# 2SD1821, 2SD1821A

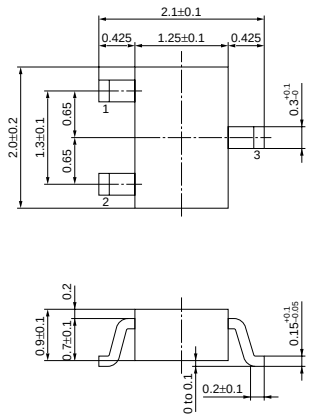
## Silicon NPN epitaxial planer type

For high breakdown voltage low-frequency and low-noise amplification

### Features

- High collector to emitter voltage $V_{CEO}$.
- Low noise voltage NV.
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

Unit: mm




1:Base
2:Emitter EIAJ:SC–70
3:Collector S–Mini Type Package

Marking symbol : P(2SD1821)
L(2SD1821A)

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

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Collector to base voltage | 2SD1821 | $V_{CBO}$ | 150 | V |
| | 2SD1821A | | 185 | |
| Collector to emitter voltage | 2SD1821 | $V_{CEO}$ | 150 | V |
| | 2SD1821A | | 185 | |
| Emitter to base voltage | | $V_{EBO}$ | 5 | V |
| Peak collector current | | $I_{CP}$ | 100 | mA |
| Collector current | | $I_C$ | 50 | mA |
| Collector power dissipation | | $P_C$ | 150 | mW |
| Junction temperature | | $T_j$ | 150 | ˚C |
| Storage temperature | | $T_{stg}$ | –55 ~ +150 | ˚C |

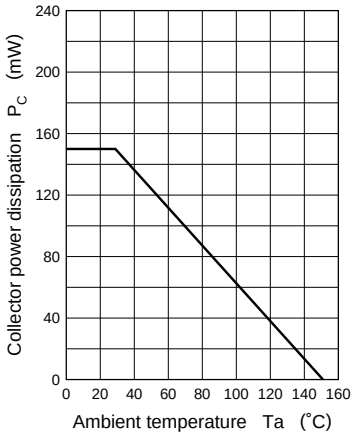
### Electrical Characteristics (Ta=25˚C)

| Parameter | | Symbol | Conditions | min | typ | max | Unit |
|---|---|---|---|---|---|---|---|
| Collector cutoff current | | $I_{CBO}$ | $V_{CB}$ = 100V, $I_E$ = 0 | | | 1 | μA |
| Collector to emitter voltage | 2SD1821 | $V_{CEO}$ | $I_C$ = 100μA, $I_B$ = 0 | 150 | | | V |
| | 2SD1821A | | | 185 | | | |
| Emitter to base voltage | | $V_{EBO}$ | $I_E$ = 10μA, $I_C$ = 0 | 5 | | | V |
| Forward current transfer ratio | | $h_{FE}$* | $V_{CE}$ = 5V, $I_C$ = 10mA | 130 | | 330 | |
| Collector to emitter saturation voltage | | $V_{CE(sat)}$ | $I_C$ = 30mA, $I_B$ = 3mA | | | 1 | V |
| Transition frequency | | $f_T$ | $V_{CB}$ = 10V, $I_E$ = –10mA, f = 200MHz | | 150 | | MHz |
| Collector output capacitance | | $C_{ob}$ | $V_{CB}$ = 10V, $I_E$ = 0, f = 1MHz | | 2.3 | | pF |
| Noise voltage | | NV | $V_{CE}$ = 10V, $I_C$ = 1mA, $G_V$ = 80dB<br>$R_g$ = 100kΩ, Function = FLAT | | 150 | | mV |

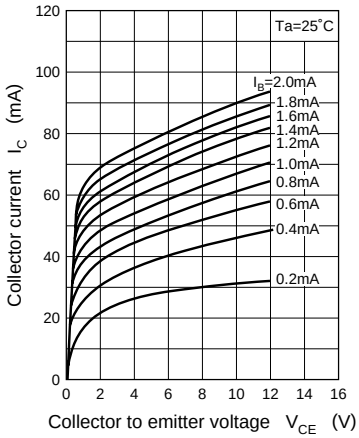
*$h_{FE}$ Rank classification

| Rank | | R | S |
|---|---|---|---|
| $h_{FE}$ | | 130 ~ 220 | 185 ~ 330 |
| Marking Symbol | 2SD1821 | PR | PS |
| | 2SD1821A | LR | LS |

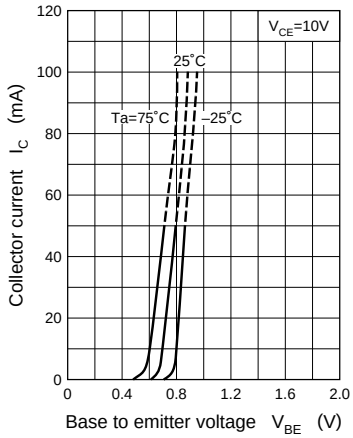
$P_C$ — Ta



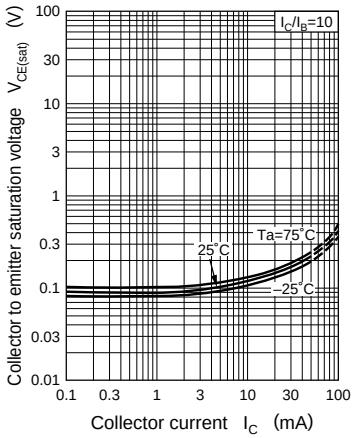

$I_C$ — $V_{CE}$



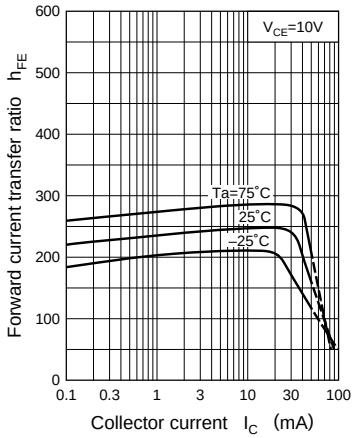

$I_C$ — $V_{BE}$



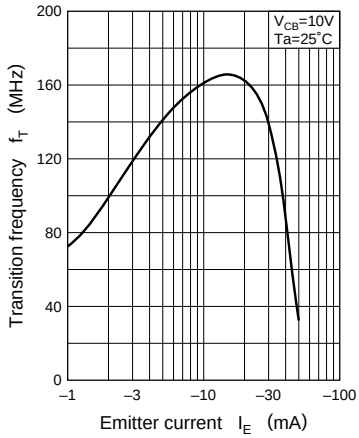

$V_{CE(sat)}$ — $I_C$




$h_{FE}$ — $I_C$




$f_T$ — $I_E$




$C_{ob}$ — $V_{CB}$