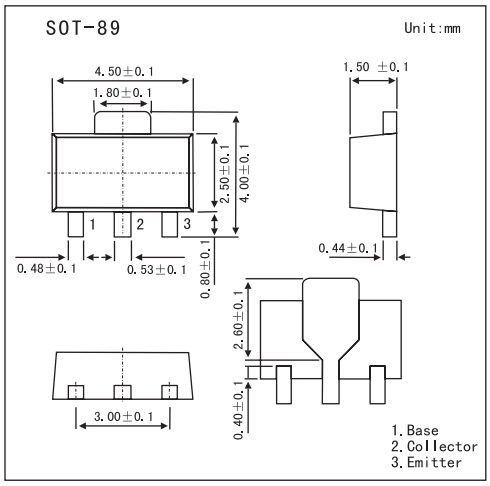
# NPN Silicon RF Transistor

# 2SC3357




## ■ Features

- Low Noise and High Gain

  NF = 1.1 dB TYP., $G_a$ = 7.5 dB TYP. @$V_{CE}$ = 10 V,

  $I_C$ = 7 mA, f = 1.0 GHz

  NF = 1.8 dB TYP., $G_a$ = 9.0 dB TYP. @$V_{CE}$ = 10 V,

  $I_C$ = 40 mA, f = 1.0 GHz

- High power gain : MAG = 10 dB TYP. @ $I_C$ = 40 mA, f = 1 GHz

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | 20 | V |
| Collector-emitter voltage | $V_{CEO}$ | 12 | V |
| Emitter-base voltage | $V_{EBO}$ | 3.0 | V |
| Collector current | $I_C$ | 100 | mA |
| Total power dissipation | $P_T$* | 1.2 | W |
| Junction temperature | $T_j$ | 150 | ℃ |
| Storage temperature | $T_{stg}$ | -65 to +150 | ℃ |
| Thermal Resistance | $R_{th(j-a)}$* | 62.5 | ℃/W |

* mounted on 16 $cm^2$ X 0.7 mm(t) Ceramic Substrate

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$ = 10V,$I_E$=0 | | | 1.0 | μA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$ = 1.0V,$I_C$=0 | | | 1.0 | μA |
| DC current gain | $h_{FE}$ *1 | $V_{CE}$ =10V,Ic=20mA | 50 | 120 | 250 | |
| Insertion Power Gain | $\|S_{21e}\|^2$ | $V_{CE}$ = 10 V, $I_C$ = 20 mA, f = 1.0 GHz | | 9 | | dB |
| Noise Figure | NF | $V_{CE}$ = 10 V, $I_C$ = 7 mA, f = 1.0 GHz | | 1.1 | | dB |
| | | $V_{CE}$ = 10 V, $I_C$ = 40 mA, f = 1.0 GHz | | 1.8 | 3.0 | dB |
| Output Capacitance | $C_{ob}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1.0 MHz | | 0.65 | 1.0 | pF |
| Transition frequency | $f_T$ | $V_{CE}$ = 10V ,Ic=20mA | | 6.5 | | GHz |

*1 Pulse Measurement PW ≤350 ms, Duty Cycle ≤ 2 %

*2 The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitnace bridge.

## ■ $h_{FE}$ Classification

| Marking | RH | RF | RE |
|---|---|---|---|
| Rank | RH | RF | RE |
| hFE | 20～100 | 80～160 | 125～250 |