

## NPN Silicon RF Transistor

### 2SC3357

#### ■ Features

- Low Noise and High Gain

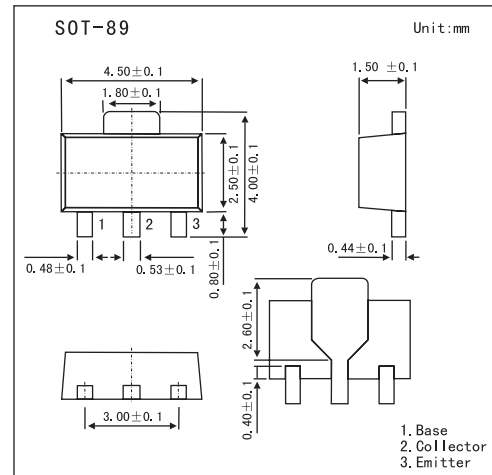
NF = 1.1 dB TYP.,  $G_a = 7.5$  dB TYP. @  $V_{CE} = 10$  V,

$I_c = 7$  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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	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	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Thermal Resistance	$R_{th(j-a)}^*$	62.5	$^\circ\text{C/W}$

\* mounted on  $16\text{ cm}^2 \times 0.7\text{ mm(t)}$  Ceramic Substrate

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

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

\*1 Pulse Measurement  $PW \leq 350\text{ ms}$ , Duty Cycle  $\leq 2\%$

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

#### ■ hFE Classification

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