NEC

NPN SILICON TRANSISTOR
2SC2570A

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_{CE} = 10 V, I_C = 5.0 mA
- Wide dynamic range : NF = 1.9 dB, Ga = 9 dB @f = 1 GHz, V_{CE} = 10 V, I_C = 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_A = +25 °C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	25	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	70	mA
Total Power Dissipation	P_{tot}	600	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–65 to +150	°C

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ELECTRICAL CHARACTERISTICS (T_A = +25 °C)

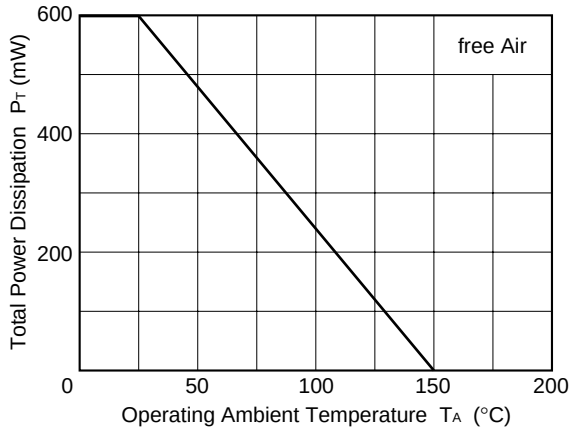
Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
DC Current Gain	h_{FE} Note 1	V_{CE} = 10 V, I_C = 20 mA	40	–	200	–
Gain Bandwidth Product	f_T	V_{CE} = 10 V, I_C = 20 mA	–	5.0	–	GHz
Output Capacitance	C_{ob} Note 2	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz	–	0.7	0.9	pF
Insertion Power Gain	$\|S_{21e}\|^2$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

Notes 1. Pulse Measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%

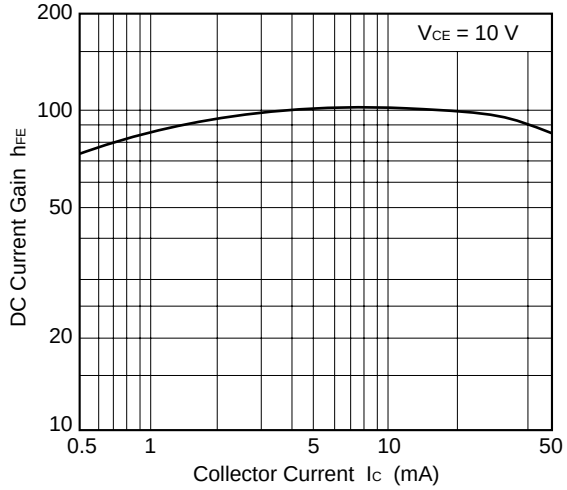
2. The emitter and case terminal should be connected to the guard terminal of the capacitance bridge.

TYPICAL CHARACTERISTICS (T_A = +25 °C)

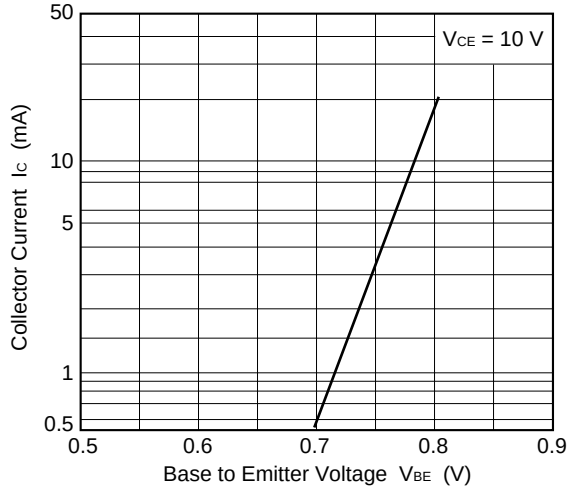
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



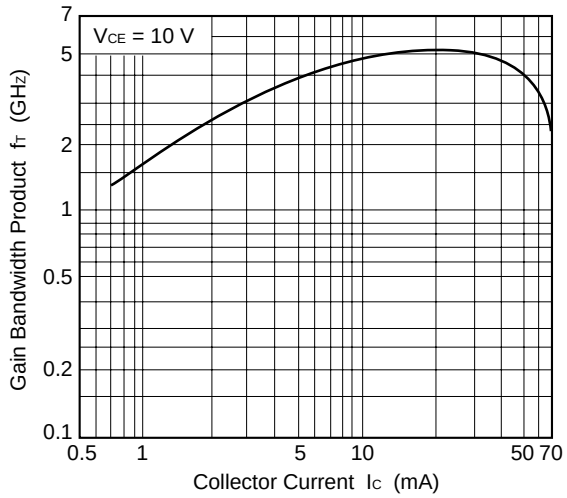
DC CURRENT GAIN vs.
COLLECTOR CURRENT



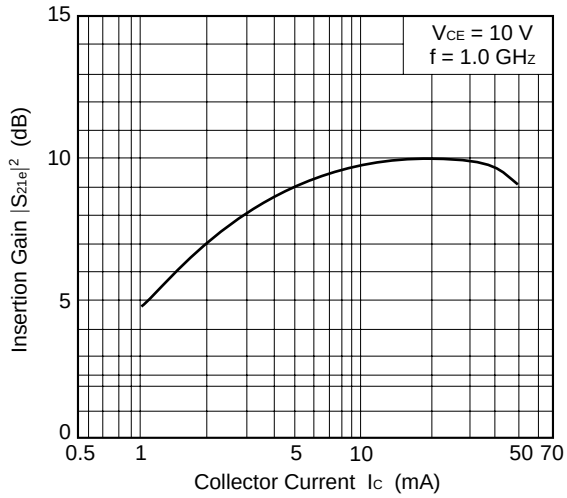
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



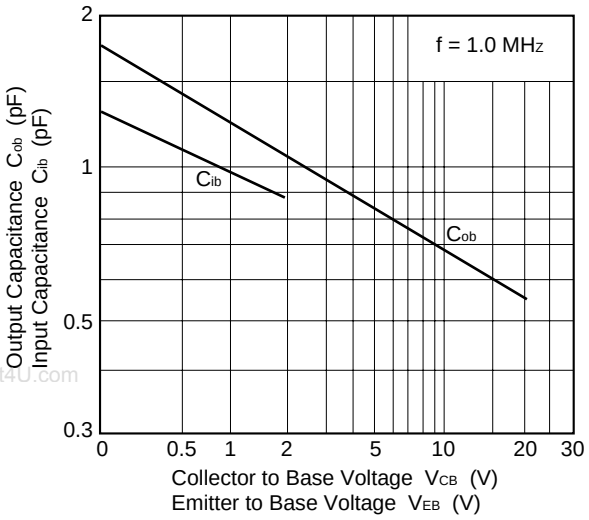
GAIN BANDWIDTH PRODUCT vs.
COLLECTOR CURRENT



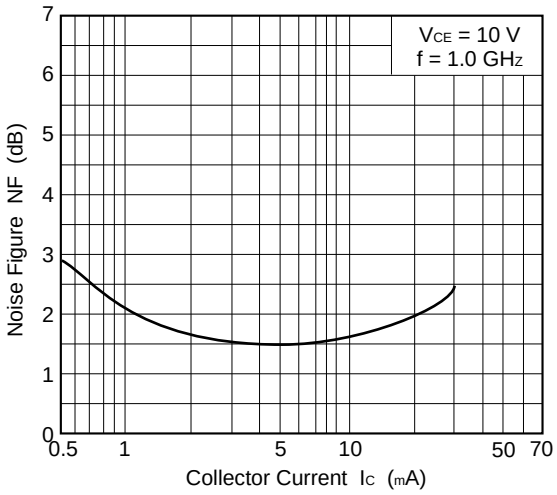
INSERTION GAIN vs.
COLLECTOR CURRENT



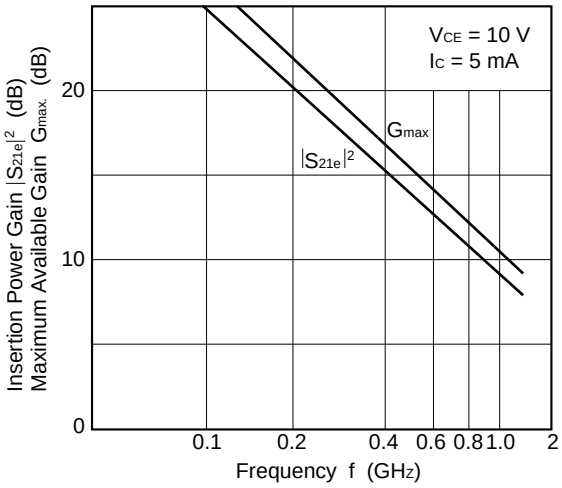
OUTPUT AND INPUT
CAPACITANCE vs. REVERSE VOLTAGE



NOISE FIGURE vs.
COLLECTOR CURRENT



INSERTION POWER GAIN, MAXIMUM AVAILABLE
GAIN vs. FREQUENCY



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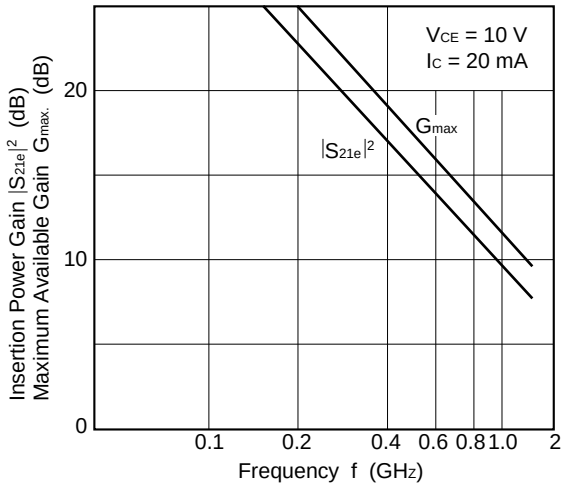
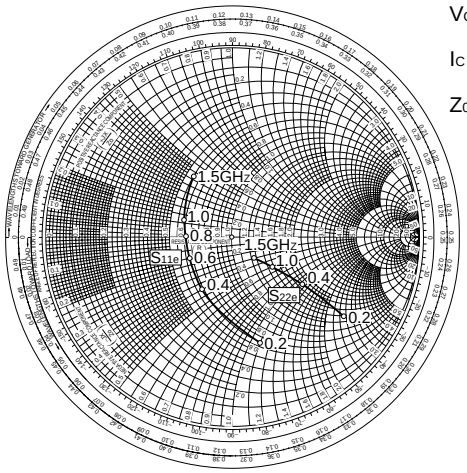
GAIN vs. FREQUENCY



S-PARAMETER

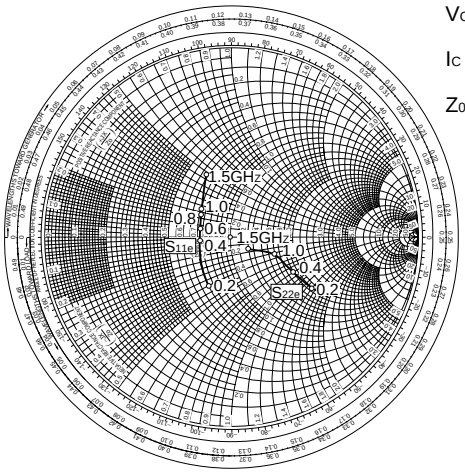


VCE = 10 V

IC = 5 mA

Z0 = 50 Ω

S-PARAMETER



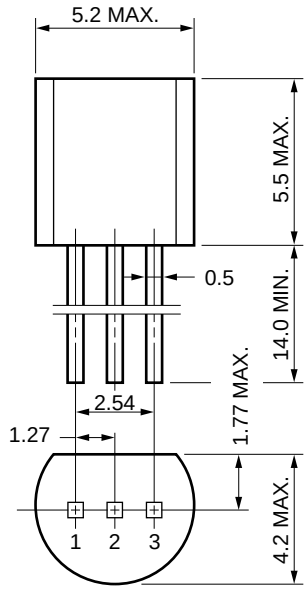
VCE = 10 V

IC = 20 mA

Z0 = 50 Ω

PACKAGE DIMENSION

TO-92 (UNIT:mm)



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

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