

GENERAL DESCRIPTION

Sensitive triggering SCR is suitable for the application where gate current limited such as small motor control, gatedriverfor large SCR, sensing and detecting circuits.

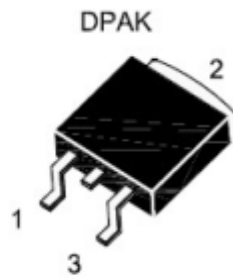
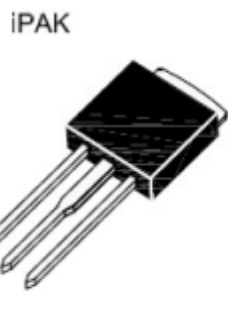
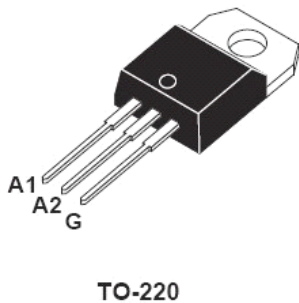
FEATURES

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_T(RMS)$)= 4A)
- ◆ Low On-State Voltage (1.5V(Typ.)@ ITM)
- ◆ Available with tape & reel

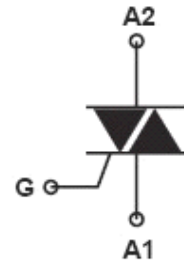
MAIN CHARACTERISTICS

V_{DRM}, V_{RRM}	Repetitive peak off-state voltages	600/800	V
$I_T(RMS)$	R.M.S on-state current	4	A
I_{TSM}	Surge On-State Current	tp=20ms	35
		tp=16.7ms	38

PIN CONFIGURATION



SYMBOL



Absolute Maximum Ratings ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Condition	Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	-	600/800	V
$I_T(RMS)$	R.M.S On-State Current	All Conduction Angle	4	A
I_{TSM}	Surge On-State Current	tp=20ms	35	A
		tp=16.7ms	38	
I^2t	I^2t for Fusing	tp= 10ms	6	A^2s
di/dt	critical rate of rise of on-state current	-	50	$A/\mu S$
$P_{G(AV)}$	Forward Average Gate Power Dissipation	-	0.5	W
I_{GM}	Forward Peak Gate Current	-	4	A
T_J	Operating Junction Temperature	-	- 40 ~ 125	$^\circ\text{C}$
T_{STG}	Storage Temperature	-	- 40 ~ 150	$^\circ\text{C}$

Electrical Characteristics ($T_c = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Items	Conditions	Ratings					Unit	
			SW	CW	BW	D	E		
IDRM	Repetitive Peak Off-State Current	$V_D = V_{DRM}$ Single Phase, Half Wave $T_J = 125\text{ }^\circ\text{C}$	1					mA	
VTM	Peak On-State Voltage	$I_T = 5.5\text{A}$, Inst. Measurement	≤ 1.55					V	
IGT	Gate Trigger Current	$V_D = 12\text{ V(DC)}$, $R_L = 30\Omega$	I II III	≤ 10	≤ 25	≤ 50	≤ 5	≤ 10	mA
			IV	/	/	/	≤ 10	≤ 25	
VGT	Gate Trigger Voltage	$V_D = 12\text{ V(DC)}$, $R_L = 30\Omega$	≤ 1.3					V	
VGD	Non-Trigger Gate Voltage	$V_D = 2/3 V_{DRM}$, $T_J = 125\text{ }^\circ\text{C}$	≥ 0.2					V	
IG	Gate Current	$I_G = 1.2 I_{GT}$	IL(I III)	≤ 25	≤ 50	≤ 70	≤ 10	≤ 15	V/uS
			IL(IV)	/	/	/	≤ 10	≤ 15	
			IL(II)	≤ 30	≤ 60	≤ 80	≤ 15	≤ 20	
dv/dt	Critical Rate of Rise Off-State Voltage	$V_D = 2/3 V_{DRM}$, $T_J = 125\text{ }^\circ\text{C}$, $R_{GK} = 3.3\text{K}\Omega$	≥ 40	≥ 400	≥ 1000	≥ 5	≥ 50	V	
IH	Holding Current	$V_D = 12\text{ V(DC)}$, $I_T = 0.2\text{A}$	≤ 10					mA	
Rth (j-c)	Thermal Impedance	Junction to case	60					$^\circ\text{C/W}$	
Rth (j-a)	Thermal Impedance	Junction to Ambient	150					$^\circ\text{C/W}$	

Notes :

1. Pulse Width $\leq 1.0\text{ ms}$, Duty cycle $\leq 1\%$
2. Does not include RGK in measurement.

Fig. 1: Maximum RMS power dissipation versus RMS on-state current (F = 50Hz). (Curves are cut off by (di/dt)c limitation)

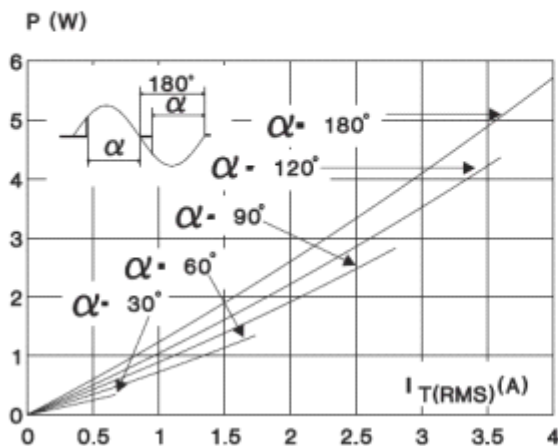
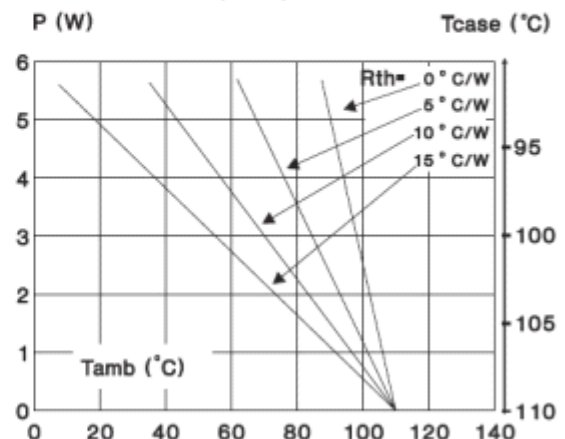


Fig. 2: Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact (BTA).



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Fig. 3: Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTB).

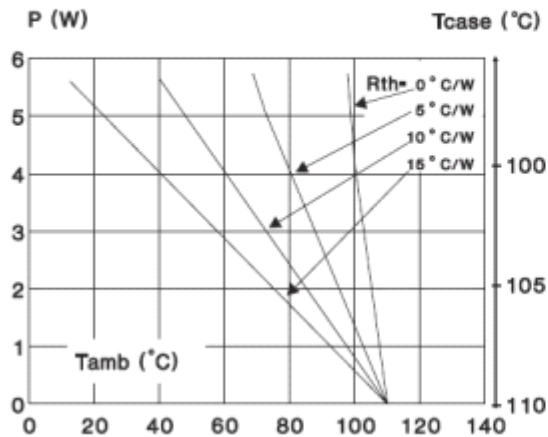


Fig. 5: Relative variation of thermal impedance versus pulse duration.

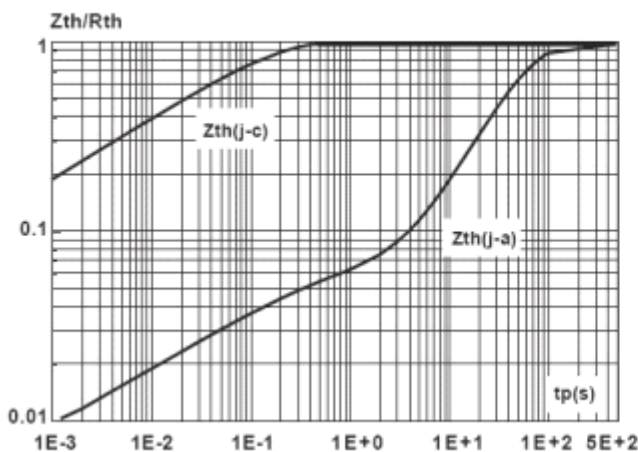


Fig. 7: Non repetitive surge peak on-state current versus number of cycles.

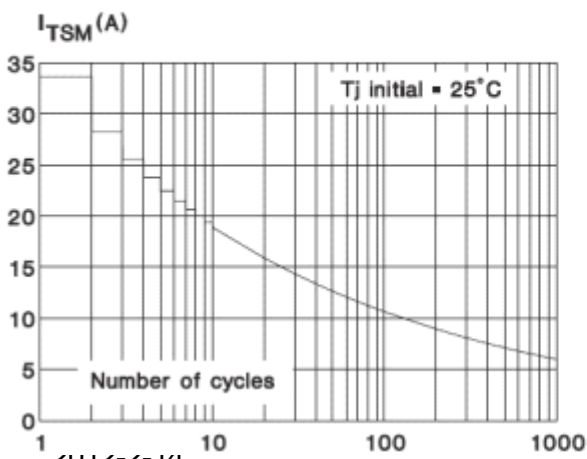


Fig. 4: RMS on-state current versus case temperature.

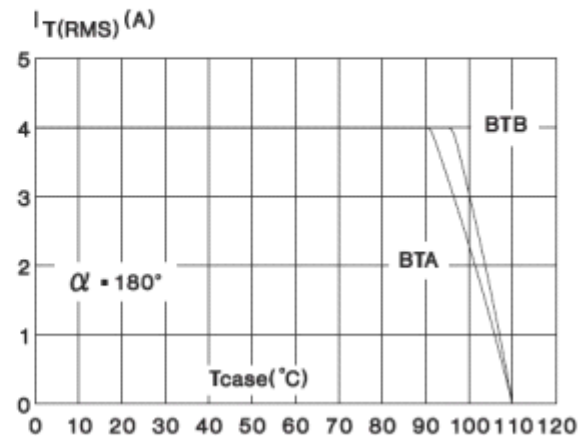


Fig. 6: Relative variation of gate trigger current and holding current versus junction temperature.

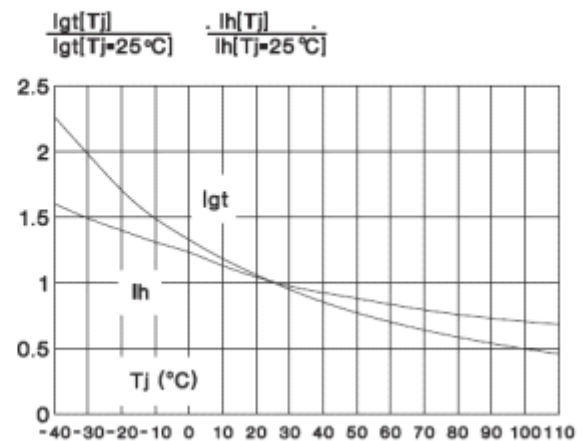


Fig. 8: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10ms$, and corresponding value of I^2t .

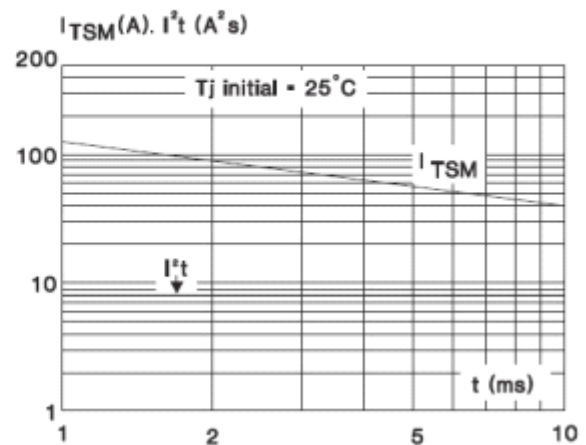
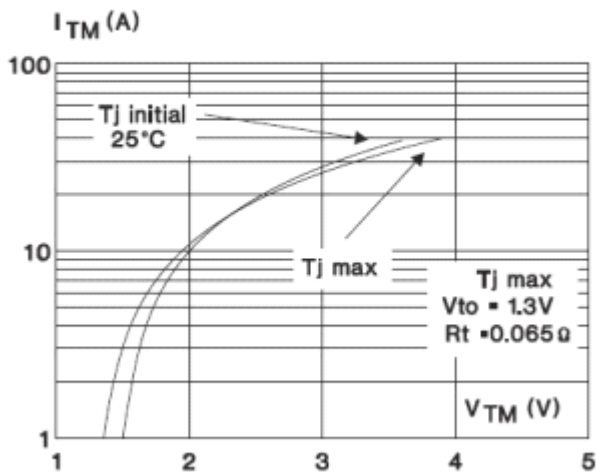
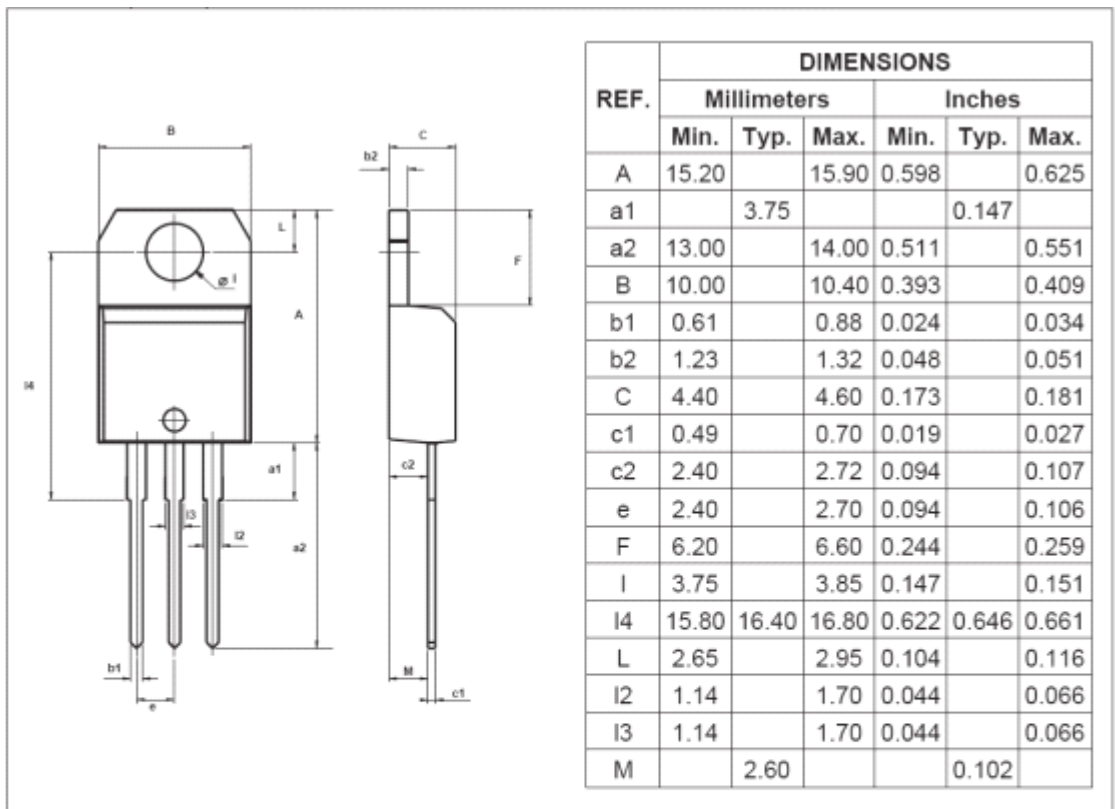


Fig. 9: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA **TO-220**

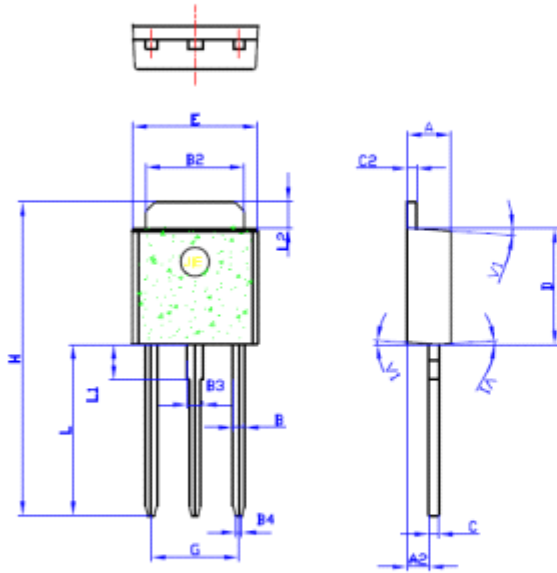


OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BTA/BTB04-xxxxy	BTA/BTB04-xxxxy	TO-220AB	2.3 g	250	Bulk

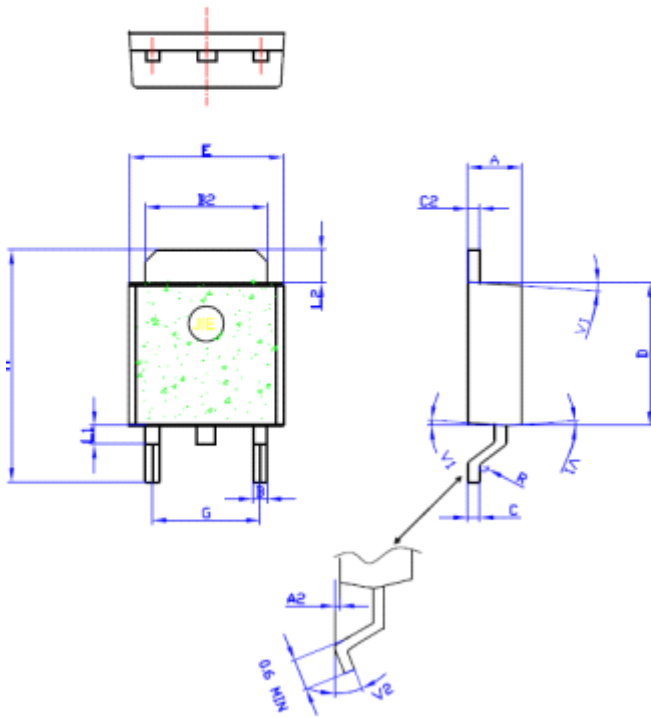
- Epoxy meets UL94,V0
- Cooling method: C
- Recommended torque value: 0.8 m.N.
- Maximum torque value: 1 m.N.

iPAK



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.9		1.1	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.4		4.7	0.173		0.185
H	16.0		16.7	0.630		0.658
L	8.9		9.4	0.350		0.370
L1	1.8		1.9	0.071		0.075
L2	1.37		1.5	0.054		0.059
V1		4°			4°	

DPAK



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.1	0.368		0.397
L1		0.8			0.031	
L2	1.37		1.5	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

NOTE

1. Semiwill Semiconductor Inc. sales its product either through direct sales or sales agent, thus, for customers, when ordering , please check with our company.
2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Semiwill Semiconductor Inc. reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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