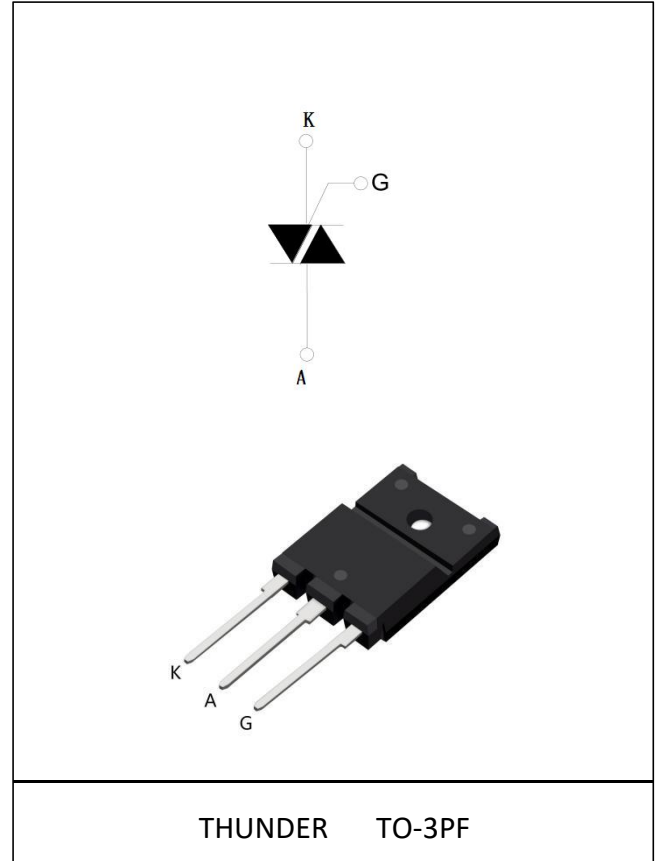


Silicon Controlled Rectifier

Description:

BTA41-1600 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 performance, 3 quadrants products especially recommended for use on inductive load.

Product Summary	
V_{DRM}/V_{RRM}	1600 V
$I_{T(RMS)}$	41A
I_{GT}	50mA



Features:

- On-state rms current:41A
- Blocking voltage:1600V
- Gate current:50mA

Applications:

- Solid state relay
- Battery charging system
- Uninterruptible power supply
- Variable speed motor drive
- Industrial welding systems
- By pass AC switch

a) Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
T_{stg}	Storage junction temperature range	-40-150	°C
T_j	Operating Junction Temperature	-40-150	°C
V_{DRM}	Repetitive peak off-state voltage($T_j=25^{\circ}C$)	1600	V
V_{RRM}	Repetitive peak reverse voltage($T_j=25^{\circ}C$)	1600	V
V_{DSM}	Non repetitive surge peak off-state voltage	1700	V
V_{RSM}	Non repetitive peak reverse voltage	1700	V
$I_{T(RMS)}$	RMS on-state current($T_c=25^{\circ}C$)	41	A
I_{TSM}	Non repetitive surge peak on-state voltage($tp=10ms$)	410	A
I^2t	I^2t value for fusing ($tp=10ms$)	800	A ² S
di/dt	Critical rate of rise of on-state current($I_G=2*I_{GT}$)	50	A/ μ S
I_{GM}	Peak gate current	4	A
$P_{G(AV)}$	Average gate power dissipation	1	W
P_{GM}	Peak gate power	10	

Electrical Parameters($T_j=25^{\circ}C$ unless otherwise specified)
b)Quadrants

Symbol	Test Conditions	Quadrant	Min	Typ	Max	Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II -III			50	mA
V_{GT}		I - II -III			1.3	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}C$ $R_L=3.3k\Omega$	I - II -III	0.2			V
I_L	$I_G=1.2I_{GT}$	I -III			80	mA
		II			100	
I_H	$I_T=100mA$				60	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}C$		1000			V/ μ s
$(dv/dt)/c$	Without snubber $T_j=125^{\circ}C$		20			V/ μ s

c)Quadrants

Symbol	Test Conditions	Quadrant	Min	Typ	Max	Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II -III			50	mA
		IV			70	
V_{GT}		ALL			1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}C$ $R_L=3.3k\Omega$	ALL	0.2			V
I_L	$I_G=1.2I_{GT}$	I - II -III			90	mA
		II			100	
I_H	$I_T=100mA$				80	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}C$		500			V/ μ s
$(dv/dt)/c$	Without snubber $T_j=125^{\circ}C$		20			V/ μ s

Thermal characteristics

Parameter	Symbol	Typ.	Units
Junction-to-Case	$R_{th(j-c)}(TO-247)$	0.5	$^{\circ}C/W$
Junction-to-Case	$R_{th(j-c)}(TO-3PF)$	1.0	$^{\circ}C/W$

Static characteristics

Symbol	Symbol	Typ.	Units
V_{TM}	$I_{TM}=60A$ $t_p=380\mu s$	1.55	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	10	μA
I_{RRM}		5	mA

Typical Performance Characteristics

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

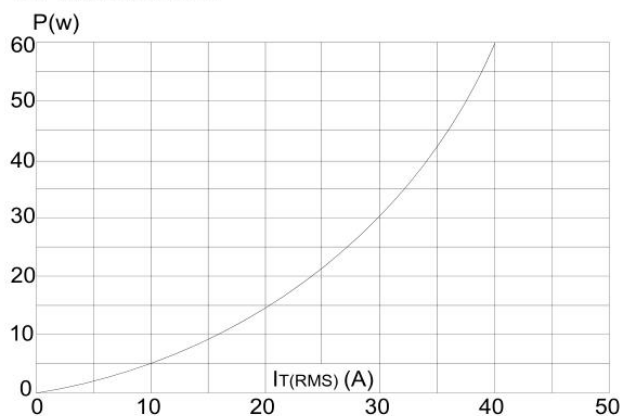


FIG.2: RMS on-state current versus case temperature

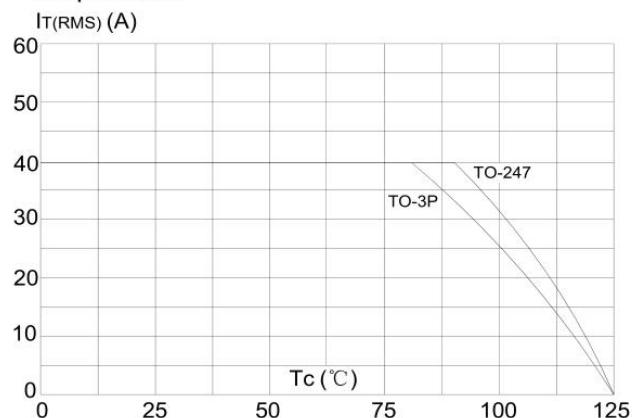


FIG.3: Surge peak on-state current versus number of cycles

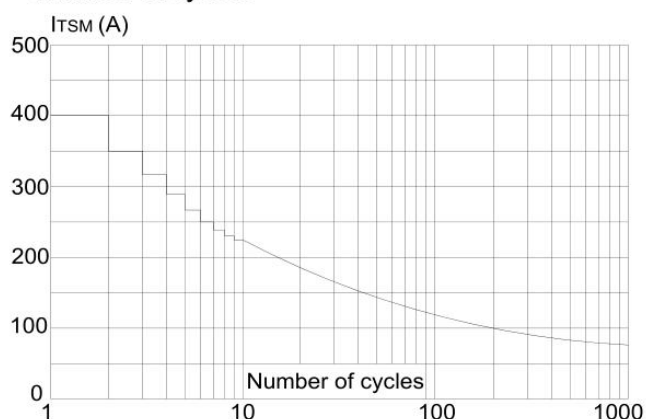


FIG.4: On-state characteristics (maximum values)

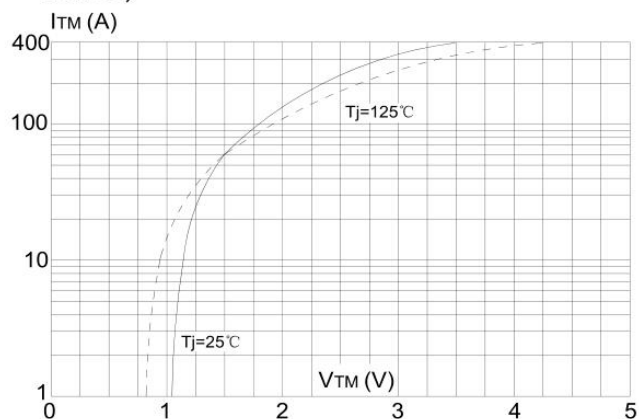


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

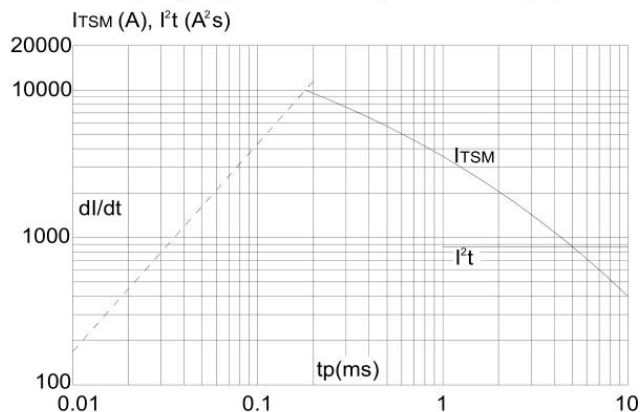
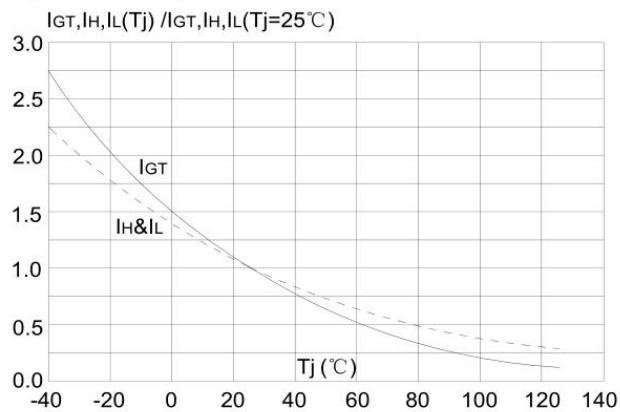


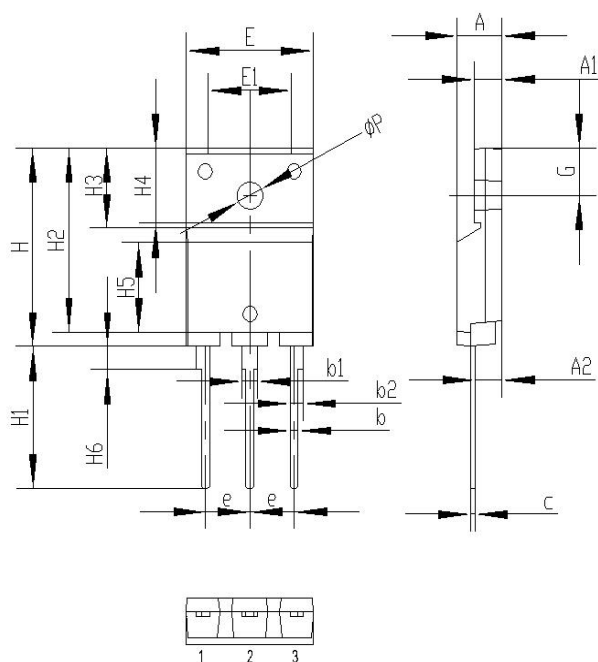
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Package Information

TO-3PF PACKAGE

基本尺寸



Symbol	单位 mm		
	Min	Nom	Max
A	5.30	5.50	5.70
A1	3.30	3.50	3.70
A2	3.10	3.30	3.50
b	0.80	1.0	1.20
b1	1.90	2.10	2.30
b2	1.60	1.80	2.00
c	0.40	0.50	0.60
e	5.25	5.45	5.65
E	15.4	15.6	15.8
E1	10.0	10.2	10.4
H	22.8	23.0	23.2
H1	16.0	16.5	17.0
H2	21.2	21.4	21.6
H3	9.10	9.30	9.50
H4	8.40	8.60	8.80
H5	10.1	10.3	10.5
H6	2.75	2.90	3.05
G	5.3	5.5	5.7
ΦP	3.00	3.20	3.40

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