

## GSMBT4075 NPN EPITAXIAL PLANAR TRANSISTOR

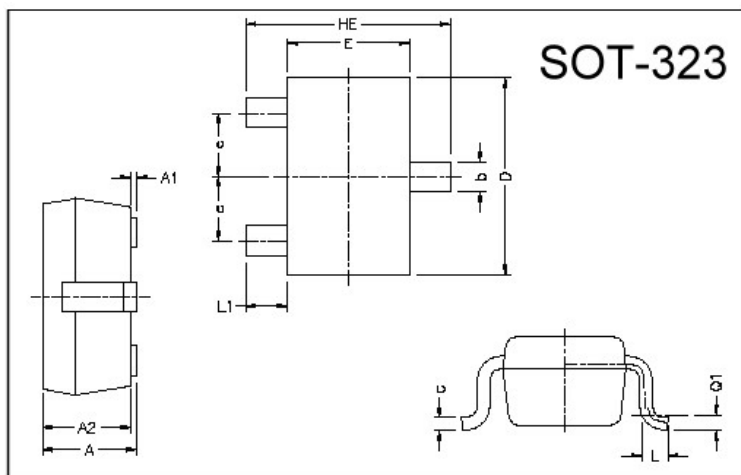
### Description

The GSMBT4075 is designed for general purpose switching and amplifier applications.

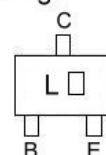
### Features

- Excellent hFE Linearity :  $h_{FE}(0.1\text{mA})/h_{FE}(2\text{mA})=0.95$  (Typ.)
- High hFE :  $h_{FE} = 70\sim 700$
- Complementary to GSMBT2014

### Package Dimensions



Marking :



□: hFE Rank Code

| 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 $T_a = 25^\circ\text{C}$

| Parameter                    | Symbol    | Ratings  | Unit             |
|------------------------------|-----------|----------|------------------|
| Junction Temperature         | $T_j$     | +150     | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ | -55~+150 | $^\circ\text{C}$ |
| Collector to Base Voltage    | $V_{CBO}$ | 60       | V                |
| Collector to Emitter Voltage | $V_{CEO}$ | 50       | V                |
| Emitter to Base Voltage      | $V_{EBO}$ | 5        | V                |
| Collector Current            | $I_C$     | 150      | mA               |
| Base Current                 | $I_B$     | 30       | mA               |
| Total Power Dissipation      | $P_D$     | 225      | mW               |

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

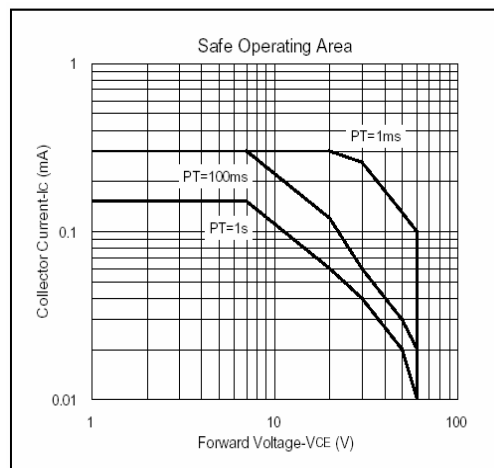
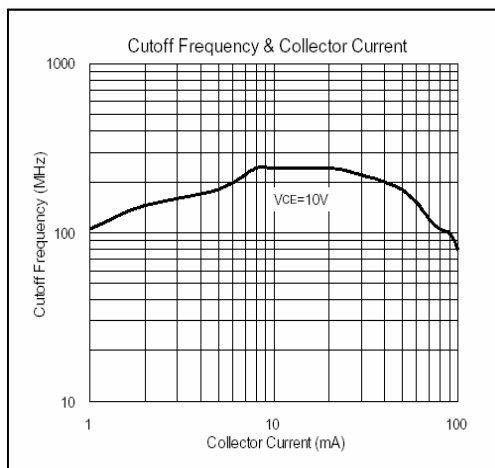
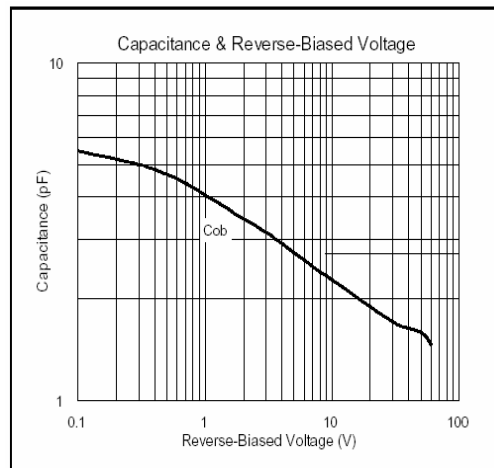
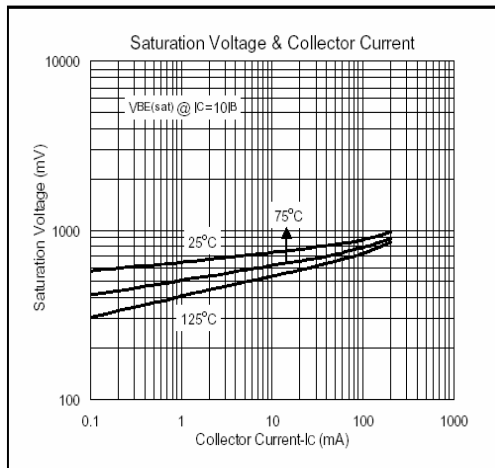
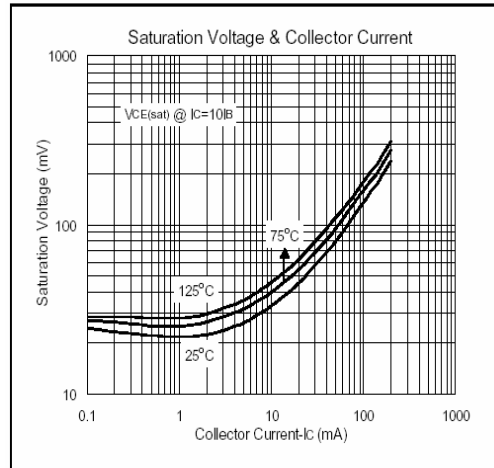
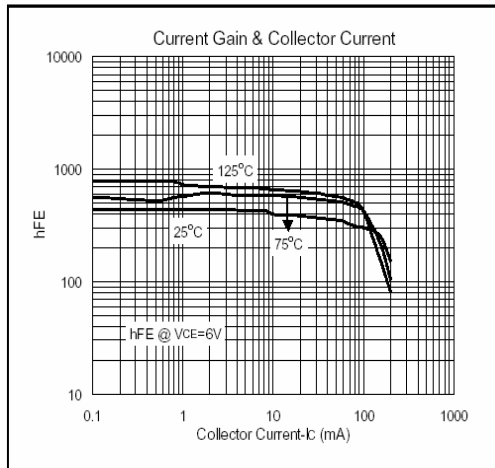
| Symbol          | Min. | Typ. | Max. | Unit | Test Conditions  |
|-----------------|------|------|------|------|--|
| $V_{CBO}$       | 60   | -    | -    | V    | $I_C=100\mu\text{A}$ , $I_E=0$                             |
| $V_{CEO}$       | 50   | -    | -    | V    | $I_C=1\text{mA}$ , $I_B=0$                                 |
| $V_{EBO}$       | 5    | -    | -    | V    | $I_E=10\mu\text{A}$ , $I_C=0$                              |
| $I_{CBO}$       | -    | -    | 100  | nA   | $V_{CB}=60\text{V}$ , $I_E=0$                              |
| $I_{EBO}$       | -    | -    | 100  | nA   | $V_{EB}=5\text{V}$ , $I_C=0$                               |
| * $V_{CE(sat)}$ | -    | -    | 250  | mV   | $I_C=100\text{mA}$ , $I_B=10\text{mA}$                     |
| * $V_{BE(sat)}$ | -    | -    | 1    | V    | $I_C=100\text{mA}$ , $I_B=10\text{mA}$                     |
| * $h_{FE1}$     | 70   | -    | 700  |      | $V_{CE}=6\text{V}$ , $I_C=2\text{mA}$                      |
| * $h_{FE2}$     | 25   | -    | -    |      | $V_{CE}=6\text{V}$ , $I_C=150\text{mA}$                    |
| fT              | 80   | -    | -    | MHz  | $V_{CE}=10\text{V}$ , $I_C=1\text{mA}$ , $f=100\text{MHz}$ |
| Cob             | -    | -    | 3.5  | pF   | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$            |

\* Pulse Test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$

### Classification Of hFE1

| Rank  | LO       | LY        | LG        | LB        |
|-------|----------|-----------|-----------|-----------|
| Range | 70 - 140 | 120 - 240 | 200 - 400 | 350 - 700 |

## Characteristics Curve



**Important Notice:**

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of GTM.
- GTM reserves the right to make changes to its products without notice.
- GTM semiconductor products are not warranted to be suitable for use in life-support Applications, or systems.
- GTM assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

**Head Office And Factory:**

- **Taiwan:** No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
- TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- **China:** (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
- TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165