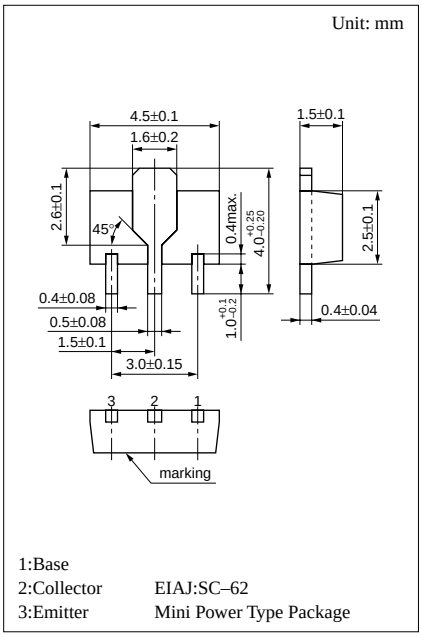
# 2SD2457

## Silicon NPN epitaxial planer type

For low-frequency power amplification




Marking symbol : 1Y

### Features

- High collector to emitter voltage $V_{CEO}$.
- Large collector power dissipation $P_C$.
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### Absolute Maximum Ratings (Ta=25˚C)

| Parameter | Symbol | Ratings | Unit |
|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | 50 | V |
| Collector to emitter voltage | $V_{CEO}$ | 40 | V |
| Emitter to base voltage | $V_{EBO}$ | 5 | V |
| Peak collector current | $I_{CP}$ | 3 | A |
| Collector current | $I_C$ | 1.5 | 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 1cm$^2$ or more, and the board thickness of 1.7mm for the collector portion

### Electrical Characteristics (Ta=25˚C)

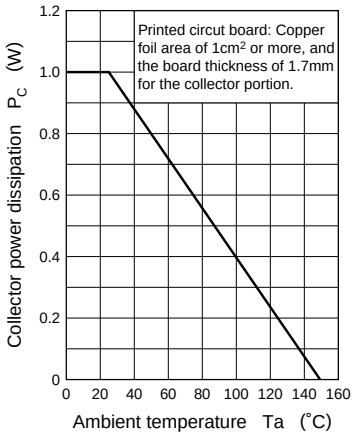
| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$ = 20V, $I_E$ = 0 | | | 1 | µA |
| | $I_{CEO}$ | $V_{CE}$ = 10V, $I_B$ = 0 | | | 100 | µA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$ = 5V, $I_E$ = 0 | | | 10 | µA |
| Collector to base voltage | $V_{CBO}$ | $I_C$ = 1mA, $I_E$ = 0 | 50 | | | V |
| Collector to emitter voltage | $V_{CEO}$ | $I_C$ = 2mA, $I_B$ = 0 | 40 | | | V |
| Forward current transfer ratio | $h_{FE}$ *1 | $V_{CE}$ = 5V, $I_C$ = 1A*2 | 80 | 120 | 220 | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C$ = 1.5A, $I_B$ = 0.15A*2 | | | 1 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C$ = 2A, $I_B$ = 0.2A*2 | | | 1.5 | V |
| Transition frequency | $f_T$ | $V_{CB}$ = 5V, $I_E$ = –0.5A*2, f = 200MHz | | 150 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = 20V, $I_E$ = 0, f = 1MHz | | 45 | | pF |

*2 Pulse measurement

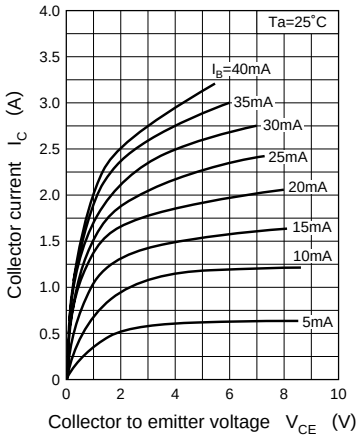
*1$h_{FE}$ Rank classification

| Rank | Q | R |
|---|---|---|
| $h_{FE}$ | 80 ~ 160 | 120 ~ 220 |

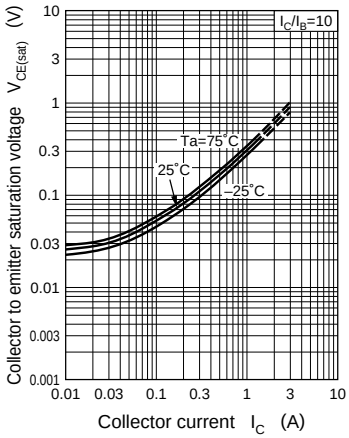
$P_C$ — Ta



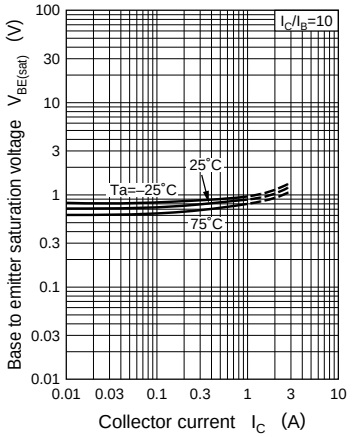

$I_C$ — $V_{CE}$



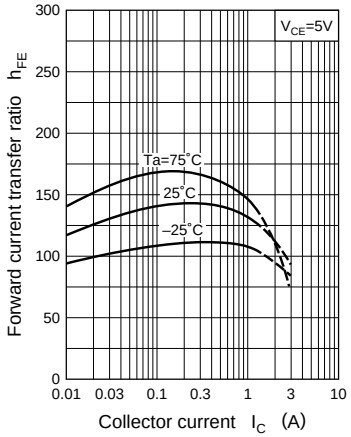

$V_{CE(sat)}$ — $I_C$



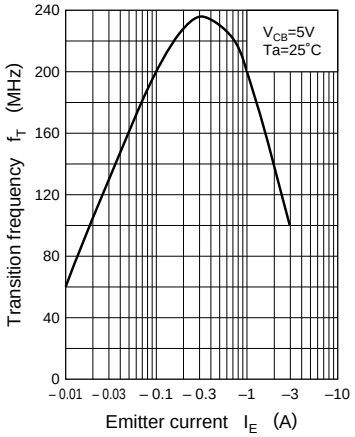

$V_{BE(sat)}$ — $I_C$



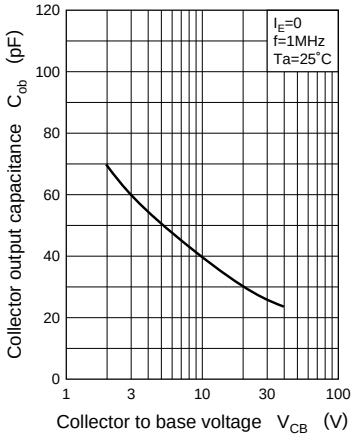

$h_{FE}$ — $I_C$




$f_T$ — $I_E$




$C_{ob}$ — $V_{CB}$



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