

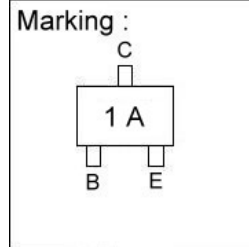
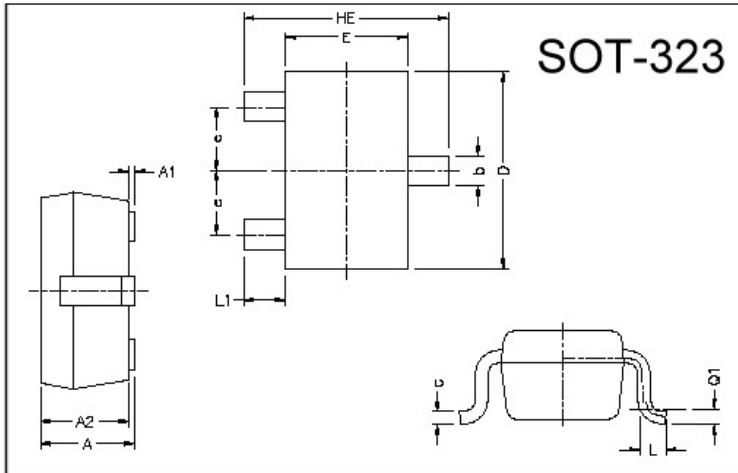
## GSMBT3904

## NPN EPITAXIAL PLANAR TRANSISTOR

### Description

The GSMBT3904 is designed for general purpose switching and amplifier applications.

### Package Dimensions



| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 0.80       | 1.10 | L1   | 0.42 REF.  |      |
| A1   | 0          | 0.10 | L    | 0.15       | 0.35 |
| A2   | 0.80       | 1.00 | b    | 0.25       | 0.40 |
| D    | 1.80       | 2.20 | c    | 0.10       | 0.25 |
| E    | 1.15       | 1.35 | e    | 0.65 REF.  |      |
| HE   | 1.80       | 2.40 | Q1   | 0.15 BSC.  |      |

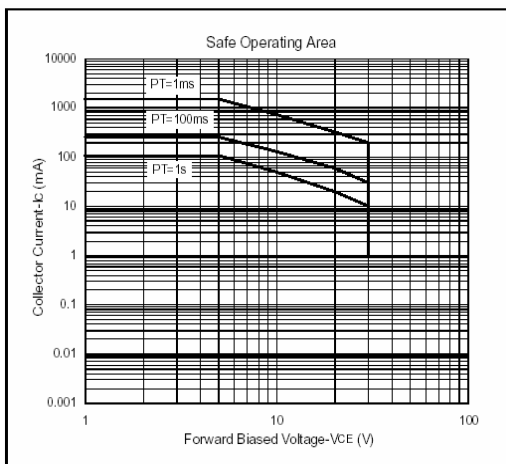
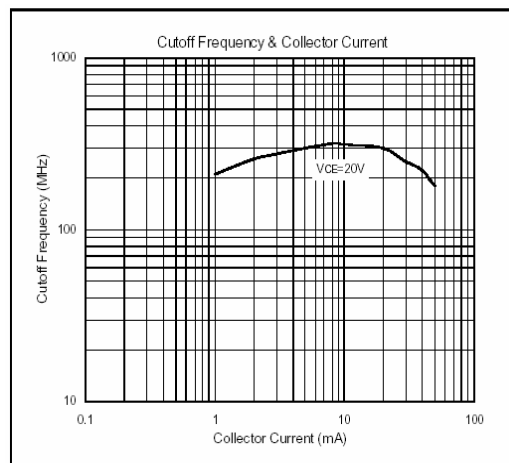
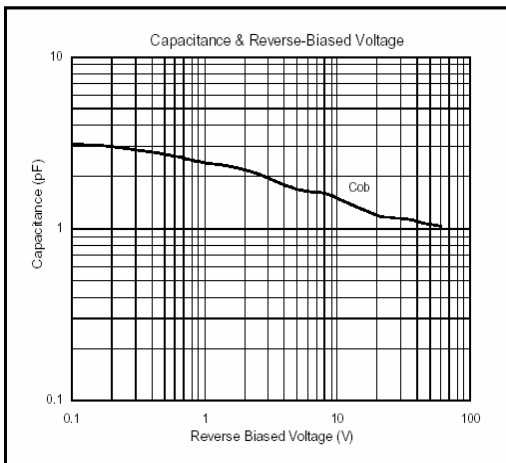
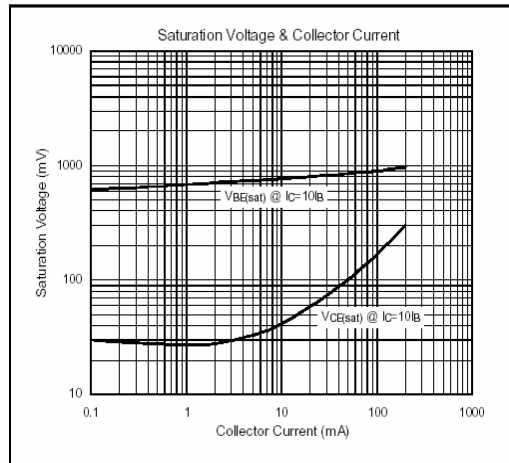
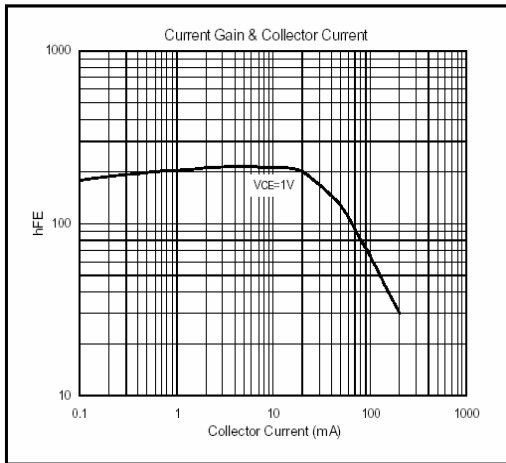
### Absolute Maximum Ratings at Ta = 25°C

| Parameter                    | Symbol | Ratings    | Unit |
|------------------------------|--------|------------|------|
| Junction Temperature         | Tj     | +150       | °C   |
| Storage Temperature          | Tstg   | -65 ~ +150 | °C   |
| Collector to Base Voltage    | VCBO   | 60         | V    |
| Collector to Emitter Voltage | VCEO   | 40         | V    |
| Emitter to Base Voltage      | VEBO   | 6          | V    |
| Collector Current            | IC     | 200        | mA   |
| Total Power Dissipation      | PD     | 350        | mW   |

### Characteristics at Ta = 25°C

| Symbol    | Min. | Typ. | Max. | Unit | Test Conditions                         |
|-----------|------|------|------|------|---|
| BVCBO     | 60   | -    | -    | V    | IC=10uA, IE=0                           |
| BVCEO     | 40   | -    | -    | V    | IC=1mA, IB=0                            |
| BVEBO     | 6    | -    | -    | V    | IE=10uA, IC=0                           |
| ICES      | -    | -    | 50   | nA   | VCB=30V                                 |
| IEBO      | -    | -    | 50   | nA   | VEB=3V                                  |
| VCE(sat)1 | -    | -    | 200  | mV   | IC=10mA, IB=1mA                         |
| VCE(sat)2 | -    | -    | 300  | mV   | IC=50mA, IB=5mA                         |
| VBE(sat)1 | 650  | -    | 850  | mV   | IC=10mA, IB=1mA                         |
| VBE(sat)2 | -    | -    | 950  | mV   | IC=50mA, IB=5mA                         |
| hFE1      | 40   | -    | -    |      | VCE=1V, IC=0.1mA                        |
| hFE2      | 70   | -    | -    |      | VCE=1V, IC=1mA                          |
| hFE3      | 100  | -    | 300  |      | VCE=1V, IC=10mA                         |
| hFE4      | 60   | -    | -    |      | VCE=1V, IC=50mA                         |
| hFE5      | 30   | -    | -    |      | VCE=1V, IC=100mA                        |
| fT        | 300  | -    | -    | MHz  | VCE=20V, IE=-10mA, f=100MHz             |
| Cob       | -    | -    | 4    | pF   | VCB=10V, f=100KHz                       |
| Cib       | -    | -    | 8    | pF   | VEB=0.5V, f=100KHz                      |
| td        | -    | -    | 35   | ns   | VCC=3V, VBE(OFF)=0.5V, IC=10mA, IB1=1mA |
| tr        | -    | -    | 35   | ns   | VCC=3V, VBE(OFF)=0.5V, IC=10mA, IB1=1mA |
| tstg      | -    | -    | 200  | ns   | VCC=3V, IC=10mA, IB1=-IB2=1mA           |
| tf        | -    | -    | 50   | ns   | VCC=3V, IC=10mA, IB1=-IB2=1mA           |

## Characteristics Curve



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