

2SC1509

Silicon NPN epitaxial planer type

For low-frequency driver amplification

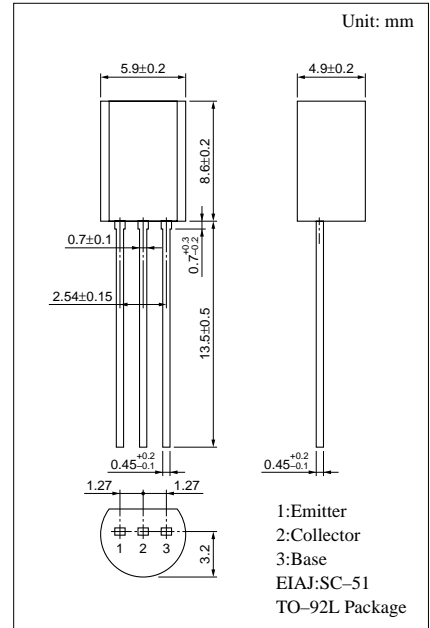
Complementary to 2SA777

Features

- High collector to emitter voltage V_{CEO} .
- Optimum for the driver stage of a low-frequency and 25 to 30W output amplifier.

Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Ratings | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage | V_{CBO} | 80 | V |
| Collector to emitter voltage | V_{CEO} | 80 | 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 | W |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55 ~ +150 | °C |



Electrical Characteristics (Ta=25°C)

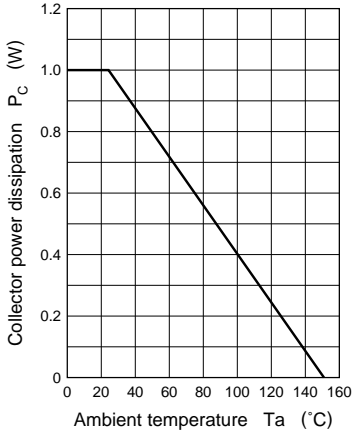
| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|----------------|---|-----|------|-----|---------|
| Collector cutoff current | I_{CBO} | $V_{CB} = 20V, I_E = 0$ | | | 0.1 | μA |
| Collector to base voltage | V_{CBO} | $I_C = 10\mu A, I_E = 0$ | 80 | | | V |
| Collector to emitter voltage | V_{CEO} | $I_C = 100\mu A, I_B = 0$ | 80 | | | V |
| Emitter to base voltage | V_{EBO} | $I_E = 10\mu A, I_C = 0$ | 5 | | | V |
| Forward current transfer ratio | h_{FE1}^{*1} | $V_{CE} = 10V, I_C = 150mA^{*2}$ | 130 | | 330 | |
| | h_{FE2} | $V_{CE} = 5V, I_C = 500mA^{*2}$ | 50 | 100 | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 300mA, I_B = 30mA^{*2}$ | | 0.2 | 0.4 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 300mA, I_B = 30mA^{*2}$ | | 0.85 | 1.2 | V |
| Transition frequency | f_T | $V_{CB} = 10V, I_E = -50mA, f = 100MHz$ | | 120 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | | 11 | 20 | pF |

*2 Pulse measurement

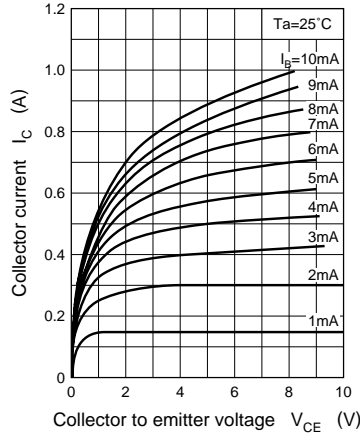
*1 h_{FE1} Rank classification

| Rank | R | S |
|-----------|-----------|-----------|
| h_{FE1} | 130 ~ 220 | 185 ~ 330 |

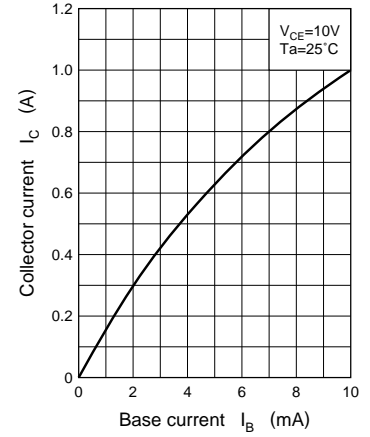
$P_C - T_a$



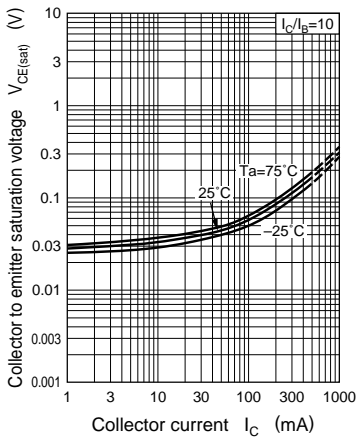
$I_C - V_{CE}$



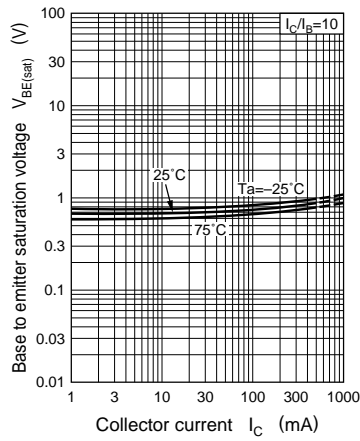
$I_C - I_B$



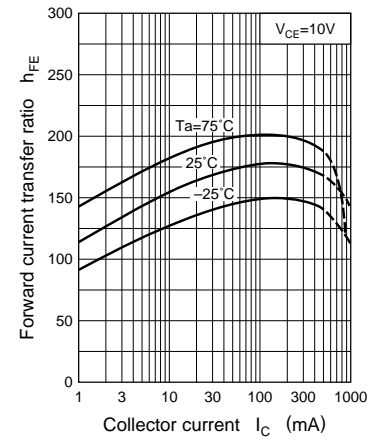
$V_{CE(sat)} - I_C$



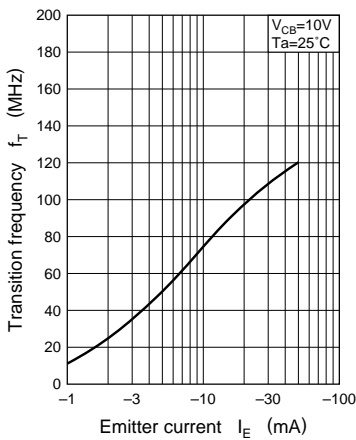
$V_{BE(sat)} - I_C$



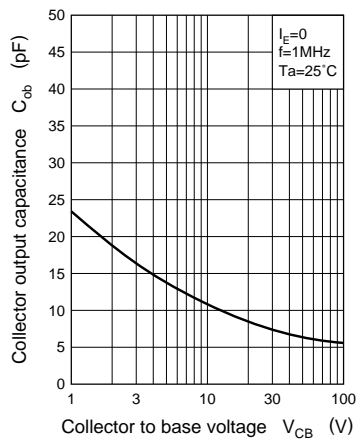
$h_{FE} - I_C$



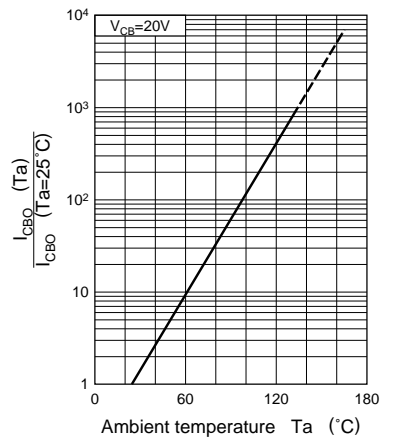
$f_T - I_E$



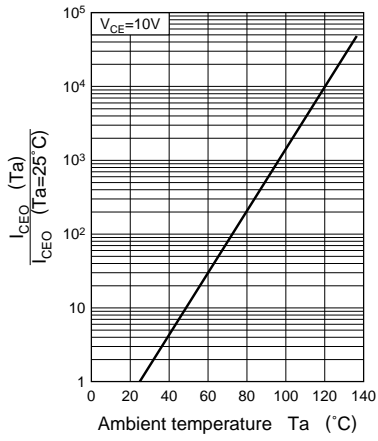
$C_{ob} - V_{CB}$



$I_{CBO} - T_a$



$I_{CEO} - T_a$



Area of safe operation (ASO)

