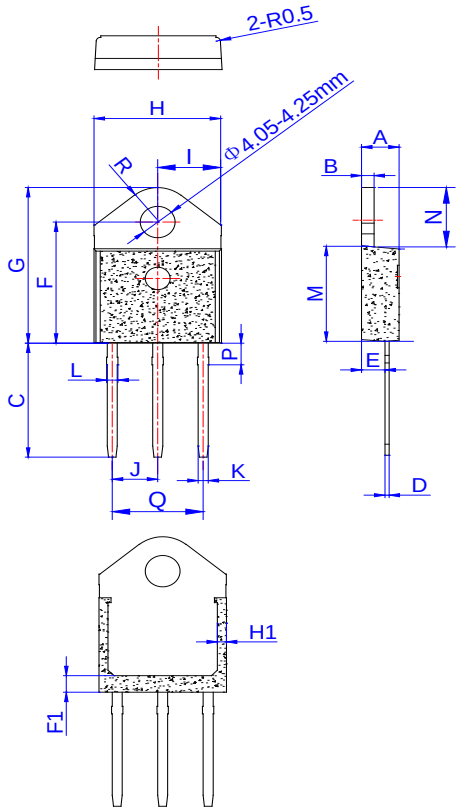


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

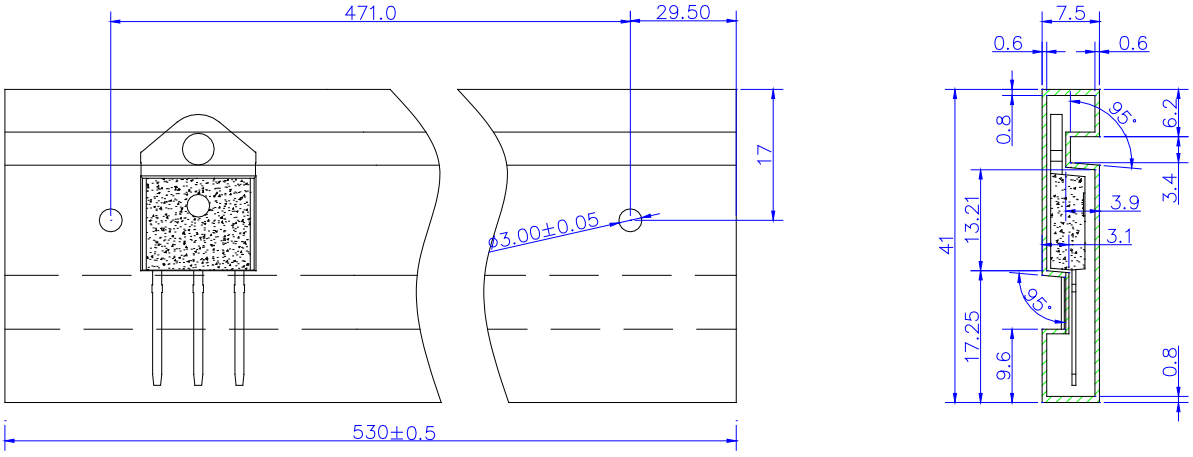


PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
F1	2.45		2.85	0.096		0.112
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
H1	1.10		1.50	0.043		0.059
I	7.25		7.65	0.285		0.301
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.25		1.45	0.049		0.057
M	12.37		12.77	0.487		0.503
N	7.80		8.20	0.307		0.323
P	2.80		3.00	0.110		0.118
Q	10.70		11.10	0.421		0.437
R		4.35			0.171	

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3P	TUBE	30	450	2,250