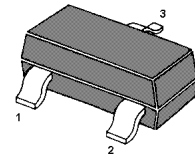


# MMBTSC1815

## NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into four groups O, Y, G and L, according to its DC current gain. As complementary type the PNP transistor MMBTSA1015 is recommended.



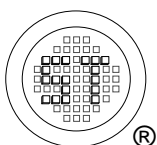
1. Base 2. Emitter 3. Collector  
TO-236 Plastic Package

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

| Parameter                 | Symbol    | Value         | Unit             |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage    | $V_{CBO}$ | 60            | V                |
| Collector Emitter Voltage | $V_{CEO}$ | 50            | V                |
| Emitter Base Voltage      | $V_{EBO}$ | 5             | V                |
| Collector Current         | $I_C$     | 150           | mA               |
| Base Current              | $I_B$     | 50            | mA               |
| Power Dissipation         | $P_{tot}$ | 200           | mW               |
| Junction Temperature      | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |

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

| Parameter   | Symbol        | Min.     | Max. | Unit |   |
|---|---------------|----------|------|------|---|
| DC Current Gain<br>at $V_{CE} = 6\text{ V}$ , $I_C = 2\text{ mA}$<br>Current Gain Group<br>at $V_{CE} = 6\text{ V}$ , $I_C = 150\text{ mA}$ | O             | $h_{FE}$ | 70   | 140  | - |
|   | Y             | $h_{FE}$ | 120  | 240  | - |
|   | G             | $h_{FE}$ | 200  | 400  | - |
|   | L             | $h_{FE}$ | 350  | 700  | - |
|   |               | $h_{FE}$ | 25   | -    | - |
| Collector Base Cutoff Current<br>at $V_{CB} = 60\text{ V}$  | $I_{CBO}$     | -        | 100  | nA   |   |
| Emitter Base Cutoff Current<br>at $V_{EB} = 5\text{ V}$   | $I_{EBO}$     | -        | 100  | nA   |   |
| Collector Emitter Saturation Voltage<br>at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$   | $V_{CE(sat)}$ | -        | 0.25 | V    |   |
| Base Emitter Saturation Voltage<br>at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$  | $V_{BE(sat)}$ | -        | 1    | V    |   |
| Gain Bandwidth Product<br>at $V_{CE} = 10\text{ V}$ , $I_C = 1\text{ mA}$   | $f_T$         | 80       | -    | MHz  |   |
| Output Capacitance<br>at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$  | $C_{ob}$      | -        | 3    | pF   |   |



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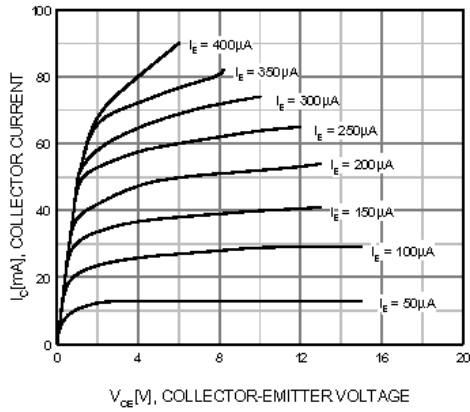


Figure 1. Static Characteristic

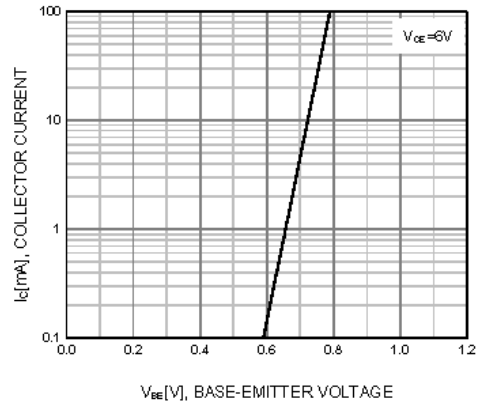


Figure 2. Transfer Characteristic

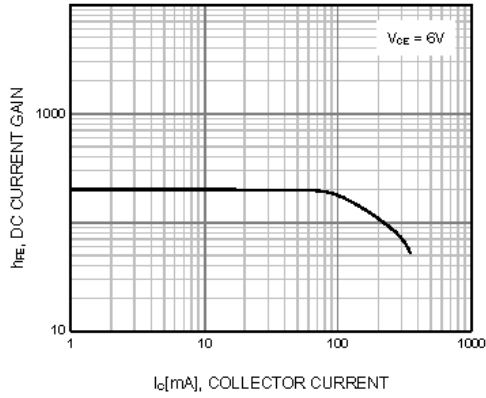


Figure 3. DC current Gain

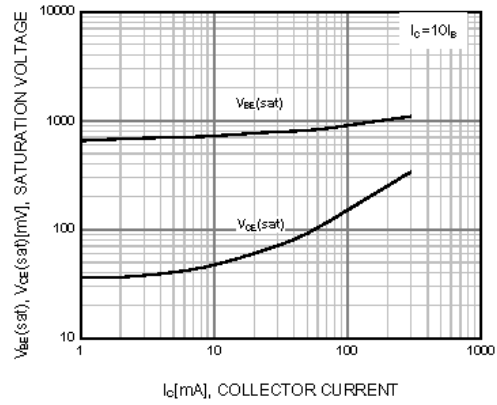


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

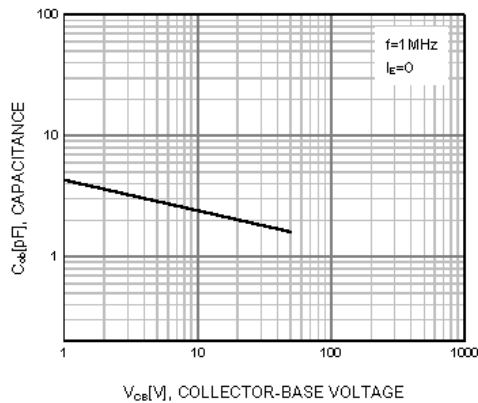


Figure 5. Output Capacitance

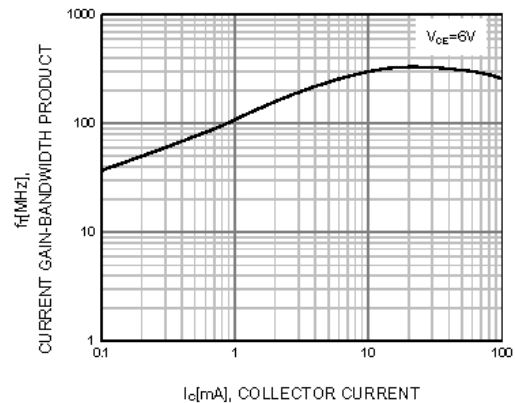
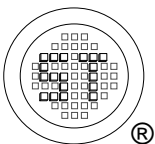


Figure 6. Current Gain Bandwidth Product



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