

TO-3PK Plastic-Encapsulate Thyristors

BTA41 3Q TRIACs

MAIN CHARACTERISTICS

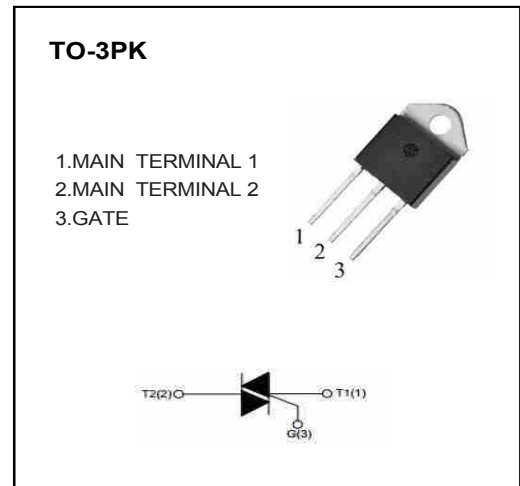
$I_{T(RMS)}$		40A
V_{DRM}/V_{RRM}	BTA41-600(C/B)W	600V
	BTA41-800(C/B)W	800V
V_{TM}		1.55V

FEATURES

- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance
- High dV/dt and dI/dt
- Insulating Voltage=2500V_(RMS)

APPLICATIONS

- Heater Control
- Motor Speed Controller
- Mixer



MARKING



BTA41:Series Code
 600CW:Depends on V_{DRM}
 and IGT
 XXX:Internal Code

ABSOLUTE RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit	
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^\circ\text{C}$	BTA41-600(C/B)W	600	V
			BTA41-800(C/B)W	800	V
$I_{T(RMS)}$	RMS on-state current	TO-3PK($T_c \leq 80^\circ\text{C}$), Fig. 1,2	40	A	
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave , $T_j(\text{init})=25^\circ\text{C}$, $t_p=20\text{ms}$; Fig. 3,5	400	A	
I^2t	I^2t value	$t_p=10\text{ms}$	1000	A ² s	
dI_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^\circ\text{C}$	I - II -III	50	A/ μs
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$	8	A	
$P_{G(AV)}$	Average gate power	$T_j=125^\circ\text{C}$	1	W	
T_{STG}	Storage temperature		-40~+150	°C	
T_j	Operating junction temperature		-40~+125		

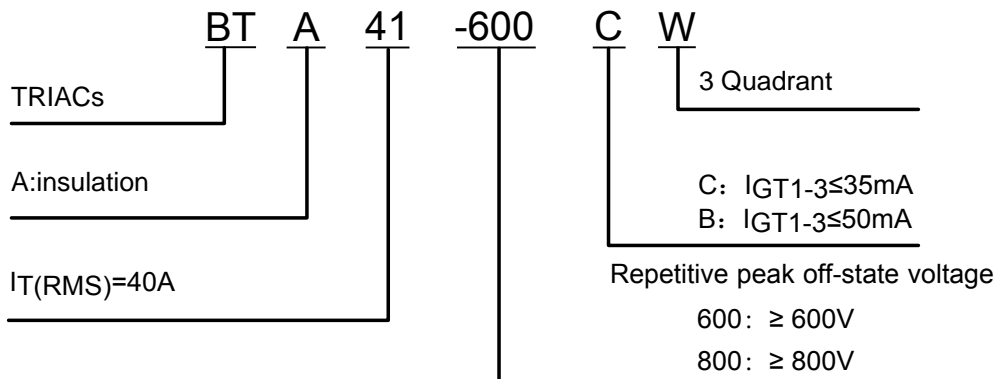
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value		Unit	
			CW	BW		
I _{GT}	Gate trigger current	V _D =12V, R _L =33Ω, T _j =25°C, Fig. 6	I - II - III	≤35	≤50	mA
V _{GT}	Gate trigger voltage	T _j =25°C, Fig. 6	I - II - III	≤1.3		V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , T _j =125°C		≥0.2		V
I _H	Holding current	I _T =500mA, Fig. 6		≤50	≤75	mA
I _L	Latching current	I _G =1.2I _{GT} , Fig. 6	I - III	≤60	≤80	mA
			II	≤80	≤100	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , Gate Open T _j =125°C		≥500	≥1000	V/μs
V _{TM}	On-state Voltage	I _{TM} =60A, t _p =380μs, Fig. 4		≤1.55		V
I _{DRM} / I _{RPM}	Repetitive peak off-state current	V _D =V _{DRM} /V _{RPM} , T _j =25°C		≤5	≤5	μA
		V _D =V _{DRM} /V _{RPM} , T _j =125°C		≤4.0	≤4.0	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case (AC)	TO-3PK	0.9 °C/W
R _{th} (j-a)	Junction to ambient	TO-3PK	50 °C/W

PART NUMBER



CHARACTERISTICS CURVES

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

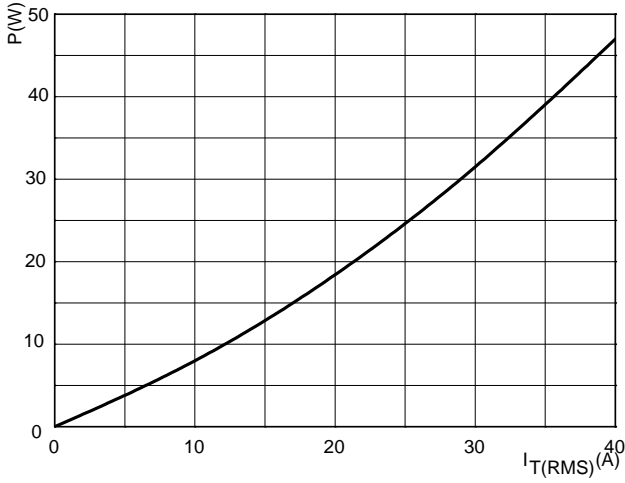


FIG.2: RMS on-state current versus case temperature (full cycle)

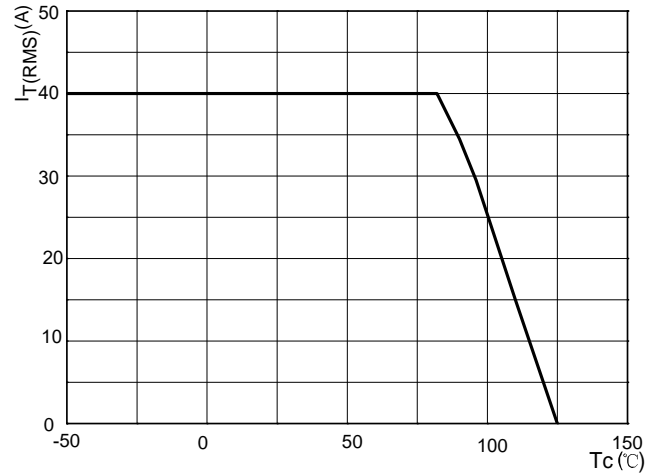


FIG.3: Surge peak on-state current versus number of cycles

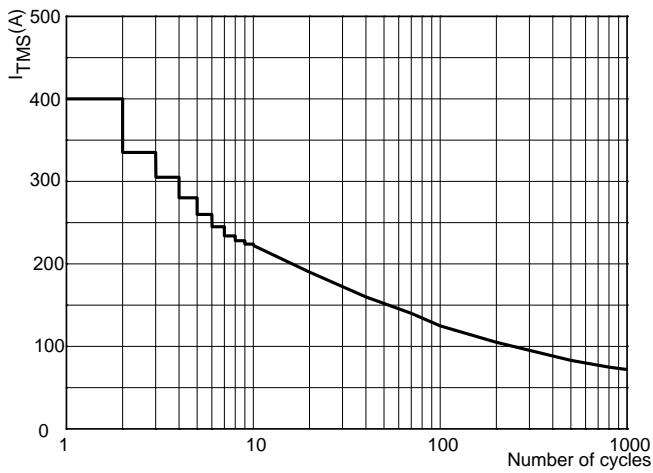


FIG.4: On-state characteristics (maximum values)

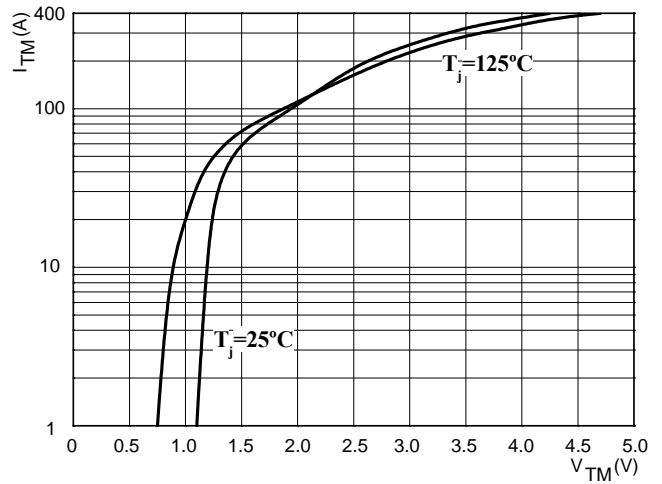


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

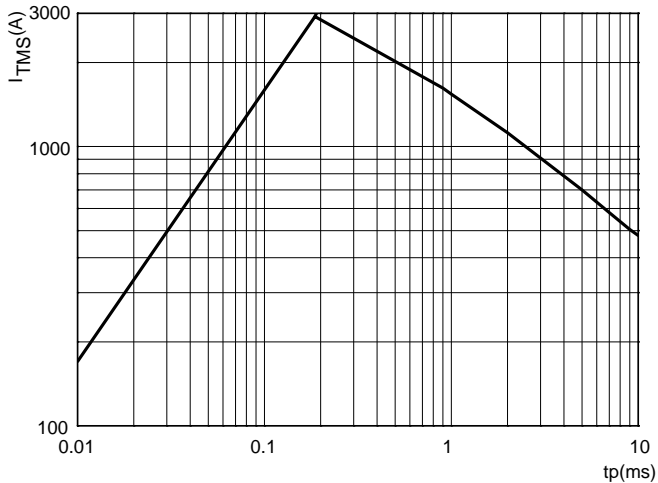
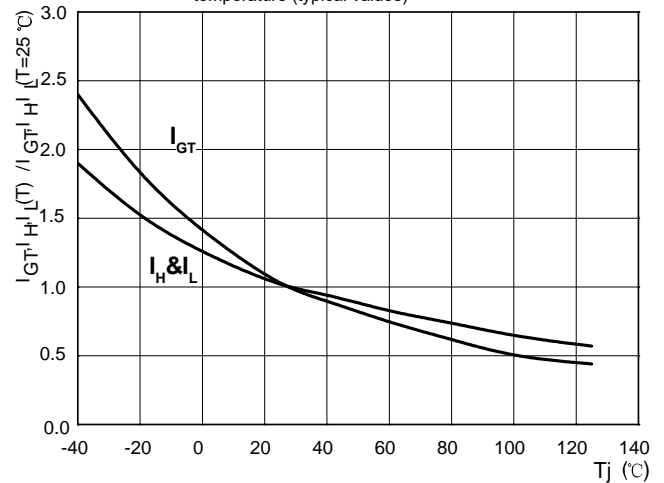
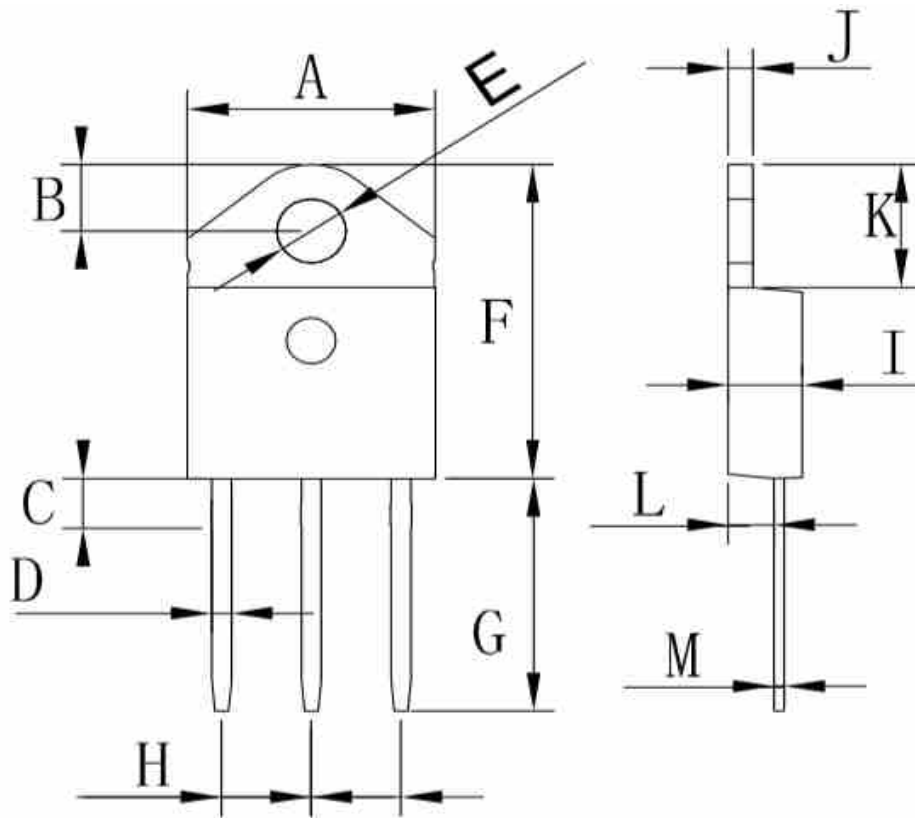


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-3PK PACKAGE OUTLINE DIMENSIONS



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	14.9	15.35	0.586	0.604
B	4.1	4.65	0.161	0.183
C	2.5	3.2	0.098	0.125
D	1.12	1.32	0.044	0.051
E	4.12	4.31	0.162	0.169
F	20.21	20.75	0.795	0.816
G	15.02	15.55	0.591	0.612
H	5.35	5.62	0.210	0.221
I	4.38	4.65	0.172	0.183
J	1.42	1.62	0.055	0.063
K	7.85	8.22	0.309	0.323
L	2.71	2.92	0.106	0.114
M	0.52	0.68	0.020	0.026