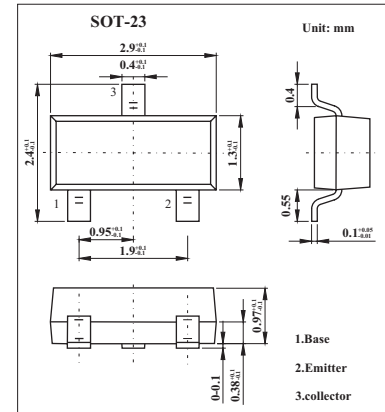


## PNP Transistors

### KMBT5401(MMBT5401)

#### ■ Features

- High Voltage Transistors
- Pb-Free Packages are Available



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector-base voltage	V <sub>CB0</sub>	-160	V
Collector-emitter voltage	V <sub>CEO</sub>	-150	V
Emitter-base voltage	V <sub>EB0</sub>	-5	V
Collector current-continuous	I <sub>C</sub>	-0.6	A
Collector Power Dissipation	P <sub>C</sub>	300	mW
Junction and storage temperature	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>CB0</sub>	I <sub>C</sub> = -100 μA, I <sub>E</sub> = 0	-160			V
Collector-emitter breakdown voltage *	V <sub>CEO</sub>	I <sub>C</sub> = -1.0 mA, I <sub>B</sub> = 0	-150			V
Emitter-base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = -10 μA, I <sub>C</sub> = 0	-5			V
Collector cutoff current	I <sub>CB0</sub>	V <sub>CB</sub> = -120 V, I <sub>E</sub> = 0			-0.1	μA
Emitter cutoff current	I <sub>EB0</sub>	V <sub>EB</sub> = -4.0 V, I <sub>C</sub> = 0			-0.1	μA
DC current gain *	h <sub>FE</sub>	I <sub>C</sub> = -1.0 mA, V <sub>CE</sub> = -5 V	80			
		I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -5 V	100		300	
		I <sub>C</sub> = -50 mA, V <sub>CE</sub> = -5 V	50			
Collector-emitter saturation voltage *	V <sub>CE(sat)</sub>	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5.0 mA			-0.5	V
Base-emitter saturation voltage *	V <sub>BE(sat)</sub>	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5.0 mA			-1.0	V
Transiston frequency	f <sub>T</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA, f = 30MHz	100			MHz

\* Pulse Test: Pulse Width = 300 μs, Duty Cycle=2.0%.

#### ■ Marking

Marking	2L
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### KMBT5401(MMBT5401)

■ Typical Characteristics

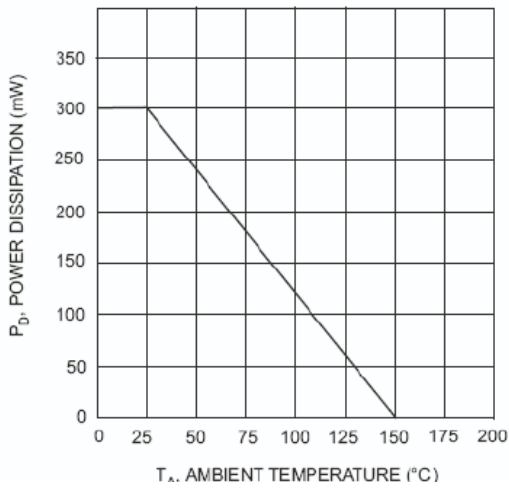


Fig.1 Max Power Dissipation vs. Ambient Temperature

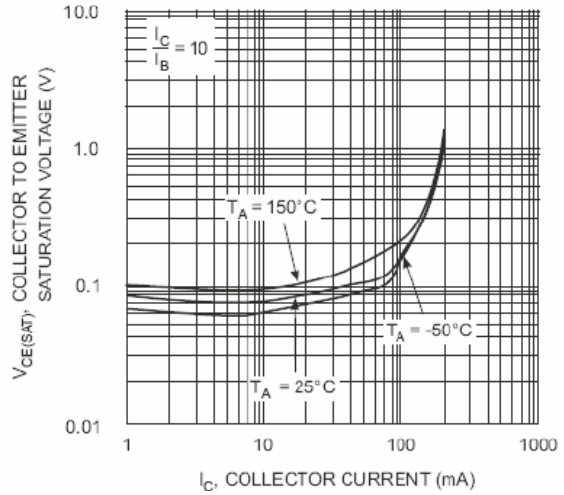


Fig.2 Collector Emitter Saturation Voltage vs. Collector Current

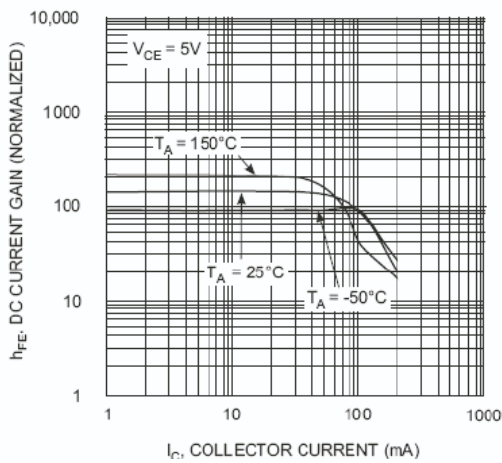


Fig.3 DC Current Gain vs. Collector Current

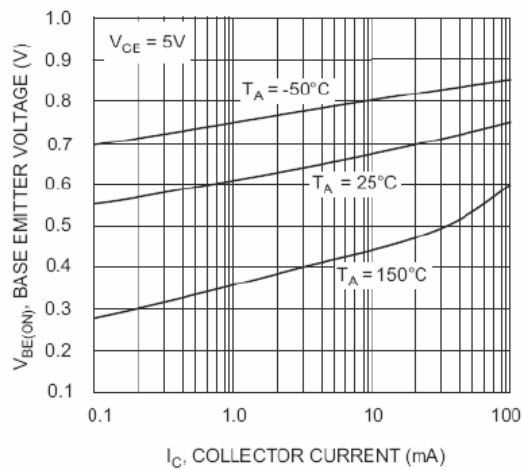


Fig.4 Base Emitter Voltage vs. Collector Current

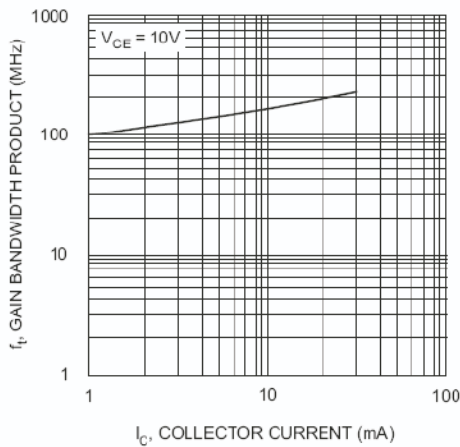


Fig.5 Gain Bandwidth Product vs. Collector Current