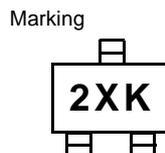
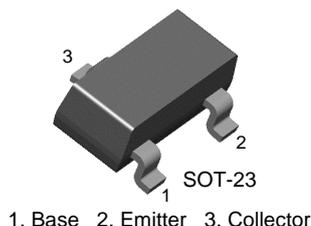


MMBT4401K

NPN Epitaxial Silicon Transistor

Switching Transistor



Absolute Maximum Ratings T_a = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------------------------------|--|-----------|-------|
| V _{CB0} | Collector-Base Voltage | 60 | V |
| V _{CEO} | Collector-Emitter Voltage | 40 | V |
| V _{EBO} | Emitter-Base Voltage | 6 | V |
| I _C | Collector Current | 600 | mA |
| P _C | Collector Dissipation | 350 | mW |
| T _J , T _{STG} | Operating Junction and Storage Temperature Range | -55 ~ 150 | °C |

Electrical Characteristics T_a = 25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|-----------------------|--|---|-----------------------------|-------------|--------|
| BV _{CB0} | Collector-Base Breakdown Voltage | I _C = 100μA, I _E = 0 | 60 | | V |
| BV _{CEO} | Collector-Emitter Breakdown Voltage * | I _C = 1.0mA, I _B = 0 | 40 | | V |
| BV _{EBO} | Emitter-Base Breakdown Voltage | I _E = 100μA, I _C = 0 | 6 | | V |
| I _{BEV} | Base Cut-off Current | V _{CE} = 35V, V _{EB} = 0.4V | | 100 | nA |
| I _{CEx} | Collector Cut-off Current | V _{CE} = 35V, V _{EB} = 0.4V | | 100 | nA |
| h _{FE} | DC Current Gain * | V _{CE} = 1V, I _C = 0.1mA V _{CE} = 1V, I _C = 1mA V _{CE} = 1V, I _C = 10mA V _{CE} = 1V, I _C = 150mA V _{CE} = 2V, I _C = 500mA | 20 40 80 100 40 | 300 | |
| V _{CE} (sat) | Collector-Emitter Saturation Voltage * | I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA | | 0.4 0.75 | V V |
| V _{BE} (sat) | Base-Emitter Saturation Voltage * | I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA | 0.75 | 0.95 1.2 | V V |
| f _T | Current Gain Bandwidth Product | I _C = 20mA, V _{CE} = 10V, f = 100MHz | 250 | | MHz |
| C _{ob} | Output Capacitance | V _{CB} = 5V, I _E = 0, f = 100KHz | | 6.5 | pF |
| t _{ON} | Turn On Time | V _{CC} = 30V, V _{BE} = 2V I _C = 150mA, I _{B1} = 15mA | | 35 | ns |
| t _{OFF} | Turn Off Time | V _{CC} = 30V, I _C = 150mA I _{B1} = I _{B2} = 15mA | | 255 | ns |

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Typical Performance Characteristics

Figure 1. DC current Gain

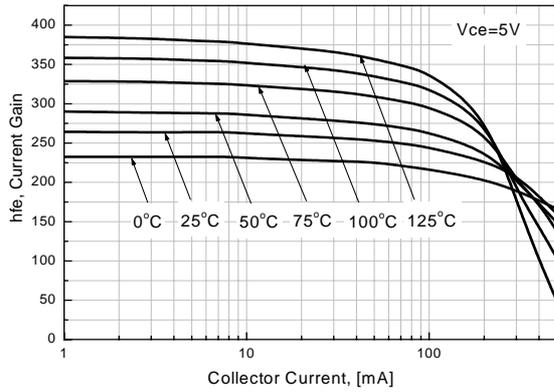


Figure 2. Collector-Emitter Saturation Voltage

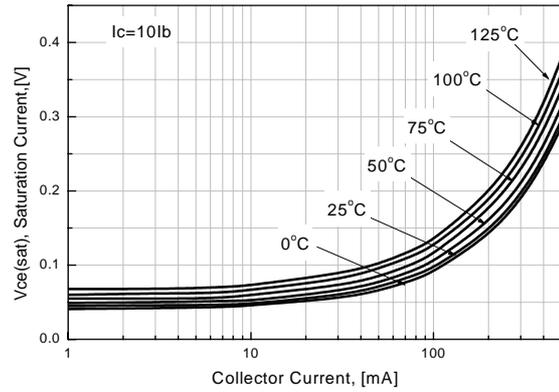


Figure 3. Base-Emitter Saturation Voltage

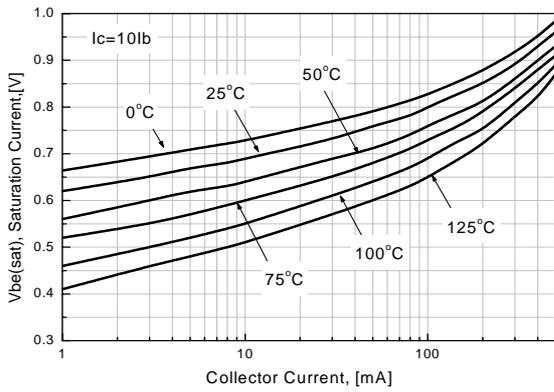


Figure 4. Collector - Base Leakage Current

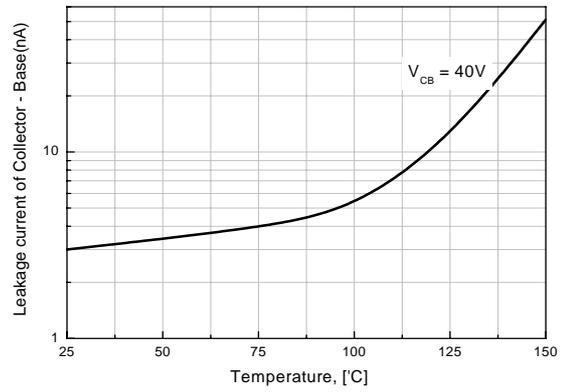


Figure 5. Collector-Base Capacitance

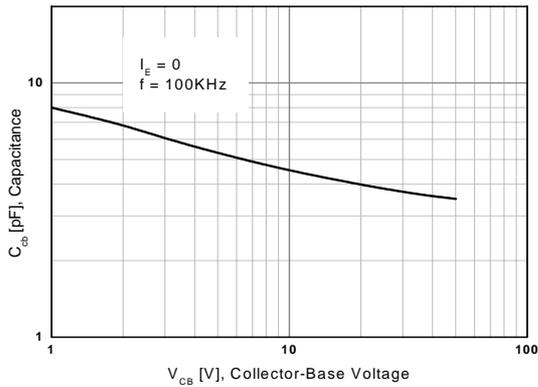
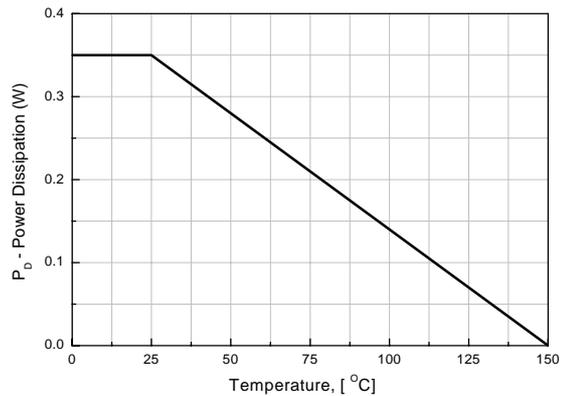
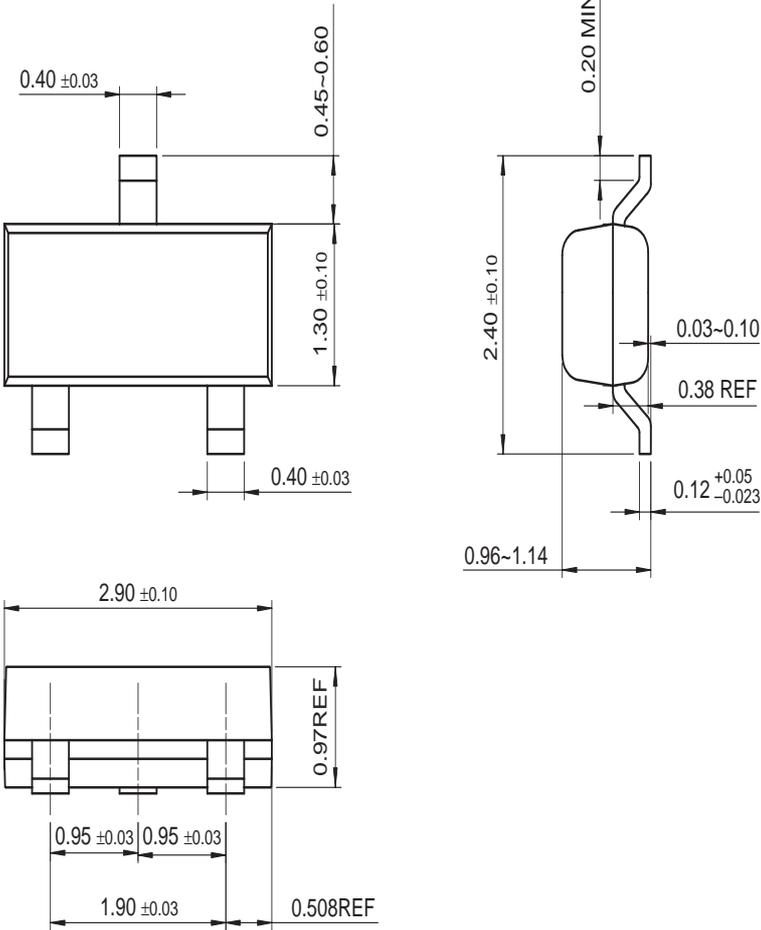


Figure 6. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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