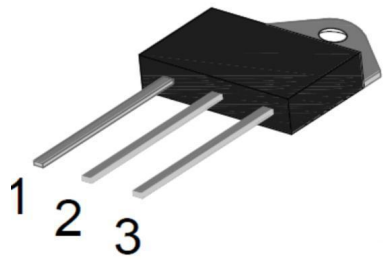
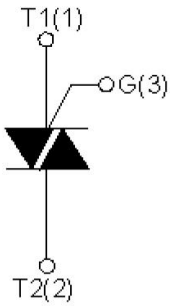
40A TRIACS





BTA41-600/800/1200/1600
TOP3
Plastic Package

BTA41 series triacs, with high ability to withstand the shock loading of large current, 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.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Storage junction temperature range	T_{stg}	-40 to 150	°C
Operating junction temperature range	T_j	-40 to 125	°C
Repetitive peak off-state voltage (T_j=25°C)	V_{DRM}	600/800/1200/1600	V
Repetitive peak reverse voltage (T_j=25°C)	V_{RRM}	600/800/1200/1600	V
Non repetitive surge peak Off-state voltage	V_{DSM}	V_{DRM} +100	V
Non repetitive peak reverse voltage	V_{RSM}	V_{RRM} +100	V
RMS on-state current (T_C=80°C)	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	400	A
I^2t value for fusing (t_p=10ms)	I^2t	880	A^2s
Critical rate of rise of on-state current (I_G =2×I_{GT})	dI/dt	50	A/µs
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°c unless otherwise specified)

3 Quadrants

PARAMETER	TEST CONDITIONS	SYMBOL	QUADRANT		VALUES	UNITS
Gate Trigger Current	VD =12V RL =33Ω	I_{GT}	I - II - III	MAX	50	mA
Gate Trigger Voltage		V_{GT}	I - II - III	MAX	1.3	V
Off-State Gate Voltage	V_D =V_{DRM} T_j =125°C R_L =3.3KΩ	V_{GD}	I - II - III	MIN	0.2	V
Latching Current	I_G =1.2I_{GT}	I_L	I - III	MAX	80	mA
			II		100	
Holding Current	I_T =100mA	I_H		MAX	60	mA
Critical Rate of Rise of Off-State Voltage	V_D=2/3V_{DRM} Gate Open T_j =125°C	dV/dt		MIN	1000	V/µs
	Without snubber T_j=125°C	(dV/dt)c		MIN	20	V/µs

4 Quadrants

PARAMETER	TEST CONDITIONS	SYMBOL	QUADRANT		VALUES	UNITS
Gate Trigger Current	V_D =12V R_L=33Ω	I_{GT}	I - II - III	MAX	50	mA
			IV		70	
Gate Trigger Voltage		V_{GT}	ALL	MAX	1.5	V
Off-State Gate Voltage	V_D =V_{DRM} T_j =125°C R_L =3.3KΩ	V_{GD}	ALL	MIN	0.2	V
Latching Current	I_G =1.2I_{GT}	I_L	I - III - IV	MAX	90	mA
			II		100	
Holding Current	I_T =100mA	I_H		MAX	80	mA
Critical Rate of Rise of Off-State Voltage	V_D=2/3V_{DRM} Gate Open T_j=125°C	dV/dt		MIN	500	V/µs
	Without snubber T_j=125°C	(dV/dt)c		MIN	30	V/µs

STATIC CHARACTERISTICS

PARAMETER	TEST CONDITIONS		SYMBOL	VALUE (MAX)	UNITS
On-State Voltage	I_{TM} =60A t_p=380µs	T_j=25°C	V_{TM}	1.55	V
Off-State Leakage Current	V_D =V_{DRM} V_R =V_{RRM}	T_j=25°C	I_{DRM}	10	µA
		T_j=125°C	I_{RRM}	5	mA

THERMAL RESISTANCES

PARAMETER	SYMBOL	VALUE (MAX)	UNITS
junction to case(AC)	$R_{th(j-c)}$	0.9	°C/W

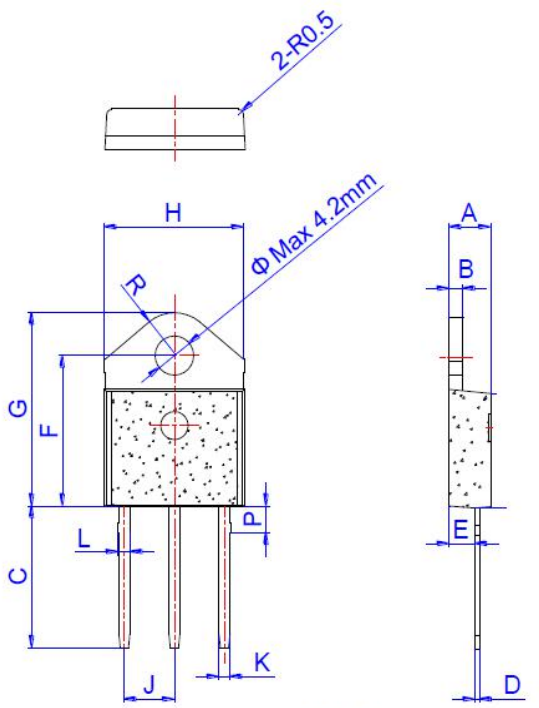
ORDERING INFORMATION

BTA 41 - 600 BW
(a) (b)

(a) = 600: VDRM/VRRM ≥ 600
= 800: VDRM/VRRM ≥ 800
= 1200: VDRM/VRRM ≥ 1200
= 1600: VDRM/VRRM ≥ 1600

(b) = BW: $I_{GT3} \leq 50mA$
= B: $I_{GT1-3} \leq 50mA$ $I_{GT4} \leq 70mA$

TOP3 PACKAGE OUTLINE AND DIMENSION



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
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

CHARACTERISTIC CURVES

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

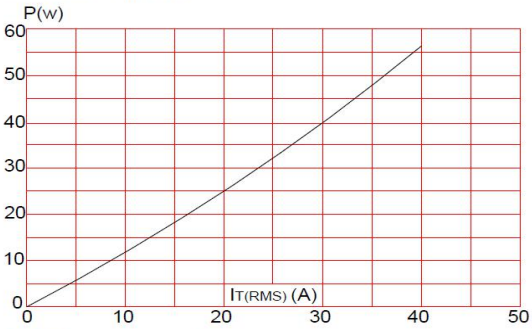


FIG.2: RMS on-state current versus case temperature

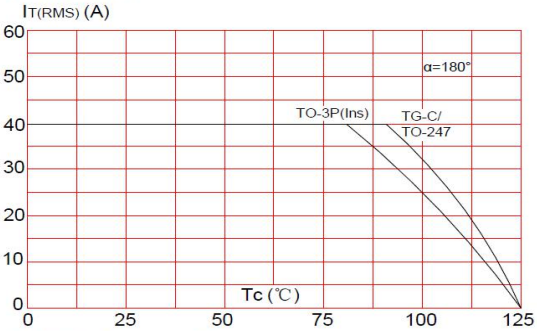


FIG.3: Surge peak on-state current versus number of cycles

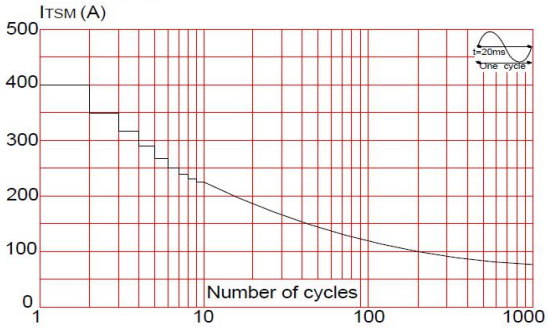


FIG.4: On-state characteristics (maximum values)

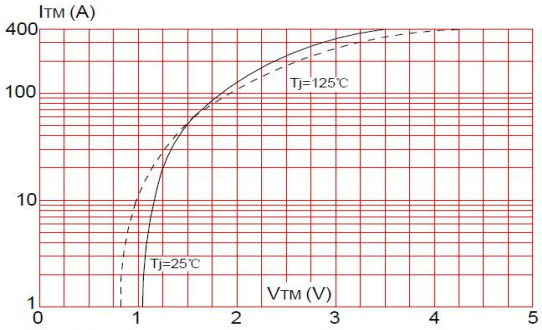


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 50A/µs)

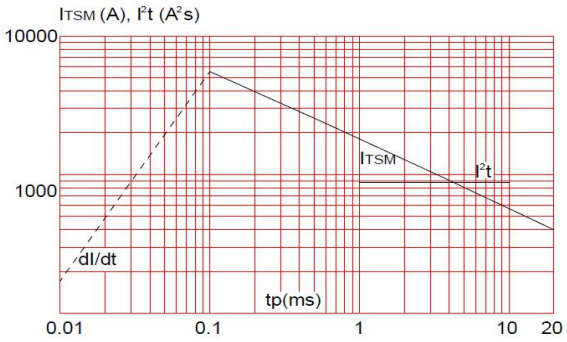
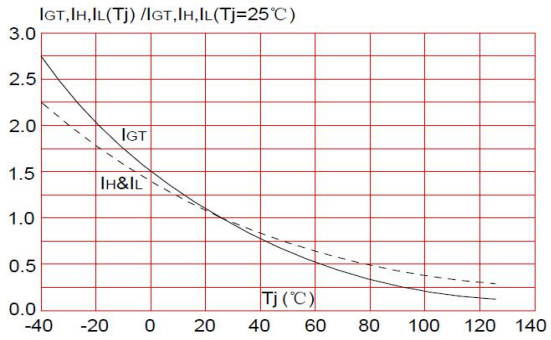


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Customer Notes

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119
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