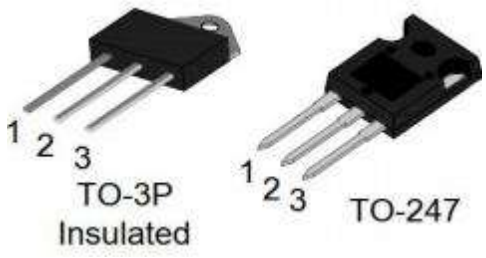
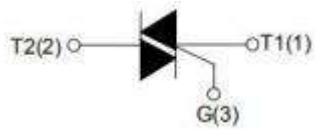
BTA41 Series 40A Triacs

DESCRIPTION:

with high ability to withstand theshock loading of large current,BTA41 series 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.BTA41 provides insulation voltage rated at 2500V RMS from all three terminals to external heatsink.





MAIN FEATURES

symbol	value	unit
$I_{T(RMS)}$	40.0	A
V_{DRM}/V_{RRM}	800/1200/1600	V

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}	800/1200/1600	V
Repetitive peak reverse voltage (T_j=25℃)	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 (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

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ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

3 Quadrants：

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	V_D=12V, R_L=33Ω	I -II-III	MAX	50	mA
V_{GT}				1.3	V
V_{GD}	V_D=V_{DRM} T_j=125℃	I -II-III	MIN	0.2	V
I_H	I_T=100mA		MAX	60	mA
I_L	I_G=1.2I_{GT}	I -III	MAX	80	mA
		II		100	
dV/dt	V_D=2/3V_{DRM} T_j=125℃ Gate open		MIN	1000	V/μs

4 Quadrants：

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	V_D=12V, R_L=33Ω	I -II-III	MAX	50	mA
		IV		100	mA
V_{GT}		ALL		1.3	V
V_{GD}	V_D=V_{DRM} T_j=125℃	ALL	MIN	0.2	V
I_H	I_T=100mA		MAX	60	mA
I_L	I_G=1.2I_{GT}	I -III-IV	MAX	80	mA
		II		100	
dV/dt	V_D=2/3V_{DRM} T_j=125℃ Gate open		MIN	1000	V/μs

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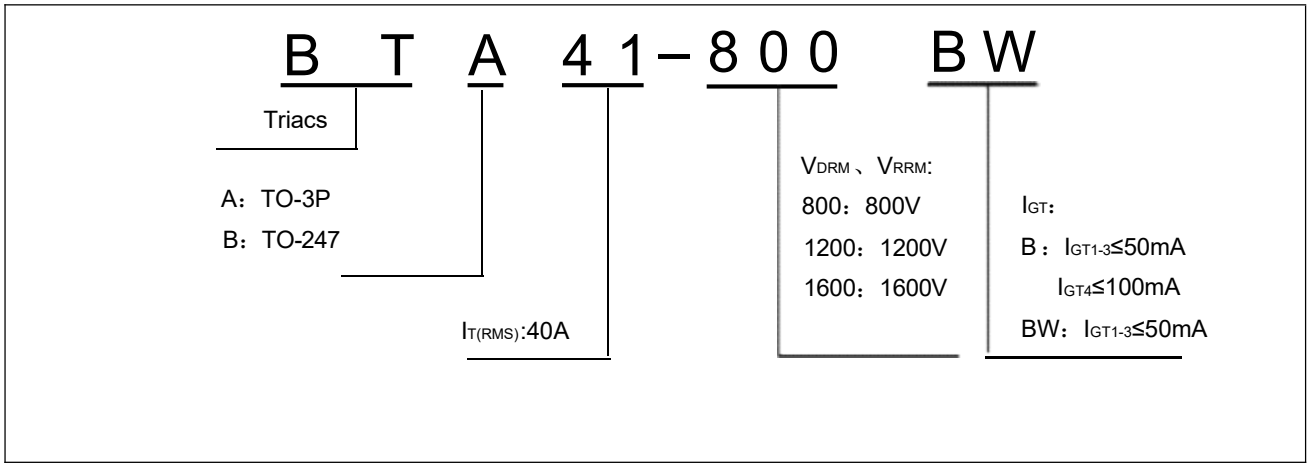
STATIC CHARACTERISTICS

Symbol	Test Condition			Value	Unit
V_{TM}	I_{TM}=60A t_p=380μs	T_j=25℃	MAX	1.55	V
I_{DRM} I_{RRM}	V_{DRM}= V_{RRM}	T_j=25℃	MAX	10	μA
		T_j=125℃		5	mA

THERMAL RESISTANCES

Symbol	Test Condition		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	1.1	℃/W
		TO-247(Non-Ins)	0.91	

ORDERING INFORMATION



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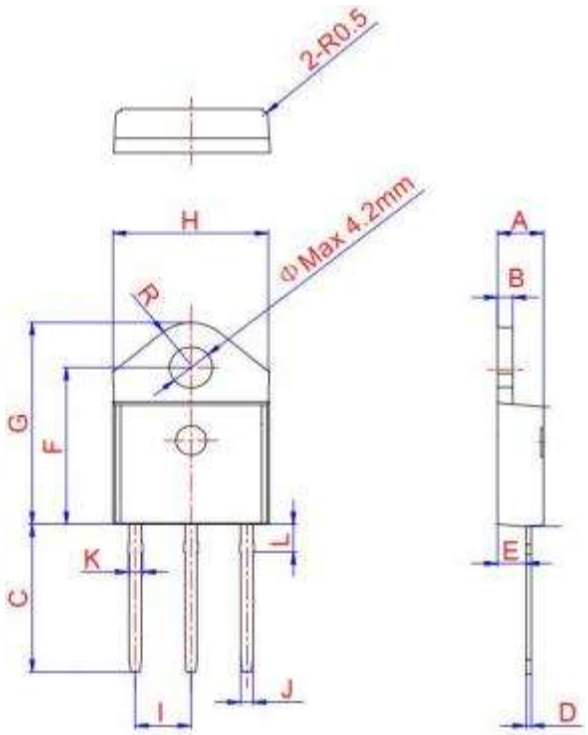
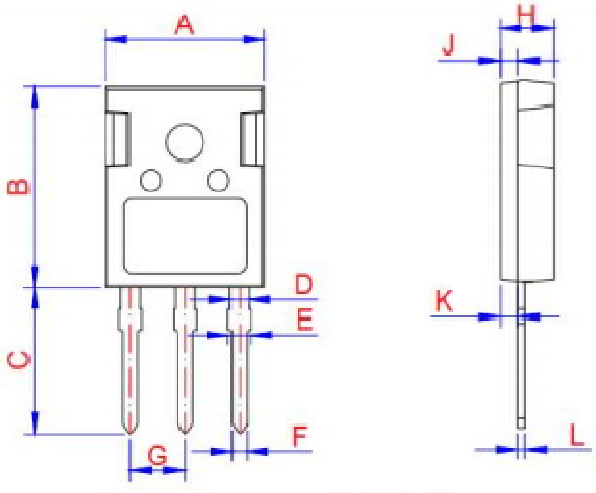
PACKAGE MECHANICAL DATA



TO-3P Ins

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	



TO-247J

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

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

P(w)

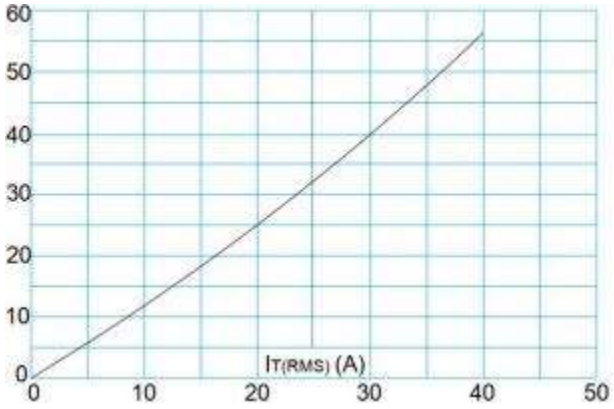

FIG.2: RMS on-state current versus case temperature

$I_{T(RMS)}$(A)

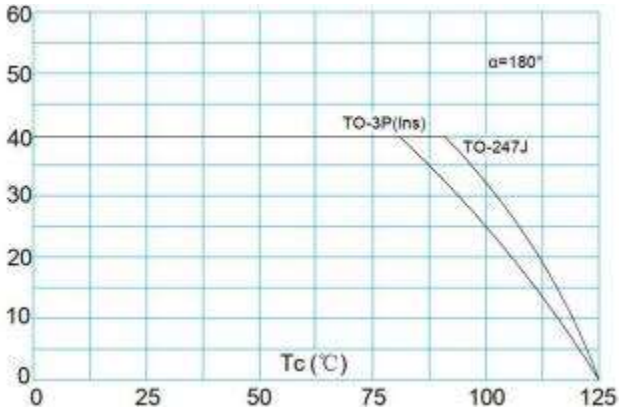

FIG.3: Surge peak on-state current versus number of cycles

I_{TSM}(A)

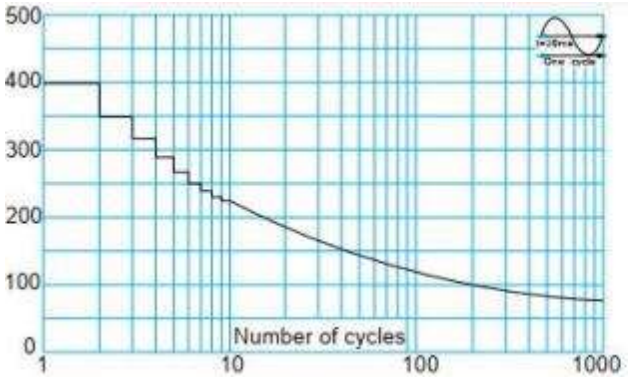

FIG.4: On-state characteristics (maximum values)

I_{TM}(A)

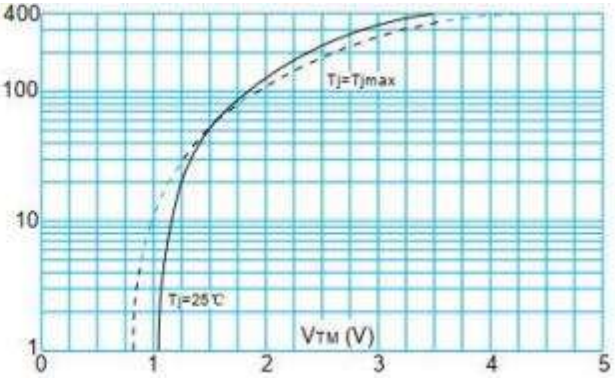

FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (Ⅰ-Ⅱ-Ⅲ:dI/dt < 50A/μs;Ⅳ:dI/dt < 10A/μs)

I_{TSM}(A),I^2t（A^2s）

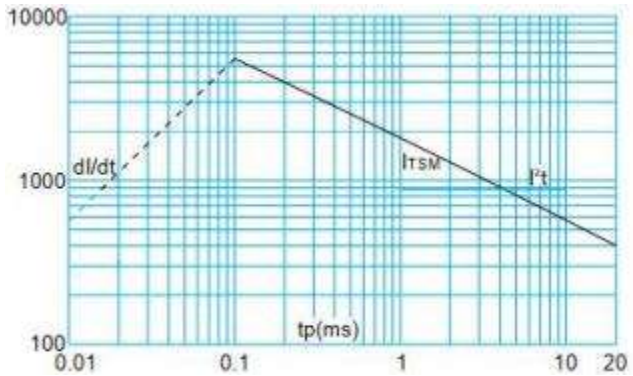

FIG.6: Relative variations of gate trigger current,holding current and latching current versus junction temperature

I_{GT},I_H,I_L(Tj)/I_{GT},I_H,I_L(Tj=25℃)