



# FUKUCOM COMPANY LTD.

## 福 靈 有 限 公 司

FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,  
KWUN TONG, KOWLOON, HONG KONG.

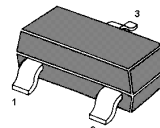
TEL: 852-2790 0314 FAX: 852-2790 0206

### MMBT9013

#### NPN Silicon Epitaxial Planar Transistors

for switching and amplifier applications.

As complementary types the PNP transistor MMBT9012 is recommended.



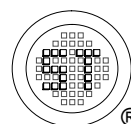
1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

#### Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)

| Parameter                 | Symbol           | Value         | Unit |
|---------------------------|------------------|---------------|------|
| Collector Base Voltage    | V <sub>CB0</sub> | 40            | V    |
| Collector Emitter Voltage | V <sub>CEO</sub> | 30            | V    |
| Emitter Base Voltage      | V <sub>EBO</sub> | 5             | V    |
| Collector Current         | I <sub>C</sub>   | 500           | mA   |
| Power Dissipation         | P <sub>tot</sub> | 200           | mW   |
| Junction Temperature      | T <sub>j</sub>   | 150           | °C   |
| Storage Temperature Range | T <sub>stg</sub> | - 55 to + 150 | °C   |

#### Characteristics at T<sub>a</sub> = 25 °C

| Parameter  | Symbol               | Min. | Max. | Unit |
|--|----------------------|------|------|------|
| DC Current Gain<br>at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 50 mA<br>Current Gain Group G<br>H | h <sub>FE</sub>      | 100  | 250  | -    |
|  | h <sub>FE</sub>      | 160  | 400  | -    |
|  | h <sub>FE</sub>      | 40   | -    | -    |
| Collector Base Cutoff Current<br>at V <sub>CB</sub> = 35 V                                       | I <sub>CB0</sub>     | -    | 100  | nA   |
| Emitter Base Cutoff Current<br>at V <sub>EB</sub> = 5 V  | I <sub>EBO</sub>     | -    | 100  | nA   |
| Collector Base Breakdown Voltage<br>at I <sub>C</sub> = 100 μA                                   | V <sub>(BR)CB0</sub> | 40   | -    | V    |
| Collector Emitter Breakdown Voltage<br>at I <sub>C</sub> = 1 mA                                  | V <sub>(BR)CEO</sub> | 30   | -    | V    |
| Emitter Base Breakdown Voltage<br>at I <sub>E</sub> = 100 μA                                     | V <sub>(BR)EBO</sub> | 5    | -    | V    |
| Collector Emitter Saturation Voltage<br>at I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA       | V <sub>CE(sat)</sub> | -    | 0.6  | V    |
| Base Emitter Saturation Voltage<br>at I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA            | V <sub>BE(sat)</sub> | -    | 1.2  | V    |
| Base Emitter Voltage<br>at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 100 mA                        | V <sub>BE</sub>      | -    | 1    | V    |
| Gain Bandwidth Product<br>at V <sub>CE</sub> = 6 V, I <sub>C</sub> = 20 mA                       | f <sub>T</sub>       | 100  | -    | MHz  |



Dated : 15/04/2009



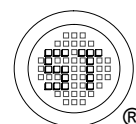
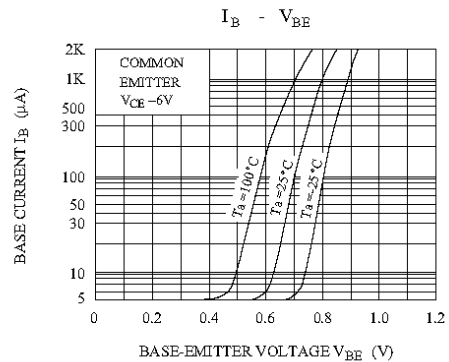
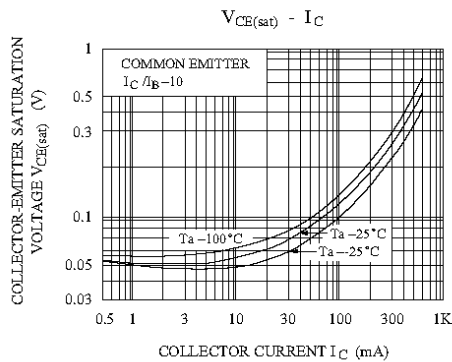
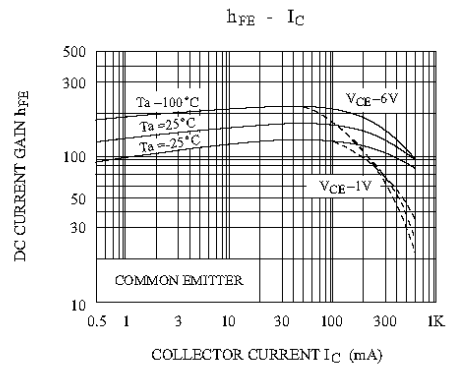
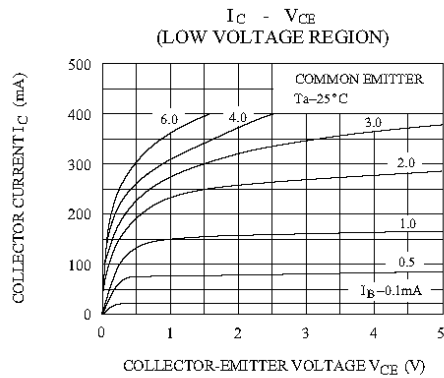
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