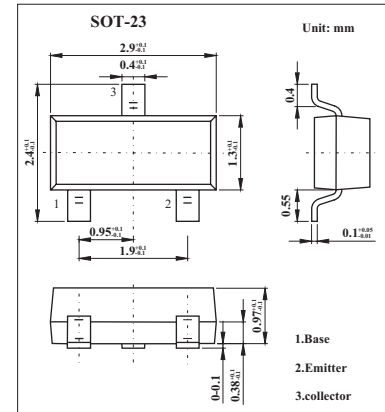


## PNP Transistors

### KMBT5401(MMBT5401)

#### ■ Features

- High Voltage Transistors
- Pb-Free Packages are Available



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	-160	V
Collector-emitter voltage	$V_{CE0}$	-150	V
Emitter-base voltage	$V_{EB0}$	-5	V
Collector current-continuous	$I_C$	-0.6	A
Collector Power Dissipation	$P_C$	300	mW
Junction and storage temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{CB0}$	$I_C = -100 \mu\text{A}, I_E = 0$	-160			V
Collector-emitter breakdown voltage *	$V_{CE0}$	$I_C = -1.0 \text{mA}, I_B = 0$	-150			V
Emitter-base breakdown voltage	$V_{EB0}$	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = -120 \text{V}, I_E = 0$			-0.1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -4.0 \text{V}, I_C = 0$			-0.1	$\mu\text{A}$
DC current gain *	$h_{FE}$	$I_C = -1.0 \text{mA}, V_{CE} = -5 \text{V}$	80			
		$I_C = -10 \text{mA}, V_{CE} = -5 \text{V}$	100		300	
		$I_C = -50 \text{mA}, V_{CE} = -5 \text{V}$	50			
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = -50 \text{mA}, I_B = -5.0 \text{mA}$			-0.5	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = -50 \text{mA}, I_B = -5.0 \text{mA}$			-1.0	V
Transistor frequency	$f_T$	$V_{CE} = -5 \text{V}, I_C = -10 \text{mA}, f = 30 \text{MHz}$	100			MHz

\* Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle=2.0%.

#### ■ Marking

Marking	2L
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### KMBT5401(MMBT5401)

■ Typical Characteristics

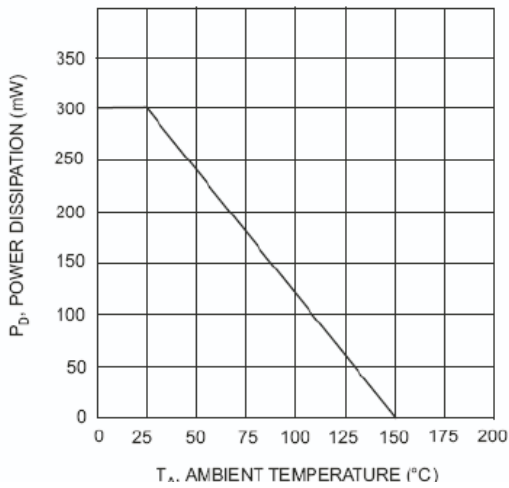


Fig.1 Max Power Dissipation vs. Ambient Temperature

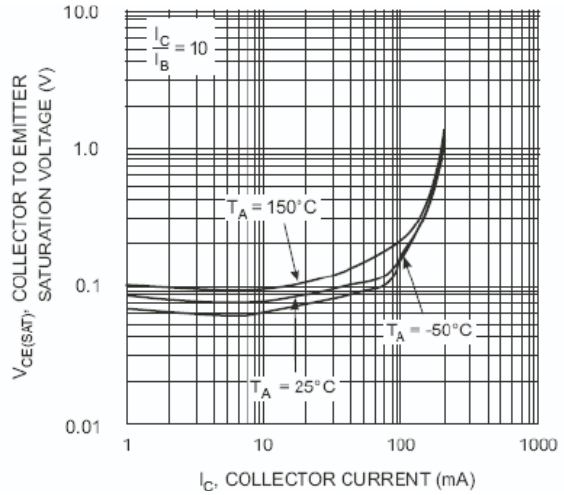


Fig.2 Collector Emitter Saturation Voltage vs. Collector Current

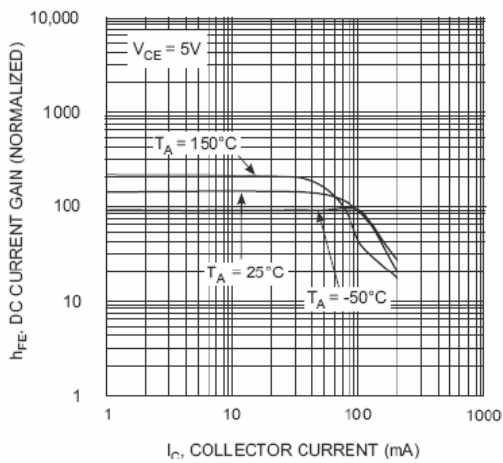


Fig.3 DC Current Gain vs. Collector Current

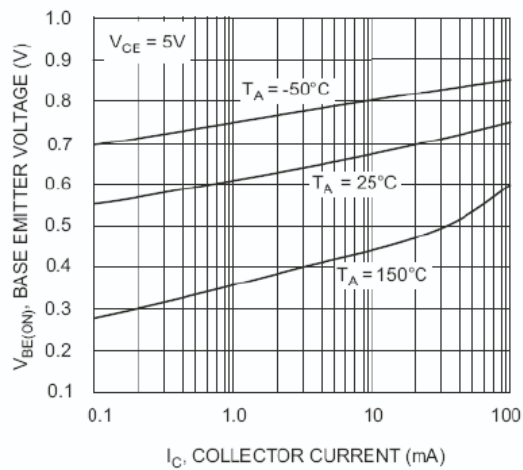


Fig.4 Base Emitter Voltage vs. Collector Current

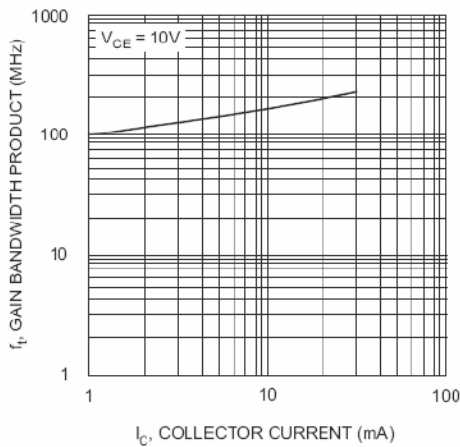


Fig.5 Gain Bandwidth Product vs. Collector Current