

### HIGH FREQUENCY LOW NOISE AMPLIFIER

### NPN SILICON EPITAXIAL TRANSISTOR

#### DESCRIPTION

The 2SC2570A is designed for use in Low Noise Amplifier of VHF & UHF stages.

#### FEATURES

- Low noise and high gain : NF = 1.5 dB TYP., Ga = 8 dB TYP. @f = 1.0 GHz, V<sub>CE</sub> = 10 V, I<sub>c</sub> = 5.0 mA
- Wide dynamic range : NF = 1.9 dB, Ga = 9 dB @f = 1 GHz, V<sub>CE</sub> = 10 V, I<sub>c</sub> = 15 mA

#### ORDERING INFORMATION

Part Number	Quantity
2SC2570A	Loose products (500 pcs)
2SC2570A-T	Taping products (Box type) (2 500 pcs)

**Remark** To order evaluation samples, please contact your NEC sales office (available in 500-pcs units).

#### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25 °C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V <sub>CB0</sub>	25	V
Collector to Emitter Voltage	V <sub>CE0</sub>	12	V
Emitter to Base Voltage	V <sub>EB0</sub>	3.0	V
Collector Current	I <sub>c</sub>	70	mA
Total Power Dissipation	P <sub>tot</sub>	600	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-65 to +150	°C

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

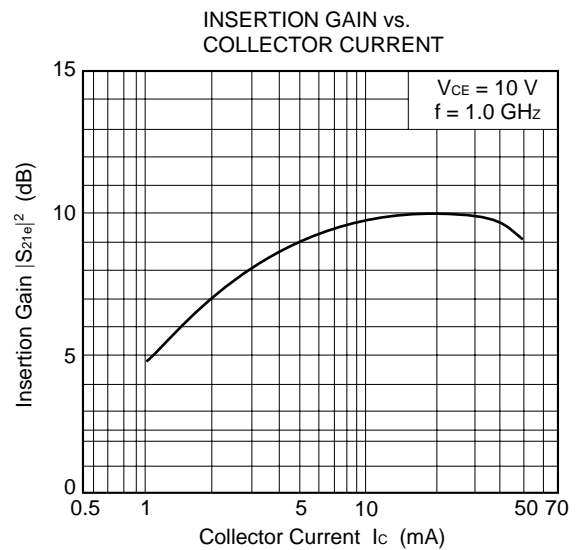
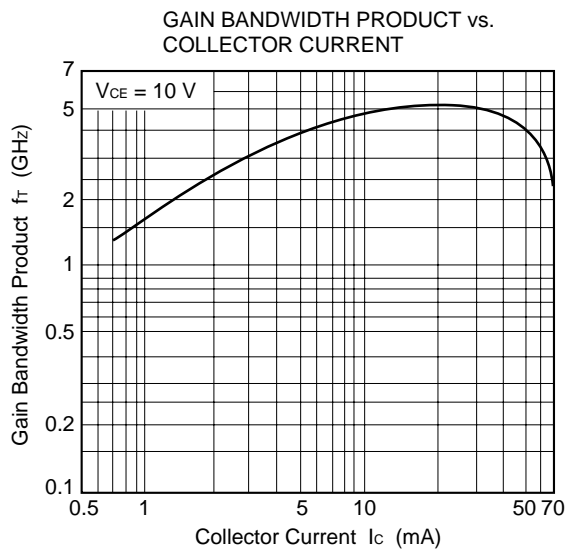
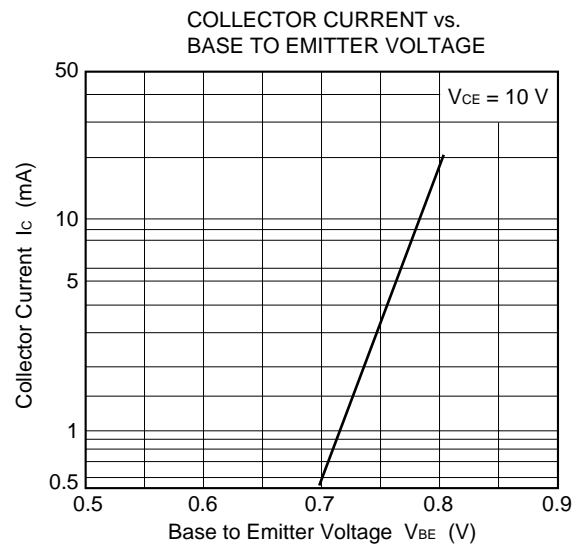
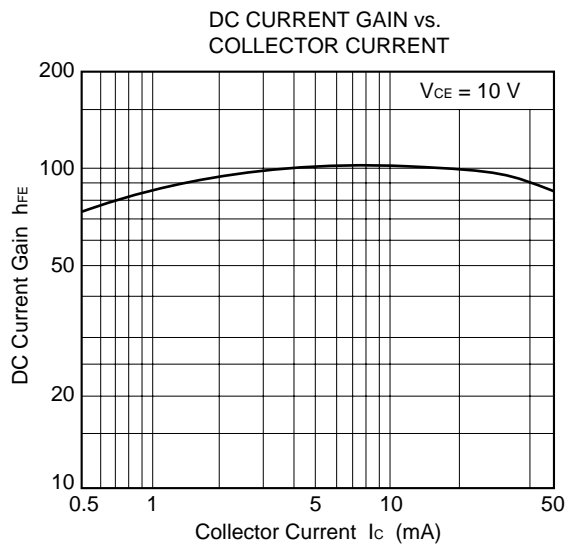
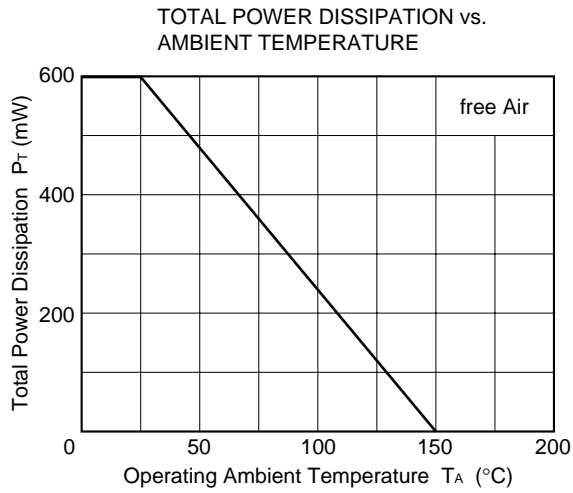
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = +25 °C)**

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
DC Current Gain	$h_{FE}$ <sup>Note 1</sup>	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}$	40	–	200	–
Gain Bandwidth Product	$f_T$	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}$	–	5.0	–	GHz
Output Capacitance	$C_{Ob}$ <sup>Note 2</sup>	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$	–	0.7	0.9	pF
Insertion Power Gain	$ S_{21e} ^2$	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}, f = 1.0\text{ GHz}$	8	10	–	dB
Noise Figure	NF	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}, f = 1.0\text{ GHz}$	–	1.5	3.0	dB
Maximum Available Gain	MAG	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}, f = 1.0\text{ GHz}$	–	11.5	–	dB
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 15\text{ V}, I_E = 0$	–	–	0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 2.0\text{ V}, I_C = 0$	–	–	0.1	$\mu\text{A}$

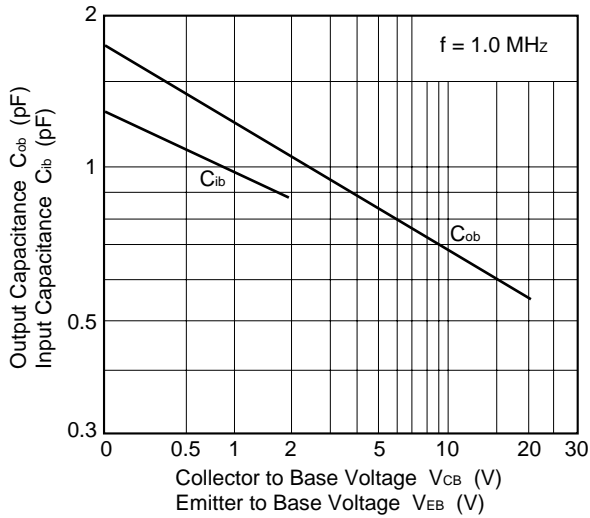
**Notes** 1. Pulse Measurement:  $PW \leq 350\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$

2. The emitter and case terminal should be connected to the guard terminal of the capacitance bridge.

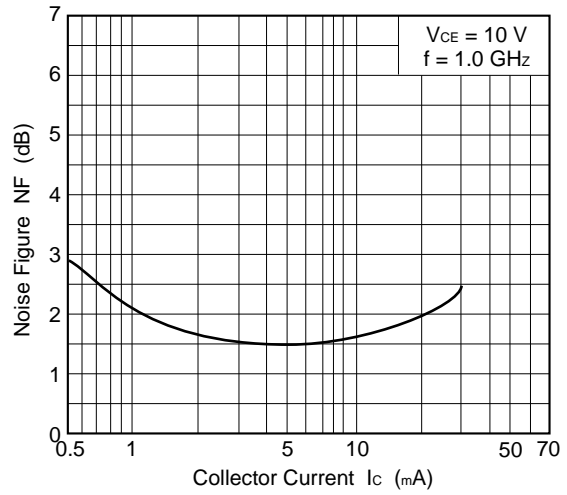
TYPICAL CHARACTERISTICS (T<sub>A</sub> = +25 °C)



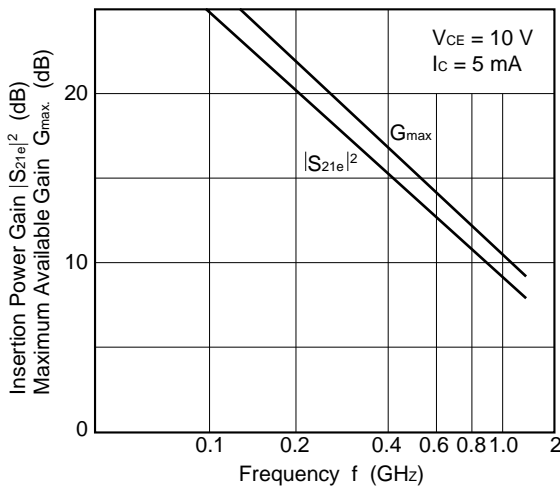
OUTPUT AND INPUT CAPACITANCE vs. REVERSE VOLTAGE



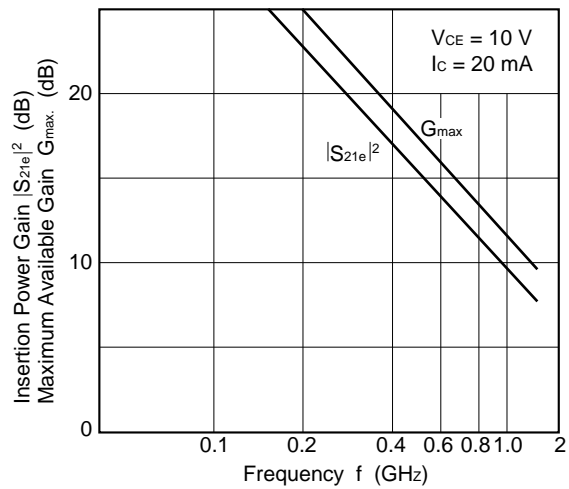
NOISE FIGURE vs. COLLECTOR CURRENT



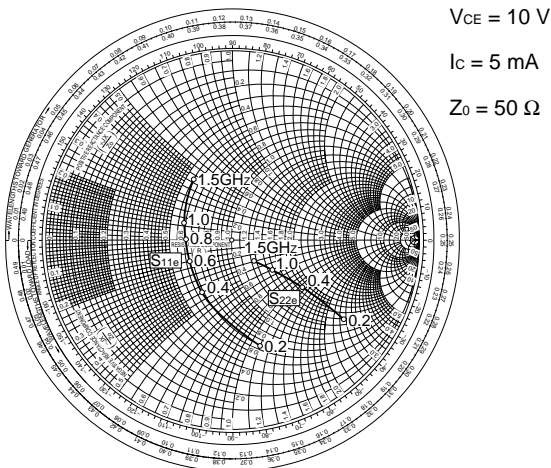
INSERTION POWER GAIN, MAXIMUM AVAILABLE GAIN vs. FREQUENCY



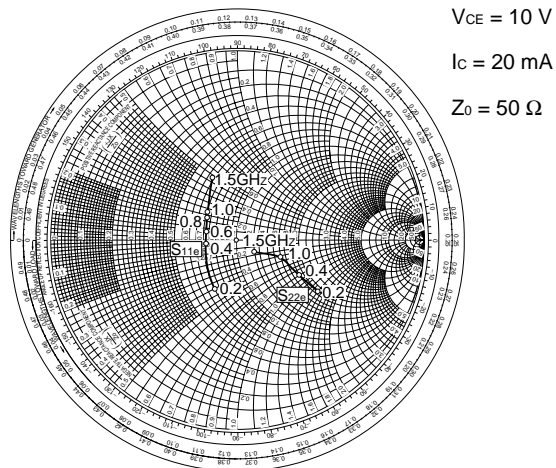
INSERTION POWER GAIN, MAXIMUM AVAILABLE GAIN vs. FREQUENCY



S-PARAMETER

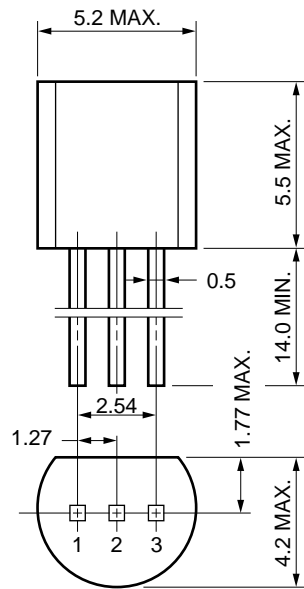


S-PARAMETER



PACKAGE DIMENSION

TO-92 (UNIT:mm)



- |              |       |          |
|--------------|-------|----------|
| 1. BASE      | EIAJ  | : SC-43B |
| 2. EMITTER   | JEDEC | : TO-92  |
| 3. COLLECTOR | IEC   | : PA33   |

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