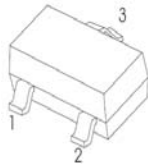
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

# SOT-23 Plastic-Encapsulate Transistors

## MMBT5401 TRANSISTOR (PNP)

**SOT－23**




**1. BASE**
**2. EMITTER**
**3. COLLECTOR**

### FEATURES

- Complementary to MMBT5551
- Ideal for Medium Power Amplification and Switching

### MARKING: 2L

### MAXIMUM RATINGS ($T_a$=25℃ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -160 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -150 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5 | V |
| $I_C$ | Collector Current | -0.6 | A |
| $P_C$ | Collector Power Dissipation | 0.3 | W |
| $R_{\Theta JA}$ | Thermal Resistance from Junction to Ambient | 416 | ℃/W |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55～+150 | ℃ |

### ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

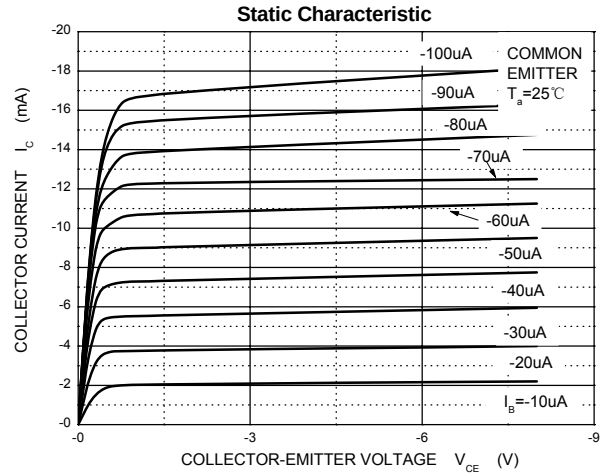
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$=-100μA, $I_E$=0 | -160 | | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$* | $I_C$=-1mA, $I_B$=0 | -150 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$=-10μA, $I_C$=0 | -5 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$=-120V, $I_E$=0 | | | -0.1 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$=-4V, $I_C$=0 | | | -0.1 | μA |
| **DC current gain** | $h_{FE(1)}$* | $V_{CE}$=-5V, $I_C$=-1mA | 80 | | | |
| | $h_{FE(2)}$* | $V_{CE}$=-5V, $I_C$=-10mA | 100 | | 300 | |
| | $h_{FE(3)}$* | $V_{CE}$=-5V, $I_C$=-50mA | 50 | | | |
| **Collector-emitter saturation voltage** | $V_{CE(sat)1}$* | $I_C$=-10mA, $I_B$=-1mA | | | -0.2 | V |
| | $V_{CE(sat)2}$* | $I_C$=-50mA, $I_B$=-5mA | | | -0.5 | V |
| **Base-emitter saturation voltage** | $V_{BE(sat)1}$* | $I_C$=-10mA, $I_B$=-1mA | | | -1 | V |
| | $V_{BE(sat)2}$* | $I_C$=-50mA, $I_B$=-5mA | | | -1 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=-5V,$I_C$=-10mA, f=30MHz | 100 | | | MHz |

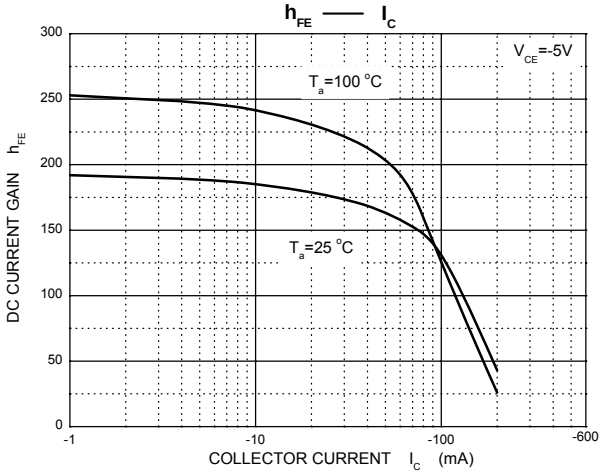
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

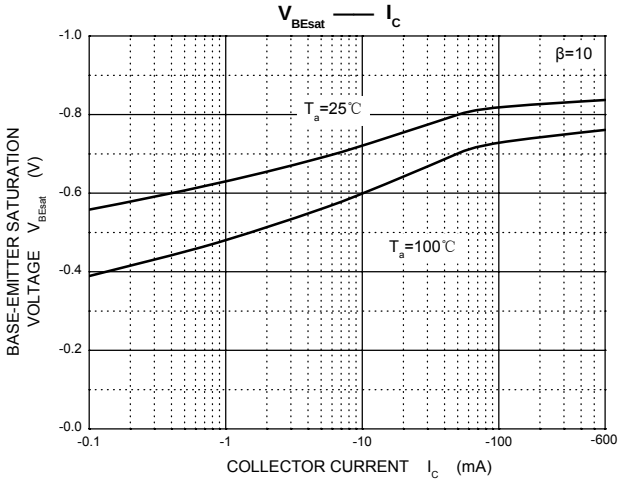
### CLASSIFICATION OF $h_{FE(2)}$

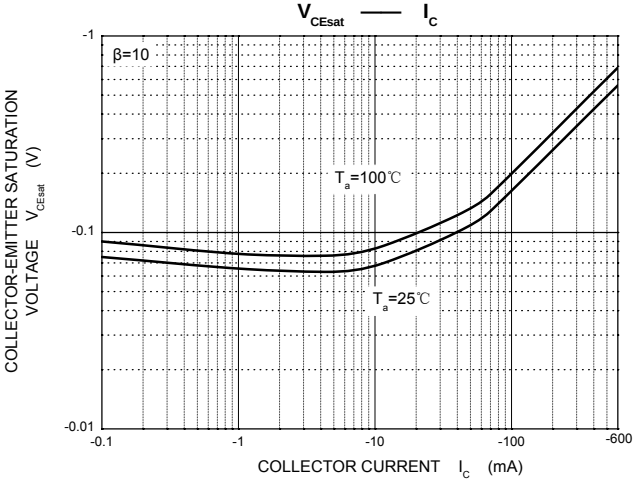
| RANK | L | H |
|---|---|---|
| RANGE | 100-200 | 200-300 |

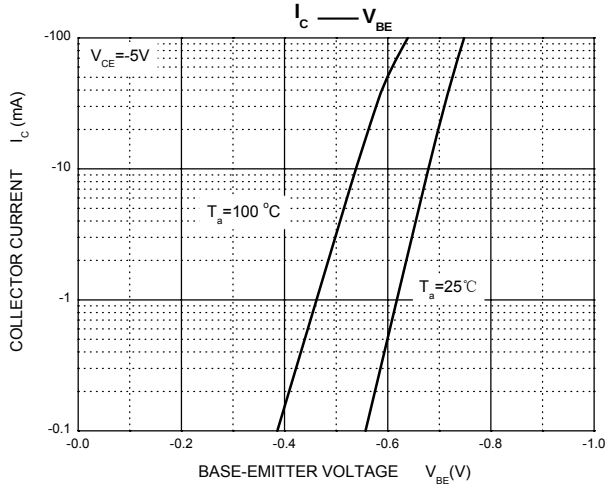
# Typical Characteristics MMBT5401

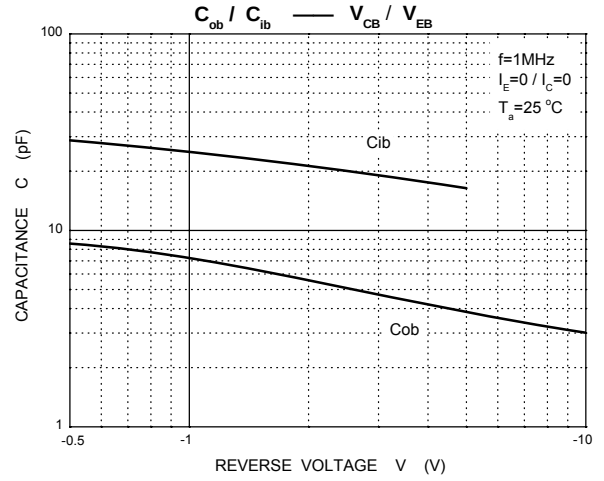


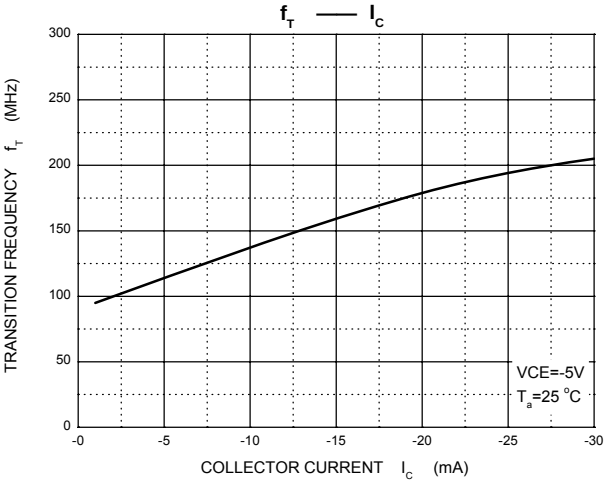



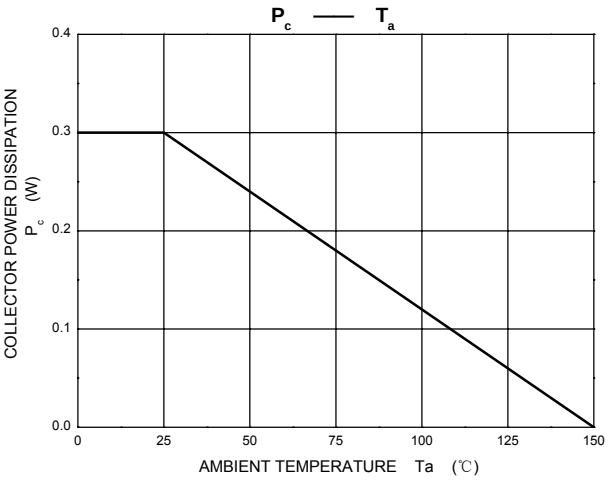




C,Nov,2012