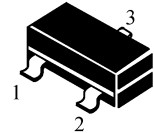


# KEL<sup>®</sup>

MMBT5401

SOT-23

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



## ■ MAXIMUM RATINGS 最大額定值

Characteristic 特性參數	Symbol 符號	Rating 額定值	Unit 單位
Collector-Emitter Voltage 集電極-發射極電壓	$V_{CEO}$	-150	Vdc
Collector-Base Voltage 集電極-基極電壓	$V_{CBO}$	-160	Vdc
Emitter-Base Voltage 發射極-基極電壓	$V_{EBO}$	-5.0	Vdc
Collector Current—Continuous 集電極電流-連續	$I_c$	-500	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) $T_A=25^{\circ}\text{C}$ 環境溫度 $25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$ 超過 $25^{\circ}\text{C}$ 遞減	$P_D$	225 1.8	mW mW/ $^{\circ}\text{C}$
Thermal Resistance Junction to Ambient 熱阻	$R_{\theta JA}$	556	$^{\circ}\text{C}/\text{W}$
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	$T_J, T_{stg}$	$150^{\circ}\text{C}, -55\text{to}+150^{\circ}\text{C}$	

## ■ DEVICE MARKING 打標

MMBT5401=2L

KEL MMBT5401



MMBT5401

■ELECTRICAL CHARACTERISTICS 電特性

( $T_A=25^{\circ}\text{C}$  unless otherwise noted 如無特殊說明，溫度為  $25^{\circ}\text{C}$ )

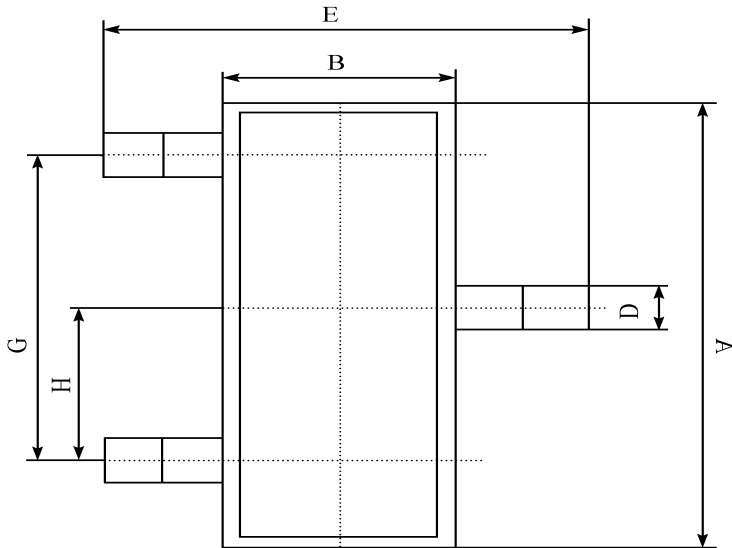
Characteristic 特性參數	Symbol 符號	Min 最小值	Max 最大值	Unit 單位
Collector-Emitter Breakdown Voltage(3) 集電極-發射極擊穿電壓( $I_C=-1.0\text{mA}$ , $I_B=0$ )	$V_{(BR)CEO}$	-150	—	Vdc
Collector-Base Breakdown Voltage 集電極-基極擊穿電壓( $I_C=-100\mu\text{A}$ , $I_E=0$ )	$V_{(BR)CBO}$	-160	—	Vdc
Emitter-Base Breakdown Voltage 發射極基極擊穿電壓( $I_E=-10\mu\text{A}$ , $I_C=0$ )	$V_{(BR)EBO}$	-5.0	—	Vdc
Emitter Cutoff Current 發射極截止電流( $V_{EB}=-3.0\text{V}$ , $I_C=0$ )	$I_{EBO}$	—	-50	nA
Collector Cutoff Current 集電極截止電流( $V_{CB}=-120\text{V}$ , $I_E=0$ )	$I_{CBO}$	—	-50	nA
DC Current Gain 直流電流增益	$H_{FE}$			—
( $I_C=-1.0\text{mA}$ , $V_{CE}=-5.0\text{V}$ )		50	—	
( $I_C=-10\text{mA}$ , $V_{CE}=-5.0\text{V}$ )		60	240	
( $I_C=-50\text{mA}$ , $V_{CE}=-5.0\text{V}$ )		30	—	
Collector-Emitter Saturation Voltage 集電極-發射極飽和壓降 ( $I_C=-10\text{mA}$ , $I_B=-1.0\text{mA}$ ) ( $I_C=-50\text{mA}$ , $I_B=-10\text{mA}$ )	$V_{CE(sat)}$	—	-0.2 -0.5	Vdc
Base-Emitter Saturation Voltage 基極-發射極飽和壓降 ( $I_C=-10\text{mA}$ , $I_B=-1.0\text{mA}$ ) ( $I_C=-50\text{mA}$ , $I_B=-5.0\text{mA}$ )	$V_{BE(sat)}$	—	-1.0 -1.0	Vdc
Current-Gain-Bandwidth Product 電流增益-帶寬乘積 ( $I_C=-10\text{mA}$ , $V_{CE}=-10\text{V}$ , $f=100\text{MHz}$ )	$f_T$	100	300	MHz
Output Capacitance 輸出電容 ( $V_{CB}=-10.0\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$ )	$C_{obo}$	—	6.0	pF
Small-Signal Current Gain 小信號電流增益 ( $V_{CE}=-10\text{V}$ , $I_C=-1.0\text{mA}$ , $f=1.0\text{KHz}$ )	$h_{fe}$	40	200	—
Noise Figure 噪声係數 ( $V_{CE}=-5.0\text{V}$ , $I_C=-200\mu\text{A}$ , $R_s=1.0\text{k}\Omega$ , $f=1.0\text{KHz}$ )	NF	—	8.0	dB

1. FR-5=1.0×0.75×0.062in.
2. Alumina=0.4×0.3×0.024in.99.5%alumina.
3. Pulse Width≤300us;Duty Cycle≤2.0%.

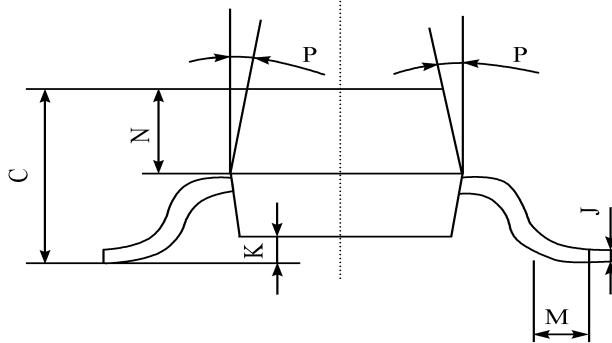


MMBT5401

■ 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.

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