FEATURES

Switching transistor

# MMBT4401 (NPN)

Marking:2X


1. BASE
2. EMITTER
3. COLLECTO

SOT-23

MAXIMUM RATINGS (TA=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 60 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 40 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current -Continuous | $I_C$ | 600 | mA |
| Collector Power Dissipation | $P_C$ | 300 | mW |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature | Tstg | -55 to +150 | ℃ |

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{CBO}$ | $I_C$= 100μA, $I_E$=0 | 60 | | V |
| Collector-emitter breakdown voltage | $V_{CEO}$ | $I_C$= 1mA, $I_B$=0 | 40 | | V |
| Emitter-base breakdown voltage | $V_{EBO}$ | $I_E$= 100μA, $I_C$=0 | 6 | | V |
| Collector cut-off current | $I_{CB}$ | $V_{CB}$=50 V, $I_E$=0 | | 0.1 | μA |
| Collector cut-off current | $I_{CE}$ | $V_{CE}$=30 V, $I_B$=0 | | 0.1 | μA |
| Emitter cut-off current | $I_{EB}$ | $V_{EB}$=5V, $I_C$=0 | | 0.1 | μA |
| DC current gain | hF | $V_{CE}$=1V, $I_C$=150mA | 100 | 300 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=150mA, $I_B$=15mA | | 0.4 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$= 150mA, $I_B$=15mA | | 0.95 | V |
| Transition frequency | fT | $V_{CE}$= 10V, $I_C$= 20mA f = 100MHz | 250 | | MHz |

## **MMBT4401** Typical Characteristics

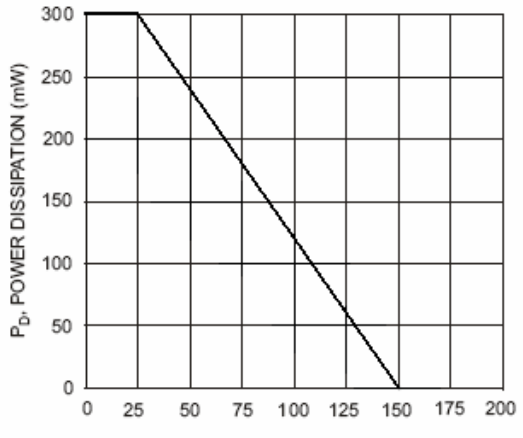


Fig. 1 Max Power Dissipation vs Ambient Temperature

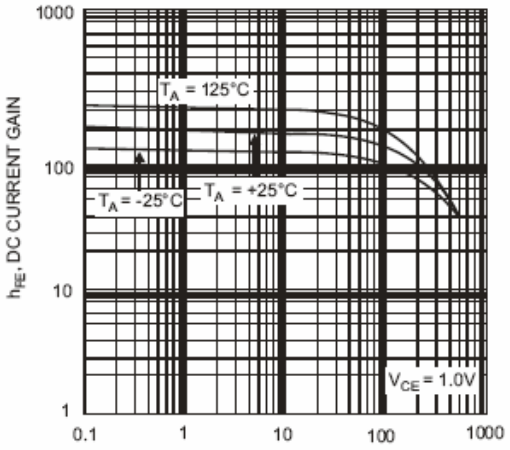


Fig. 2 Typical DC Current Gain vs Collector Current

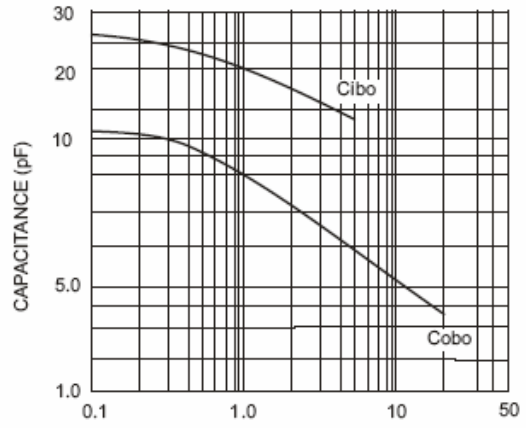


Fig. 3 Typical Capacitance

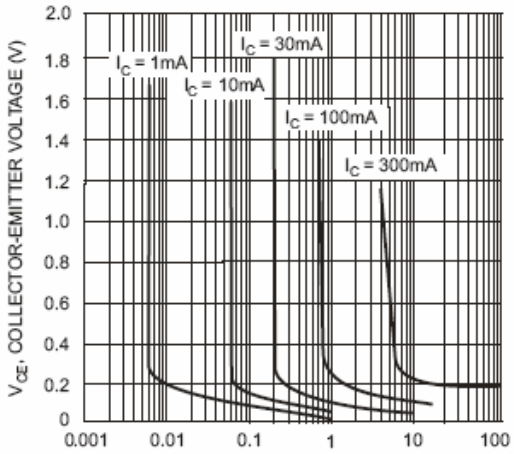


Fig. 4 Typical Collector Saturation Region

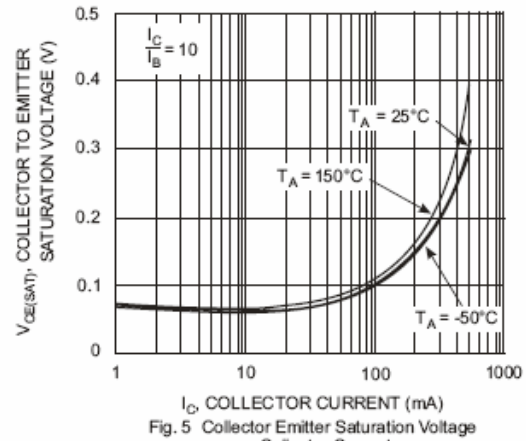


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

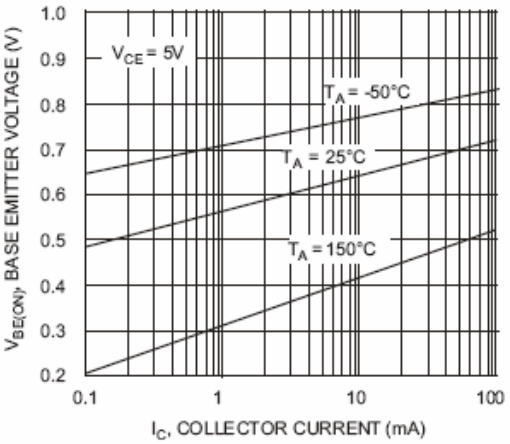


Fig. 6 Base Emitter Voltage vs. Collector Current