

2SB1438

Silicon PNP epitaxial planer type

For low-frequency output amplification

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$.
- High collector to emitter voltage V_{CEO} .
- Allowing supply with the radial taping.

■ Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Ratings | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage | V_{CBO} | -100 | V |
| Collector to emitter voltage | V_{CEO} | -100 | V |
| Emitter to base voltage | V_{EBO} | -5 | V |
| Peak collector current | I_{CP} | -3 | A |
| Collector current | I_C | -2 | A |
| Collector power dissipation | P_C^* | 1 | W |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55 ~ +150 | °C |

* Printed circuit board: Copper foil area of 1cm² or more, and the board thickness of 1.7mm for the collector portion

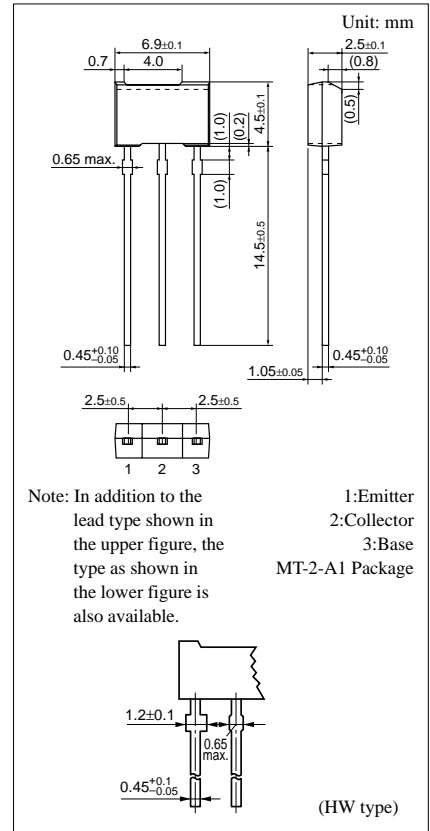
■ Electrical Characteristics (Ta=25°C)

| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|----------------|---|------|-------|------|------|
| Collector cutoff current | I_{CBO} | $V_{CB} = -50V, I_E = 0$ | | | -0.1 | μA |
| Collector to base voltage | V_{CBO} | $I_C = -10\mu A, I_E = 0$ | -100 | | | V |
| Collector to emitter voltage | V_{CEO} | $I_C = -1mA, I_B = 0$ | -100 | | | V |
| Emitter to base voltage | V_{EBO} | $I_E = -10\mu A, I_C = 0$ | -5 | | | V |
| Forward current transfer ratio | h_{FE1}^{*1} | $V_{CE} = -2V, I_C = -200mA$ | 120 | | 340 | |
| | h_{FE2} | $V_{CE} = -2V, I_C = -1A^{*2}$ | 60 | | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -1A, I_B = -50mA^{*2}$ | | -0.17 | -0.3 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = -1A, I_B = -50mA^{*2}$ | | -0.85 | -1.2 | V |
| Transition frequency | f_T | $V_{CB} = -10V, I_E = 50mA, f = 200MHz$ | | 90 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = -10V, I_E = 0, f = 1MHz$ | | 70 | 90 | pF |

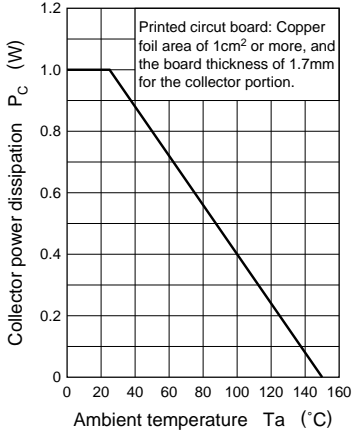
^{*2} Pulse measurement

^{*1} h_{FE1} Rank classification

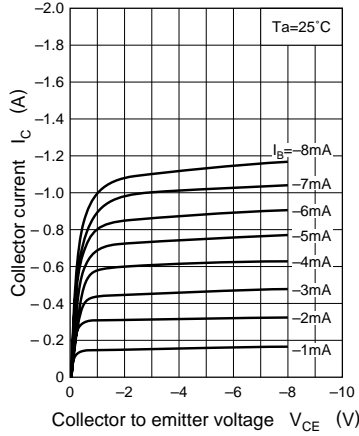
| Rank | R | S |
|-----------|-----------|-----------|
| h_{FE1} | 120 ~ 240 | 170 ~ 340 |



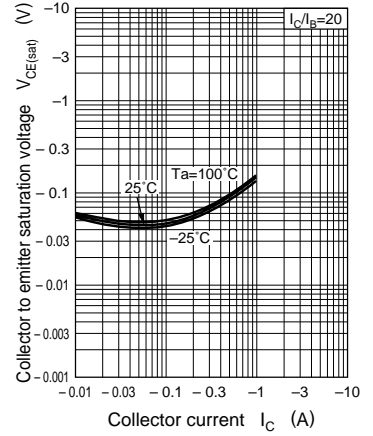
$P_C - T_a$



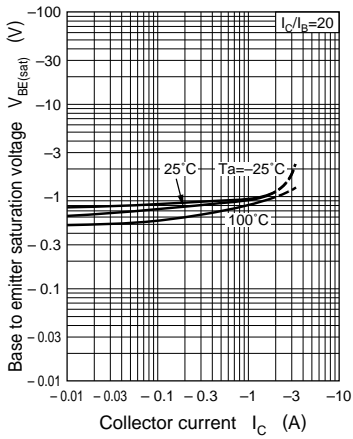
$I_C - V_{CE}$



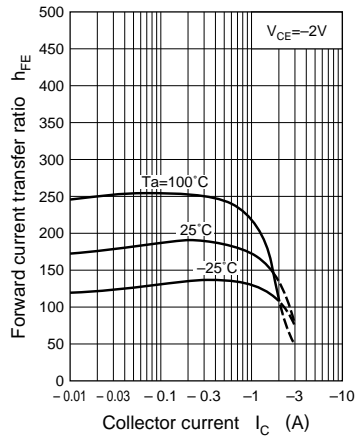
$V_{CE(sat)} - I_C$



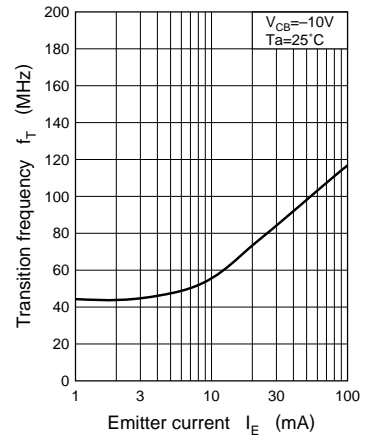
$V_{BE(sat)} - I_C$



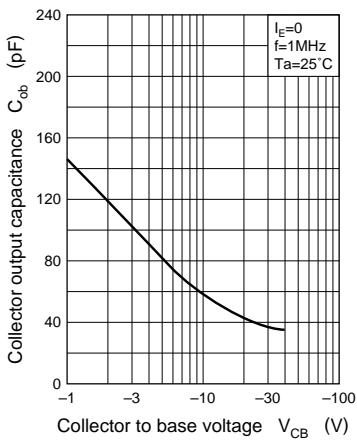
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



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