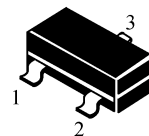


SOT-23

- 1. BASE
- 2. EMITTER
- 3. COLLECTOR



### ■ MAXIMUM RATINGS 最大額定值

Characteristic 特性參數	Symbol 符號	MMBT2907	MMBT2907A	Unit 單位
Collector-Emitter Voltage 集電極-發射極電壓	$V_{CEO}$	-40	-60	Vdc
Collector-Base Voltage 集電極-基極電壓	$V_{CBO}$	-60	-60	Vdc
Emitter-Base Voltage 發射極-基極電壓	$V_{EBO}$	-5.0	-5.0	Vdc
Collector Current-Continuous 集電極電流-連續	$I_c$	-600	-600	mAdc

### ■ THERMAL CHARACTERISTICS 熱特性

Characteristic 特性參數	Symbol 符號	Max 最大值	Unit 單位
Total Device Dissipation 總耗散功率 FR-5 Board(1) $T_A=25^{\circ}\text{C}$ 溫度為 $25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$ 超過 $25^{\circ}\text{C}$ 遞減	$P_D$	225 1.8	mW mW/ $^{\circ}\text{C}$
Total Device Dissipation 總耗散功率 Alumina Substrate 氧化鋁襯底,(2) $T_A=25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$ 超過 $25^{\circ}\text{C}$ 遞減	$P_D$	300 2.4	mW mW/ $^{\circ}\text{C}$
Thermal Resistance Junction to Ambient 熱阻	$R_{\theta JA}$	417	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature 結溫和儲存溫度	$T_J, T_{stg}$	-55to+150 $^{\circ}\text{C}$	

### ■ DEVICE MARKING 打標

MMBT2907=M2B;MMBT2907A=2F



MMBT2907

**■ELECTRICAL CHARACTERISTICS 電特性**

**(T<sub>A</sub>=25°C unless otherwise noted 如無特殊說明，溫度為 25°C)**

Characteristic 特性參數	Symbol 符號	Min 最小值	Max 最大值	Unit 單位
Collector-Emitter Breakdown Voltage(3) 集電極-發射極擊穿電壓(I <sub>c</sub> =-10mA <sub>dc</sub> , I <sub>B</sub> =0)	V <sub>(BR)CEO</sub> MMBT2907 MMBT2907A	-30 -60	— —	V <sub>dc</sub>
Collector-Base Breakdown Voltage 集電極-基極擊穿電壓(I <sub>c</sub> =-10 μA <sub>dc</sub> , I <sub>E</sub> =0)	V <sub>(BR)CBO</sub>	-60	—	V <sub>dc</sub>
Emitter-Base Breakdown Voltage 發射極-基極擊穿電壓(I <sub>E</sub> =-10 μA <sub>dc</sub> , I <sub>c</sub> =0)	V <sub>(BR)EBO</sub>	-5.0	—	V <sub>dc</sub>
Collector Cutoff Current 集電極截止電流 (V <sub>CE</sub> =-30V <sub>dc</sub> , V <sub>EB(om)</sub> =-0.5V <sub>dc</sub> )	I <sub>CEX</sub>	—	-50	nA <sub>dc</sub>
Collector Cutoff Current 集電極截止電流 (V <sub>CB</sub> =-50V <sub>dc</sub> , I <sub>E</sub> =0)  (V <sub>CB</sub> =-50V <sub>dc</sub> , I <sub>E</sub> =0, T <sub>A</sub> =125°C)	I <sub>CBO</sub>  MMBT2907 MMBT2907A MMBT2907 MMBT2907A	— — — —	-0.02 -0.01 -20.0 -10.0	μA <sub>dc</sub>
Base Cutoff Current 基極截止電流 (V <sub>CE</sub> =-30V <sub>dc</sub> , V <sub>EB(om)</sub> =-0.5V <sub>dc</sub> )	I <sub>B</sub>	—	-50	nA <sub>dc</sub>
DC Current Gain 直流電流增益	H <sub>FE</sub>			—
(I <sub>c</sub> =-0.1mA <sub>dc</sub> , V <sub>CE</sub> =-10.0V <sub>dc</sub> )	MMBT2907 MMBT2907A	35 75	—	
(I <sub>c</sub> =-1.0mA <sub>dc</sub> , V <sub>CE</sub> =-10.0V <sub>dc</sub> )	MMBT2907 MMBT2907A	50 100	—	
(I <sub>c</sub> =-10mA <sub>dc</sub> , V <sub>CE</sub> =-10.0V <sub>dc</sub> )	MMBT2907 MMBT2907A	75 100	—	
(I <sub>c</sub> =-150mA <sub>dc</sub> , V <sub>CE</sub> =-10.0V <sub>dc</sub> )(3)		100	300	
(I <sub>c</sub> =-500mA <sub>dc</sub> , V <sub>CE</sub> =-10.0V <sub>dc</sub> )(3)	MMBT2907 MMBT2907A	30 50	— —	
Collector-Emitter Saturation Voltage 集電極發射極飽和壓降 (I <sub>c</sub> =-150mA <sub>dc</sub> , I <sub>B</sub> =-15mA <sub>dc</sub> ) (I <sub>c</sub> =-500mA <sub>dc</sub> , I <sub>B</sub> =-50mA <sub>dc</sub> )	V <sub>CE(sat)</sub>	— —	-0.4 -1.6	V <sub>dc</sub>
Base-Emitter Saturation Voltage 基極發射極飽和壓降 (I <sub>c</sub> =-150mA <sub>dc</sub> , I <sub>B</sub> =-15mA <sub>dc</sub> ) (I <sub>c</sub> =-500mA <sub>dc</sub> , I <sub>B</sub> =-50mA <sub>dc</sub> )	V <sub>BE(sat)</sub>	— —	-1.3 -2.6	V <sub>dc</sub>



MMBT2907

■SMALL-SIGNAL CHARACTERISTICS 小信號特性

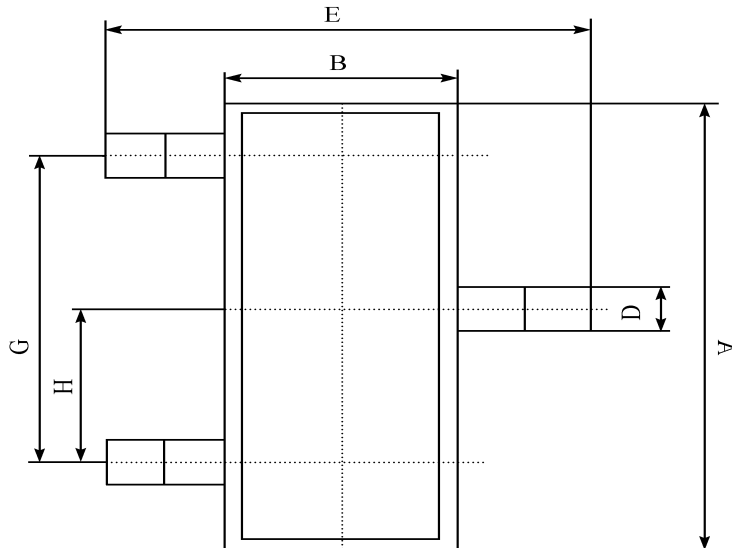
Characteristic 特性參數	Symbol 符號	Min 最小值	Max 最大值	Unit 單位
Current-Gain-Bandwidth Product 電流增益帶寬乘積 ( $I_C=-50\text{mA}$ , $V_{CE}=-20\text{V}$ , $f=100\text{MHz}$ )	$f_T$	200	—	MHz
Output Capacitance 輸出電容 ( $V_{CB}=-10.0\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$ )	$C_{obo}$	—	80	pF
Input Capacitance 輸入電容 ( $V_{EB}=-2.0\text{V}$ , $I_C=0$ , $f=1.0\text{MHz}$ )	$C_{ibo}$	—	30	pF

■SWITCHING CHARACTERISTICS 開關特性

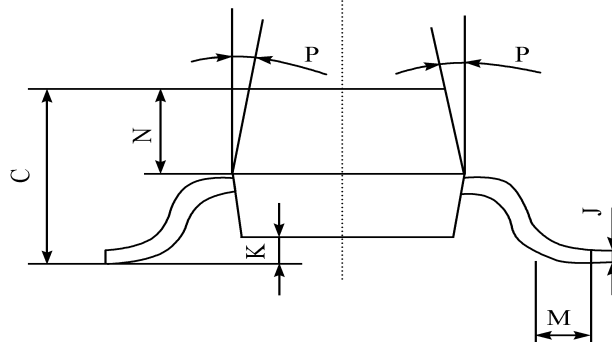
Turn-On Time 導通時間	(V <sub>cc</sub> =-30Vdc I <sub>c</sub> =-150mA, I <sub>B1</sub> =-15mA)	$t_{on}$	—	45	ns
Delay Time 延遲時間		$t_d$	—	10	
Rise Time 上升時間		$t_r$	—	40	
Turn-Off time 截止時間	(V <sub>cc</sub> =-6.0Vdc, I <sub>c</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA)	$t_{off}$	—	100	ns
Storage Time 儲存時間		$t_s$	—	80	
Fall Time 下降時間		$t_f$	—	30	

- FR-5=1.0×0.75×0.062in.
- Alumina=0.4×0.3×0.024in.99.5%alumina.
- Pulse Width≤300us;Duty Cycle≤2.0%.
- $f_T$  is defined as the frequency at which ( $h_{fe}$ ) extrapolates to unity.

## ■DIMENSION 外形封裝尺寸



序號	數值及公差
A	$2.90 \pm 0.10$
B	$1.30 \pm 0.10$
C	$1.00 \pm 0.10$
D	$0.40 \pm 0.10$
E	$2.40 \pm 0.20$
G	$1.90 \pm 0.10$
H	$0.95 \pm 0.05$
J	$0.13 \pm 0.05$
K	$0.00 - 0.10$
M	$\geq 0.2$
N	$0.60 \pm 0.10$
P	$7 \pm 2^\circ$



This datasheet presents technical data of Tak Cheong's Silicon Rectifier Diodes. Complete specifications for the individual devices are provided in the form of datasheets. A comprehensive Selector Guide is included to simplify the task of choosing the best set of components required for a specific application. For additional information, please visit our website <http://www.takcheong.com>.

Although information in this datasheet has been carefully checked, no responsibility for the inaccuracies can be assumed by Tak Cheong. Please consult your nearest Tak Cheong's sales office for further assistance.

Tak Cheong reserves the right to make changes without further notice to any products herein to further improve reliability, function or design, cost and productivity.

**KEL<sup>®</sup>** is registered trademarks of Tak Cheong Electronics (Holdings) Co., Ltd.