

# 2SC3312

## Silicon NPN epitaxial planer type

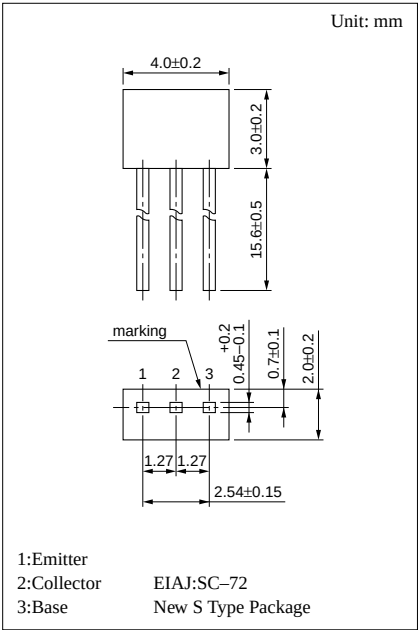
For low-frequency and low-noise amplification  
Complementary to 2SA1310

### Features

- Optimum for high-density mounting.
- Allowing supply with the radial tapping.
- Low noise voltage NV.

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

| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | 60         | V    |
| Collector to emitter voltage | $V_{CEO}$ | 55         | V    |
| Emitter to base voltage      | $V_{EBO}$ | 7          | V    |
| Peak collector current       | $I_{CP}$  | 200        | mA   |
| Collector current            | $I_C$     | 100        | mA   |
| Collector power dissipation  | $P_C$     | 300        | 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                | $I_{CBO}$     | $V_{CB} = 20V, I_E = 0$                                                                    |     |     | 0.1 | $\mu A$ |
|                                         | $I_{CEO}$     | $V_{CE} = 20V, I_B = 0$                                                                    |     |     | 1   | $\mu A$ |
| Collector to base voltage               | $V_{CBO}$     | $I_C = 10\mu A, I_E = 0$                                                                   | 60  |     |     | V       |
| Collector to emitter voltage            | $V_{CEO}$     | $I_C = 2mA, I_B = 0$                                                                       | 55  |     |     | V       |
| Emitter to base voltage                 | $V_{EBO}$     | $I_E = 10\mu A, I_C = 0$                                                                   | 7   |     |     | V       |
| Forward current transfer ratio          | $h_{FE}^*$    | $V_{CE} = 5V, I_C = 2mA$                                                                   | 180 |     | 700 |         |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 100mA, I_B = 10mA$                                                                  |     |     | 1   | V       |
| Base to emitter voltage                 | $V_{BE}$      | $V_{CE} = 1V, I_C = 30mA$                                                                  |     |     | 1   | V       |
| Transition frequency                    | $f_T$         | $V_{CB} = 5V, I_E = -2mA, f = 200MHz$                                                      |     | 200 |     | MHz     |
| Noise voltage                           | NV            | $V_{CE} = 10V, I_C = 1mA, G_V = 80dB$<br>$R_g = 100k\Omega, \text{Function} = \text{FLAT}$ |     |     | 150 | mV      |

\* $h_{FE}$  Rank classification

| Rank     | R         | S         | T         |
|----------|-----------|-----------|-----------|
| $h_{FE}$ | 180 ~ 360 | 260 ~ 520 | 360 ~ 700 |

