

<p><b>■ 产品特征</b></p> <p>PNPN四层结构硅芯片              三象限、三端双向可控硅开关              双台面玻璃钝化工艺              多层金属化电极提高瞬间浪涌电流承受力              较高阻断电压              较强抗电流冲击能力</p> <p><b>■ 应用领域</b></p> <p>自动化电气设备              交流/直流电源变换              电加热控制              无功补偿              复合开关              大功率捕鱼器              电机马达调速控制电路</p> <div style="background-color: #e0f7fa; padding: 5px; margin-top: 10px;">                 可代替型号:                  BCR30AM-12L                  30TPS08、30TPS12                  40TPS08、40TPS12                  60TPS08、60TPS12                  TM2561B-L、TM2580B-L                  TM3561B-L、TM3580B-L                  TM5561B-L、TM5580B-L                  TMG25D80L、T25D8L                  TMG35D80L、T35D8L                  TMG55D80L、T55D8L             </div>	 <p style="font-weight: bold; font-size: 1.2em;">Super-247 or TO-247AA</p>
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**■ QUICK REFERENCE 【参考特性】**

產品型號 Part Number	工業型號 Industry Part №	通態電流均方值 I <sub>T(RMS)</sub> (A)	斷態重復峰值電壓 V <sub>DRM</sub> / V <sub>RRM</sub> (V)	門極觸發電流 I <sub>GT</sub> (μA / mA)	封裝外形 Package	包裝方式 Packing	元件標識 Marking
BTB60-800BW	BTB60-800BW	60 A	800 V	B ≤50mA	Super-247 TO-247AA	30Pcs/Tube 450Pcs/Box 4.5Kpcs/Box 每管30只 每盒450只 6.5g / Pcs 每枚重量6.5克	H BTB60 1600B KKG1213  H: HAOHAI KKG: 注册商標 1213: 生产日期 2012年第12周出廠 按实际自然周
BTB60-1000BW	BTB60-1000BW		1000 V				
BTB60-1200BW	BTB60-1200BW		1200 V				
BTB60-1400BW	BTB60-1400BW		1400 V				
BTB60-1600BW	BTB60-1600BW		1600 V				
BTB60-1800BW	BTB60-1800BW		1800 V				
<p>① 三象限、大电流、高压、特殊机种</p> <p>② 1200V、1600V 常规出货, 其它高压需订制</p> <p>③ 触发电流I<sub>GT</sub>值可按客户要求订制</p>							

**■ PINNING: TO-247AA ( Super-247 ) 【TO-247直插半塑封】【BTB為非絕緣型: 中間管腳T2與散熱片Tab導通】**

Pin 管腳排列	Symbol 對應極性	Description 極性名詞	Description 極性含義	Practicality in Pin Arrange 元件實物與管腳排列	Pin Polarity Circuit diagram 腳位與極性 電路符號表示
1	T1	Main terminal 1	第一陽極		<p>1=T1 2=T2 3=G 4=Tab</p> 
2	T2	Main terminal 2	第二陽極		
3	G	Gate	門-控制極		
4	Tab	---	散熱片		

**■ ABSOLUTE RATINGS (Limiting Values) 【額定值參數】**

SYMBOL 符號表示	Parameter & Test Conditions 器件符號含義及參數測試條件說明		Value 數值	Unit 單位
$I_{T(RMS)}$	通態電流均方值: On-State RMS Current ( full sine wave, $T_c=75^\circ C$ )		60	A
$I_{TSM}$	通態浪湧電流 Non repetitive surge peak on-state current	$t_p=10ms, f=50Hz$	600	
		$t_p=8.3ms, f=60Hz$	640	
$I_{GM}$	控制極峰值散耗電流: Peak gate current	$t_p=20\mu s, T_c=125^\circ C$	8	
$I^2t$	週期電流平方時間積: $I^2t$ Value for Fusing Consideration		$t_p=10mS$	$A^2ses$
$P_{GM}$	控制極峰值散耗功率: Peak gate power		$t_p=20\mu s, T_c=125^\circ C$	W
$P_{G(AV)}$	門極平均散耗功率: Average gate power dissipation		$T_j=125^\circ C$	
$V_{DRM}$	斷態重複峰值電壓: Repetitive peak off-state voltages		$T_j=25^\circ C$ 參考型號對照列表	800~1800
$V_{RRM}$	反向重複峰值電壓: Repetitive peak off-state voltages			
$T_j$	工作結溫: Operating Junction Temperature Range		@ Rate $V_{RRM}$ and $V_{DRM}$	-40 ~ +125
$T_{stg}$	貯存溫度: Storage Temperature Range			-40 ~ +150
$T_L$	引腳承受焊錫極限溫度: Maximum Lead Temperature for Soldering Purposes 1/8 from Case for 10 Seconds			260

**■ ELECTRICAL CHARACTERISTICS (Tj=25°C Unless Otherwise Noted) 【電參數】**

SYMBOL 符號表示	Parameter & Test Conditions 符號含義及參數測試條件說明		Value			Unit 單位
			最小值	典型值	最大值	
$I_{GT}$	門極觸發電流: Gate trigger current $V_D=12V_{DC}, R_L=33\Omega, T_j=25^\circ C$	I - II - III	→	→	50	mA
$I_H$	維持電流: Holding Current	$I_T=100mA$	→	→	60	
$I_L$	擎柱電流 Latching Current ( $I_G=1.2 I_{GT}$ )	I - III	→	→	80	
		II	→	→	100	
$I_{DRM}$ $I_{RRM}$	斷態重複峰值電流 Latching Current ( $V_D=V_{DRM}, V_R=V_{DRM}$ )	$T_j=25^\circ C$	→	→	50	$\mu A$
		$T_j=125^\circ C$	→	→	800	
$V_{GT}$	門極觸發電壓: Gate trigger voltage ( $V_D=12V_{DC}, R_L=33\Omega, T_j=25^\circ C$ )	I - II - III	→	→	1.3	V
$V_{GD}$	門極不觸發電壓: Gate NO-trigger voltage ( $V_D=V_{DRM}, R_L=33\Omega, T_j=25^\circ C$ )	I - II - III	0.2	←	←	
$V_{TM}$	通態峰值電壓: Peak Forward On-State Voltage	$I_{TM}=90A, t_p=380\mu s, T_j=25^\circ C$	→	→	1.55	
dv/dt	斷態臨界電壓上升率: Critical Rate of Rise of Off-State Voltage	$V_D=67\%V_{DRM}$ gate open $T_j=125^\circ C$	1000	←	←	$V/\mu s$
(di/dt)c	通態臨界電流上升率: Critical Rate of Rise of On-State Current	Without sunbber $T_j=125^\circ C$	20	←	←	$A/\mu s$
Rth(j-c)	熱阻-結到外殼: Thermal Resistance-Junction-to-Case		→	0.45	←	$^\circ C/W$
Rth(j-a)	熱阻-結到環境: Thermal Resistance-Junction-to-Ambient		→	40	←	

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

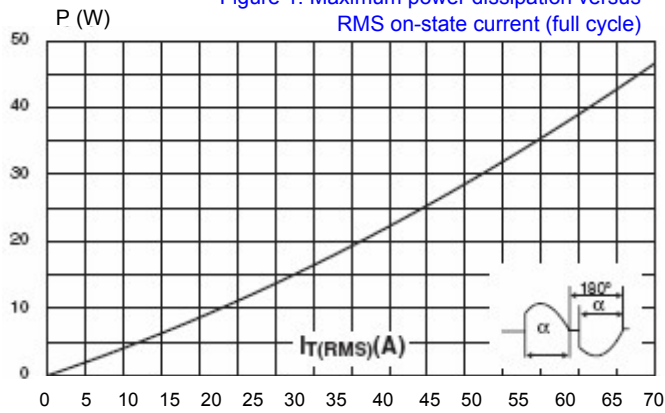


Figure 2: RMS on-state current versus case temperature (full cycle)

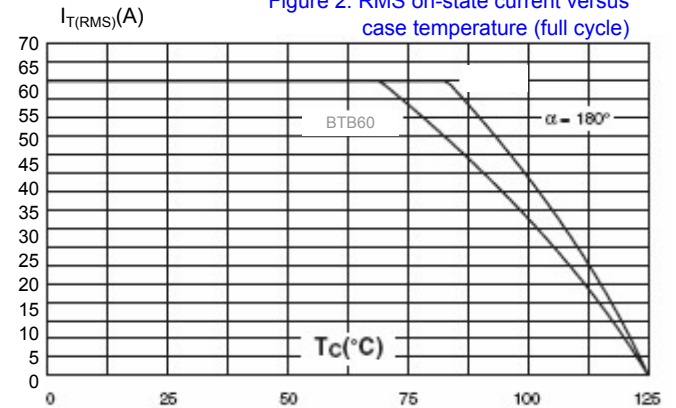


Figure 3: Relative variation of thermal impedance versus pulse duration

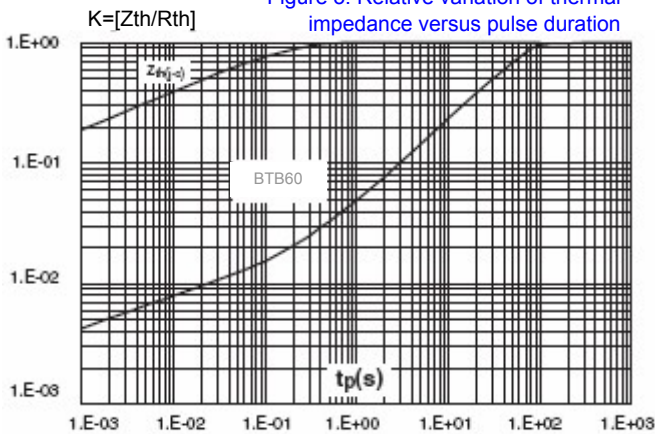


Figure 4: On-state characteristics (maximum) values

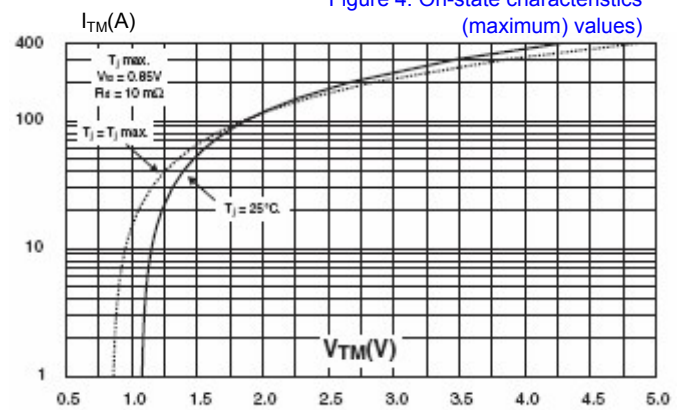


Figure 5: Surge peak on-state current versus number of cycles

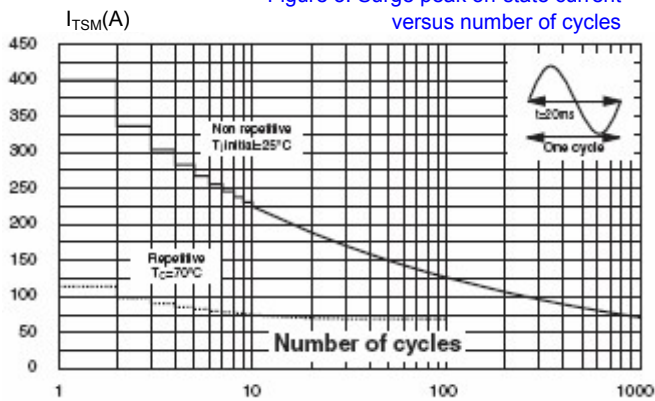


Figure 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms and corresponding value of I²t

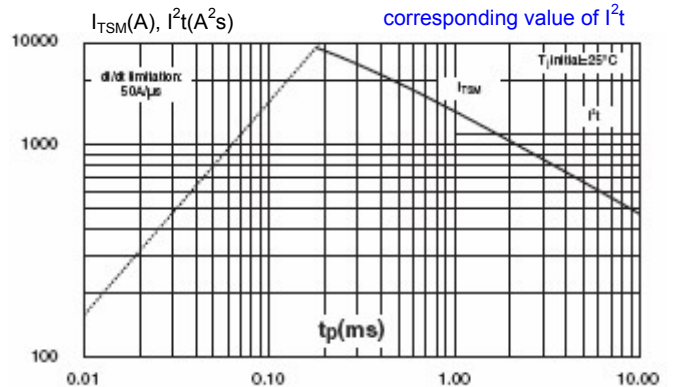


Figure 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

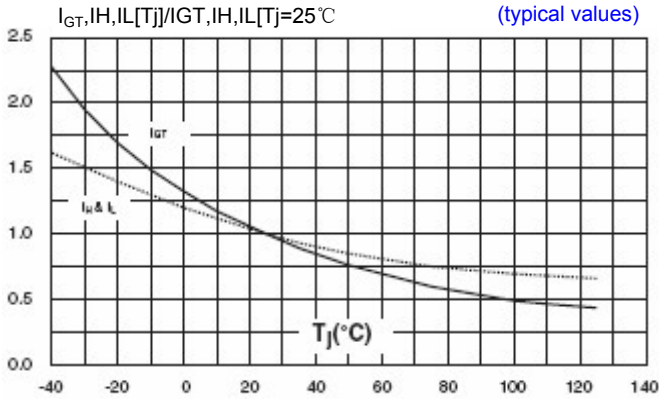


Figure 8: Relative variation of critical rate of decrease of main current versus  $(dV/dt)_c$  (typical values)

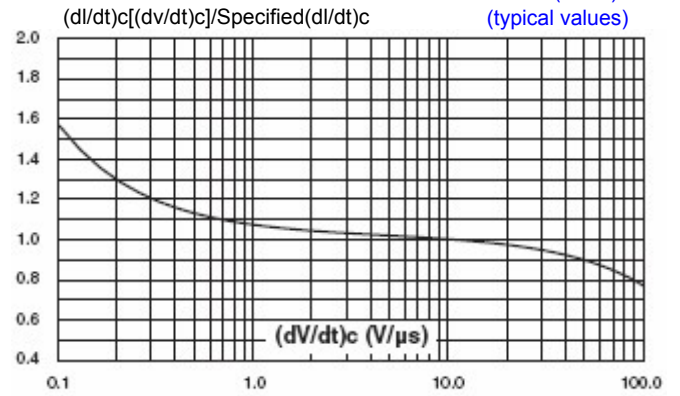


Figure 9: Relative variation of critical rate of decrease of main current versus  $(dV/dt)_c$

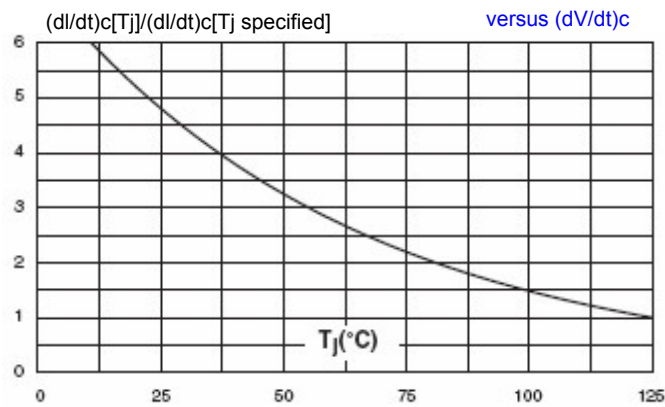
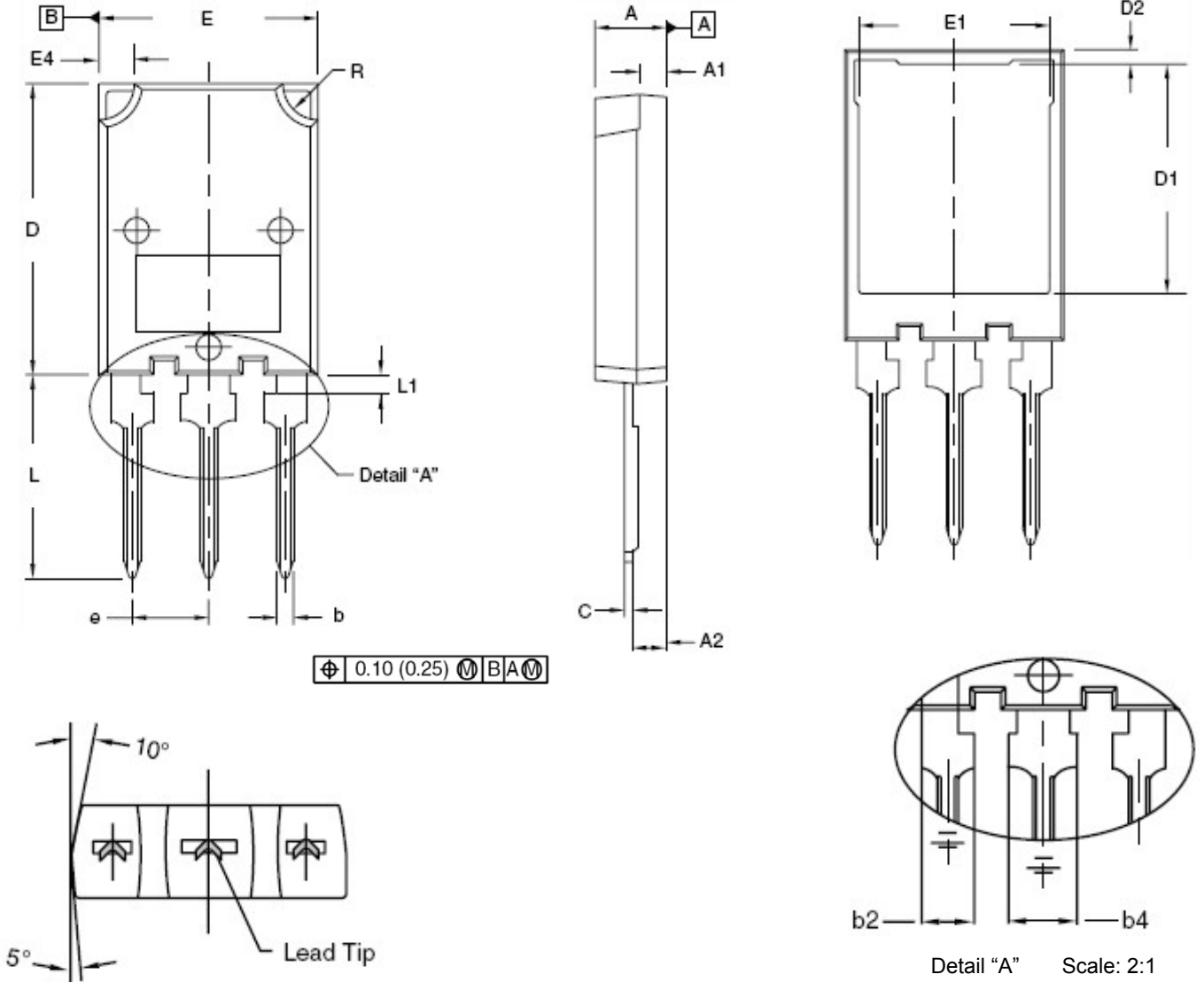


Figure 10: Component physical picture



**Package Information (mm & Inches)**

TO-247AA (Super-247) 封裝尺寸 單位: 毫米與英寸對照 mm & Inches



⌀ 0.10 (0.25) Ⓜ B A Ⓜ

DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.70	5.30	0.185	0.209
A1	1.50	2.50	0.059	0.098
A2	2.25	2.65	0.089	0.104
b	1.30	1.60	0.051	0.063
b2	1.80	2.20	0.071	0.087
b4	3.00	3.25	0.118	0.128
c	0.80	1.20	0.031	0.047
D	19.80	20.80	0.780	0.819

DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
D1	15.50	16.10	0.610	0.634
D2	0.700	1.300	0.028	0.051
E	15.10	16.10	0.594	0.634
E1	13.30	13.90	0.524	0.547
e	5.45 BSC		0.215 BSC	
L	13.70	14.70	0.539	0.579
L1	1.000	1.600	0.039	0.063
R	2.000	3.000	0.079	0.118

KKG @ HAOHAI Product Database 2009-04-02 HV.8-1.5

KKG @ HAOHAI Product Database 2012-05-01 HV.8-2.0



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