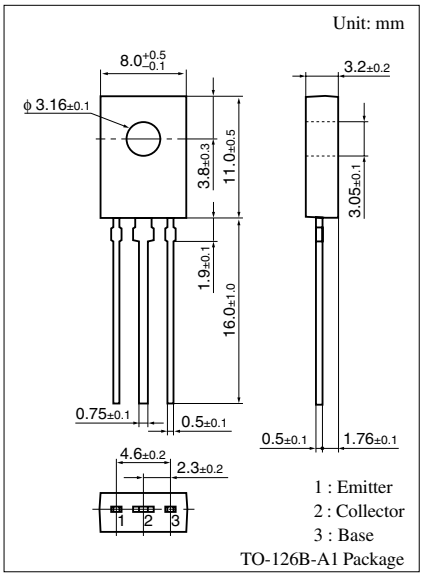
# 2SC2590

## Silicon NPN epitaxial planar type

For low-frequency power amplification
Complementary to 2SA1110




### ■ Features

- Excellent current $I_C$ characteristics of forward current transfer ratio $h_{FE}$ vs. collector
- High transition frequency $f_T$
- A complementary pair with 2SA1110, is optimum for the driver-stage of a 40 W to 60 W output amplifier
- TO-126B package which requires no insulation plate for installation to the heat sink

### ■ Absolute Maximum Ratings $T_C = 25°C$

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | 120 | V |
| Collector to emitter voltage | $V_{CEO}$ | 120 | V |
| Emitter to base voltage | $V_{EBO}$ | 5 | V |
| Peak collector current | $I_{CP}$ | 1 | A |
| Collector current | $I_C$ | 0.5 | A |
| Collector power dissipation * | $P_C$ | 1.2 | W |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | −55 to +150 | °C |

Note) *: Without heat sink

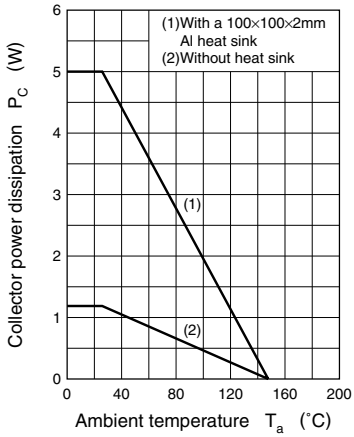
### ■ Electrical Characteristics $T_C = 25°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector to emitter voltage | $V_{CEO}$ | $I_C$ = 100 µA, $I_B$ = 0 | 120 | | | V |
| Emitter to base voltage | $V_{EBO}$ | $I_E$ = 10 µA, $I_C$ = 0 | 5 | | | V |
| Forward current transfer ratio | $h_{FE1}$ * | $V_{CE}$ = 10 V, $I_C$ = 150 mA | 90 | | 220 | |
| | $h_{FE2}$ | $V_{CE}$ = 5 V, $I_C$ = 500 mA | 65 | 100 | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C$ = 300 mA, $I_B$ = 30 mA | | | 1 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C$ = 300 mA, $I_B$ = 30 mA | | | 1.2 | V |
| Transition frequency | $f_T$ | $V_{CB}$ = 10 V, $I_E$ = −50 mA, f = 200 MHz | | 200 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | | 11 | 20 | pF |

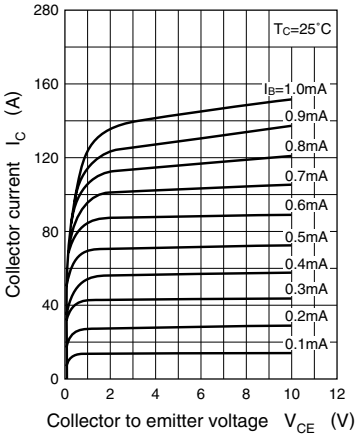
Note) *: Rank classification

| Rank | Q | R |
|---|---|---|
| $h_{FE1}$ | 90 to 155 | 130 to 220 |

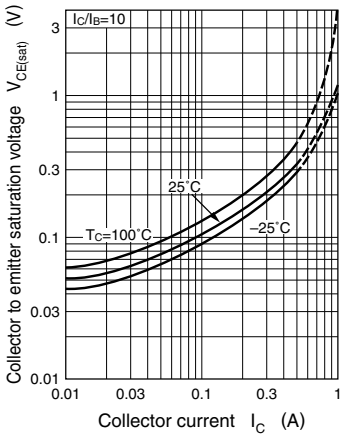
$P_C$ — $T_a$



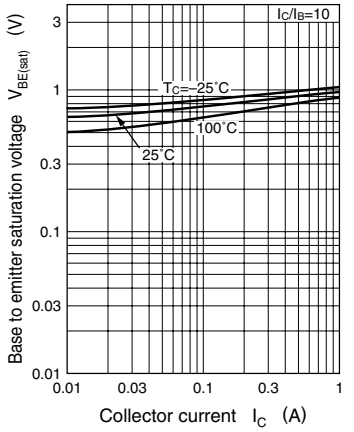

$I_C$ — $V_{CE}$



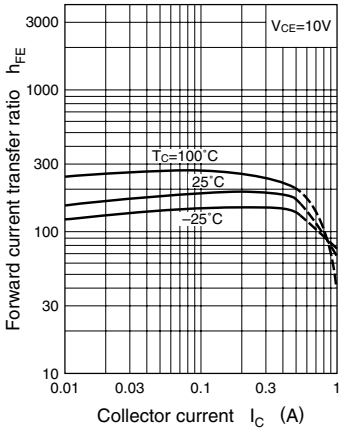

$V_{CE(sat)}$ — $I_C$



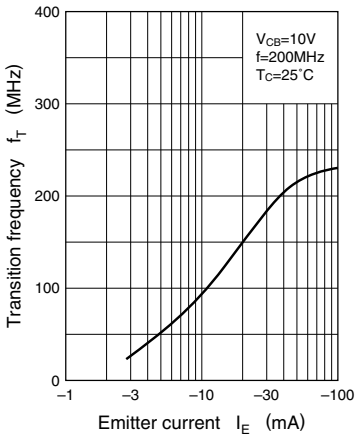

$V_{BE(sat)}$ — $I_C$



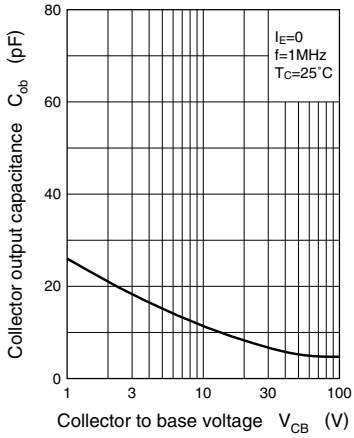

$h_{FE}$ — $I_C$



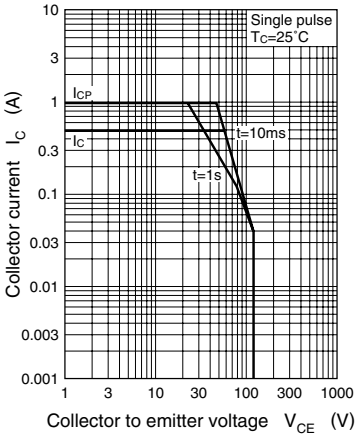

$f_T$ — $I_E$




$C_{ob}$ — $V_{CB}$




Area of safe operation (ASO)



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