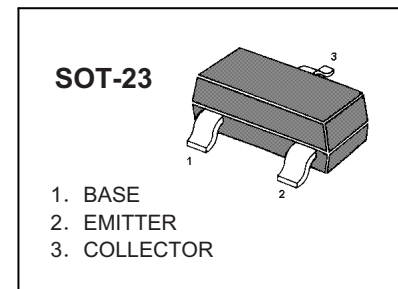


MMBT4401 TRANSISTOR (NPN)

FEATURES

Switching transistor

MARKING: 2X



MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|-----------------|---|------------|------------------------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_C | Collector Current -Continuous | 600 | mA |
| P_C | Collector Power dissipation | 0.3 | W |
| T_j | Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Temperature | -55to +150 | $^{\circ}\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, junction to Ambient | 357 | $^{\circ}\text{C}/\text{mW}$ |

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

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

Typical Characteristics

MMBT4401

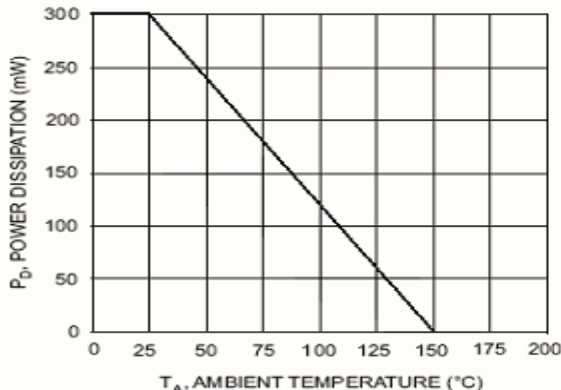


Fig. 1 Max Power Dissipation vs Ambient Temperature

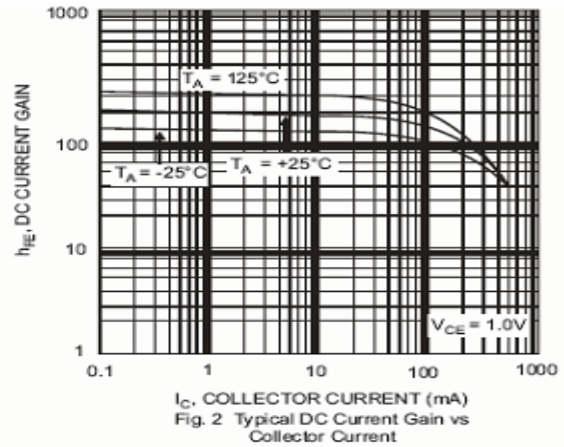


Fig. 2 Typical DC Current Gain vs Collector Current

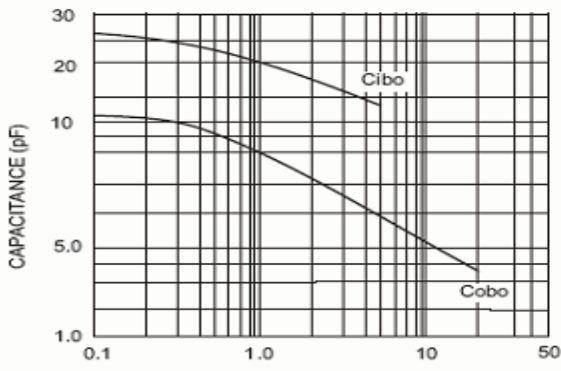


Fig. 3 Typical Capacitance

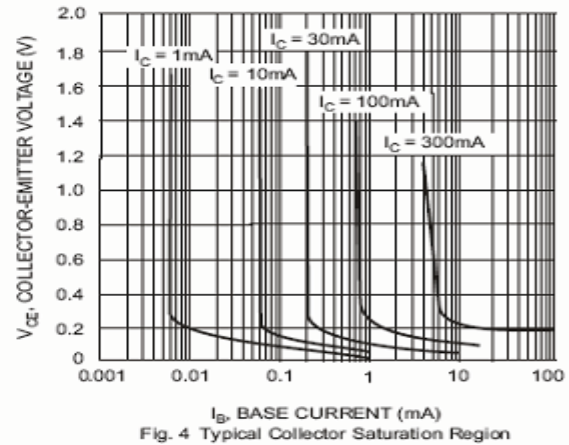


Fig. 4 Typical Collector Saturation Region

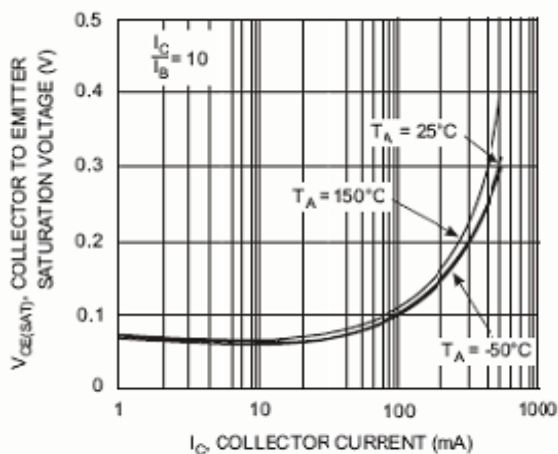


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

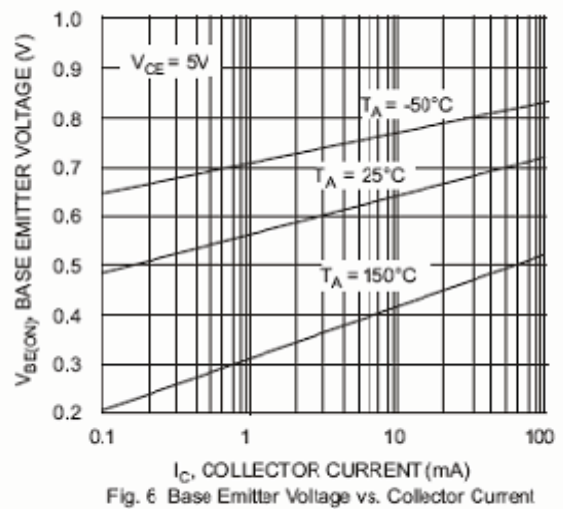


Fig. 6 Base Emitter Voltage vs. Collector Current

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23

