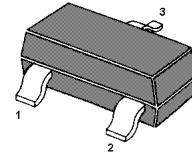


MMBTSC380

NPN Silicon Epitaxial Planar Transistor

High frequency amplifier application
for FM IF, OSC stage and AM CONV. IF stage

The transistor is subdivided into three groups R, O, and Y, according to its DC current gain.



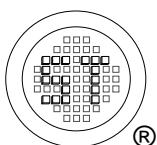
1. Base 2. Emitter 3. Collector
TO-236 Plastic Package

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|-------------|------------------|
| Collector Base Voltage | V_{CBO} | 35 | V |
| Collector Emitter Voltage | V_{CEO} | 30 | V |
| Emitter Base Voltage | V_{EBO} | 4 | V |
| Collector Current | I_C | 50 | mA |
| Emitter Current | $-I_E$ | 50 | mA |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{Stg} | -55 to +125 | $^\circ\text{C}$ |

Characteristics at $T_{amb} = 25\text{ }^\circ\text{C}$

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|----------------|------|------|------|---------------|
| DC Current Gain at $V_{CE} = 12\text{ V}$, $I_C = 2\text{ mA}$ Current Gain Group | R h_{FE} | 40 | - | 80 | - |
| | O h_{FE} | 70 | - | 140 | - |
| | Y h_{FE} | 120 | - | 240 | - |
| Collector Cutoff Current at $V_{CB} = 35\text{ V}$ | I_{CBO} | - | - | 0.1 | μA |
| Emitter Cutoff Current at $V_{EB} = 4\text{ V}$ | I_{EBO} | - | - | 0.1 | μA |
| Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$ | $V_{CE(sat)}$ | - | - | 0.4 | V |
| Base Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$ | $V_{BE(sat)}$ | - | - | 1 | V |
| Transition Frequency at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$ | f_T | 100 | - | 400 | MHz |
| Collector Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | 1.4 | 2 | 3.2 | pF |
| Collector Base Time Constant at $V_{CE} = 10\text{ V}$, $-I_E = 1\text{ mA}$, $f = 30\text{ MHz}$ | $C_c, f_{bb'}$ | 10 | - | 50 | ps |
| Power Gain at $V_{CC} = 6\text{ V}$, $f = 10.7\text{ MHz}$, $-I_E = 1\text{ mA}$ | G_{pe} | 27 | 29 | 33 | dB |



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Dated : 16/03/2015 Rev:01

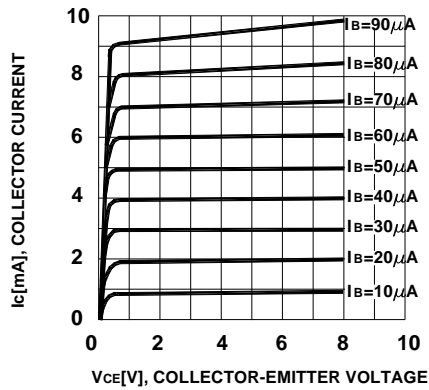


Figure 1. Static Characteristic

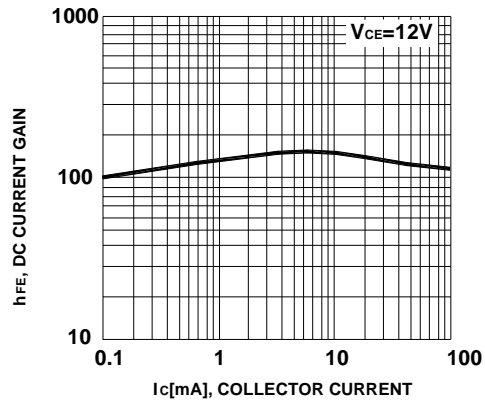


Figure 2. DC Current Gain

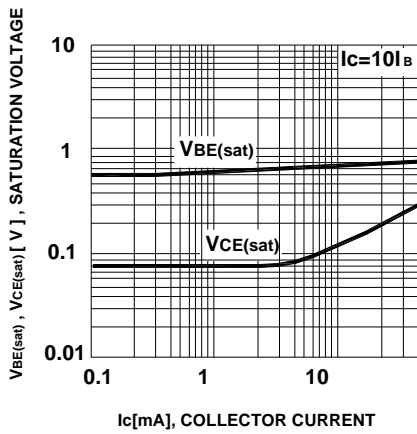


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Satruation Voltage

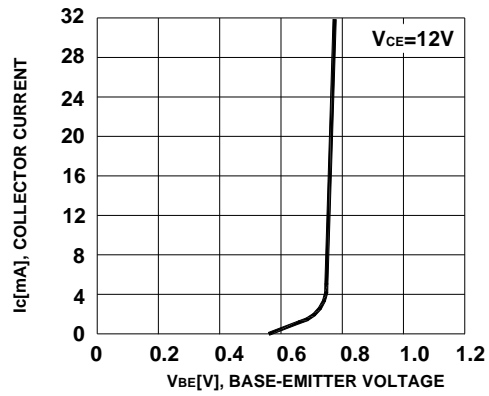


Figure 4. Base-Emitter On Voltage

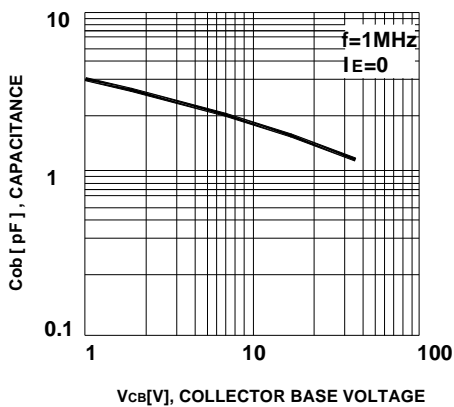


Figure 5. Collector Output Capacitance

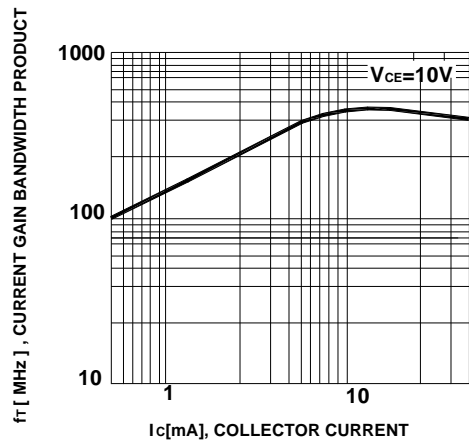
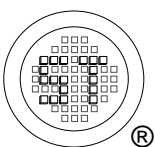


Figure 6. Current Gain Bandwidth Product



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