To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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Phase-out/Discontinued

NPN SILICON RF TRANSISTOR
2SC2570A

NPN EPITAXIAL SILICON RF TRANSISTOR FOR HIGH-FREQUENCY LOW-NOISE AMPLIFICATION

DESCRIPTION

The 2SC2570A is designed for use in Low Noise Amplifier of VHF and UHF satges.

FEATURES

- Low noise and high gain : NF = 1.5 dB TYP., G_a = 8 dB TYP. @ V_{CE} = 10 V, I_C = 5 mA, f = 1 GHz
- Wide dynamic range : NF = 1.9 dB TYP., G_a = 9 dB TYP. @ V_{CE} = 10 V, I_C = 15 mA, f = 1 GHz

★ ORDERING INFORMATION

Part Number	Quantity	Supplying Form
2SC2570A	500 pcs (Non reel)	• 18 mm wide radial taping
2SC2570A-T	2.5 kpcs/box (Box type)	• Supplying paper tape with in a box

Remark To order evaluation samples, contact your nearby sales office.
The unit sample quantity is 500 pcs.

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} Note	600	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	−65 to +150	°C

Note Free air

Caution Observe precautions when handling because these devices are sensitive to electrostatic discharge.

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Date Published April 2003 CP(K)
Printed in Japan

The mark ★ shows major revised points.

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ELECTRICAL CHARACTERISTICS (T_A = +25°C)

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

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

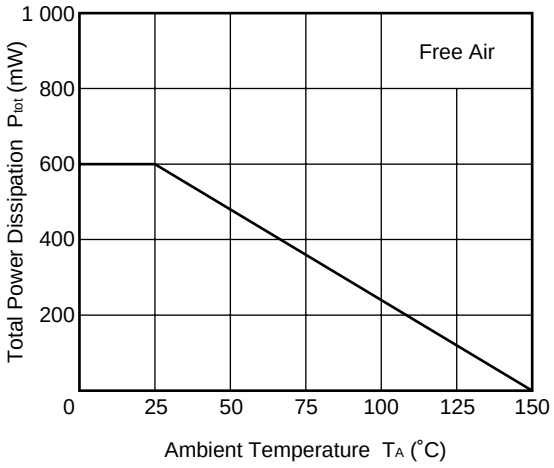
2. Collector to base capacitance when the emitter grounded

★ h_{FE} CLASSIFICATION

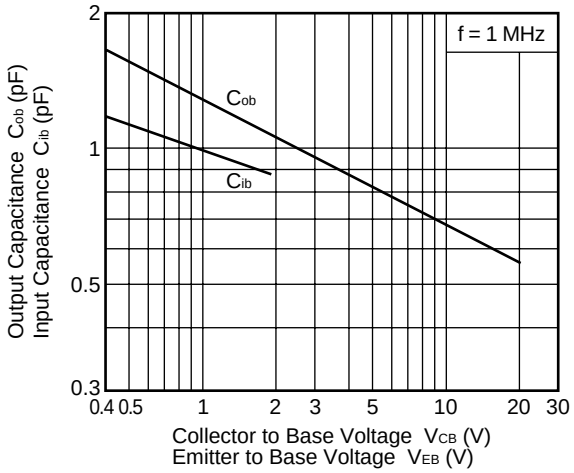
Rank	E
Marking	E
h_{FE} Value	40 to 200

TYPICAL CHARACTERISTICS (T_A = +25°C, unless otherwise specified)

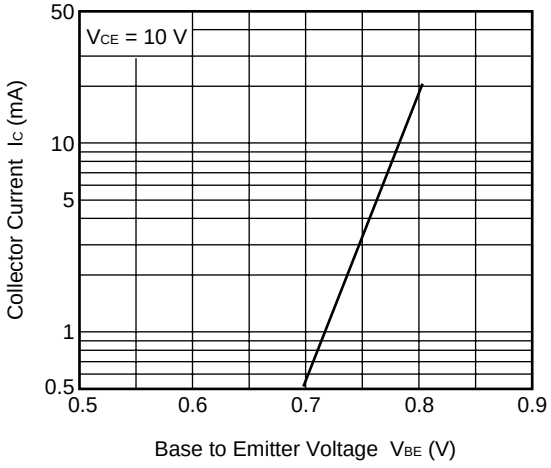
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



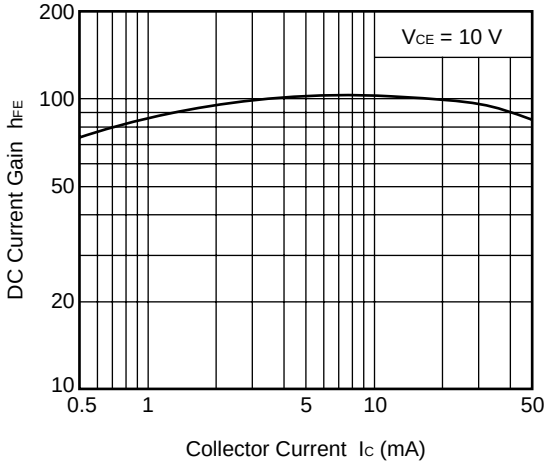
OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE
INPUT CAPACITANCE vs. EMITTER TO BASE VOLTAGE



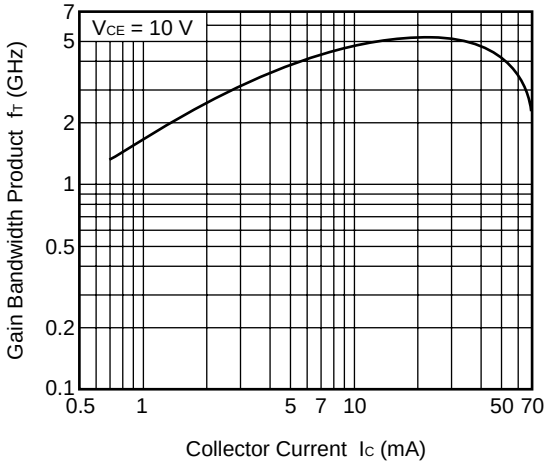
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



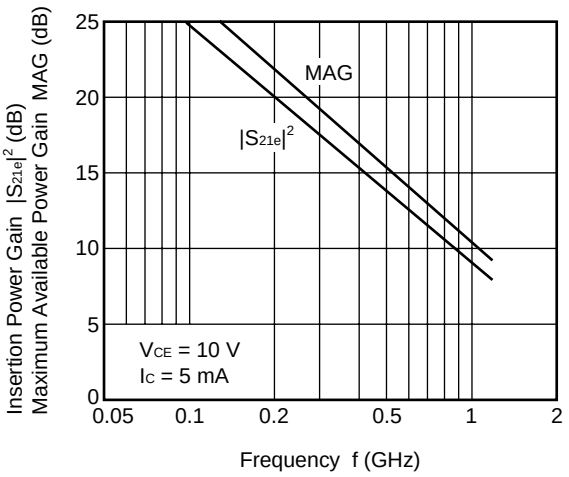
DC CURRENT GAIN vs. COLLECTOR CURRENT



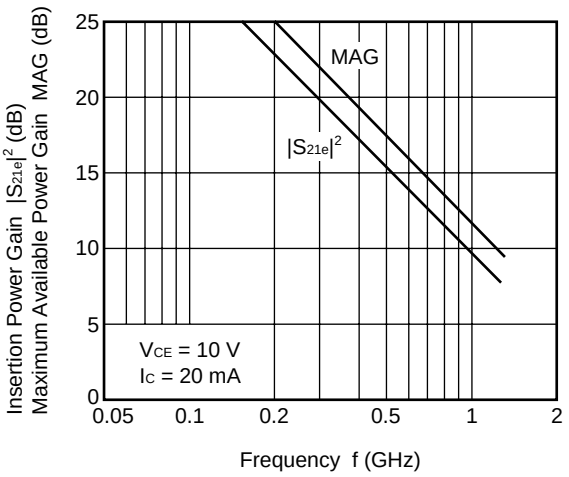
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



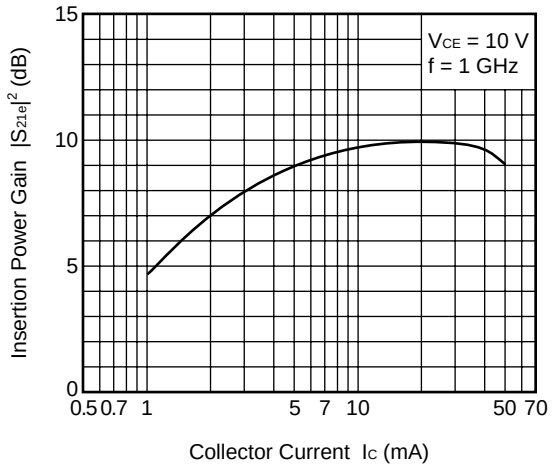
INSERTION POWER GAIN, MAG vs. FREQUENCY



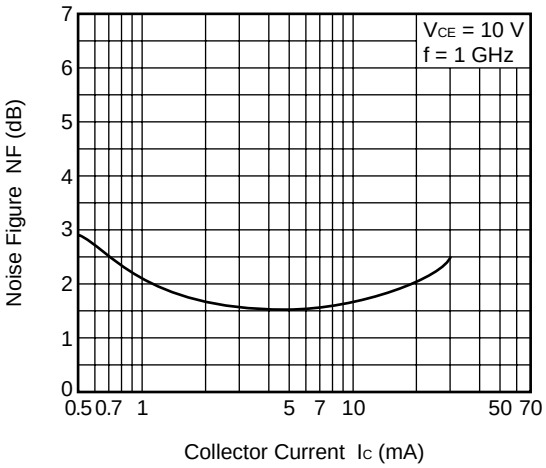
INSERTION POWER GAIN, MAG vs. FREQUENCY



INSERTION POWER GAIN vs. COLLECTOR CURRENT



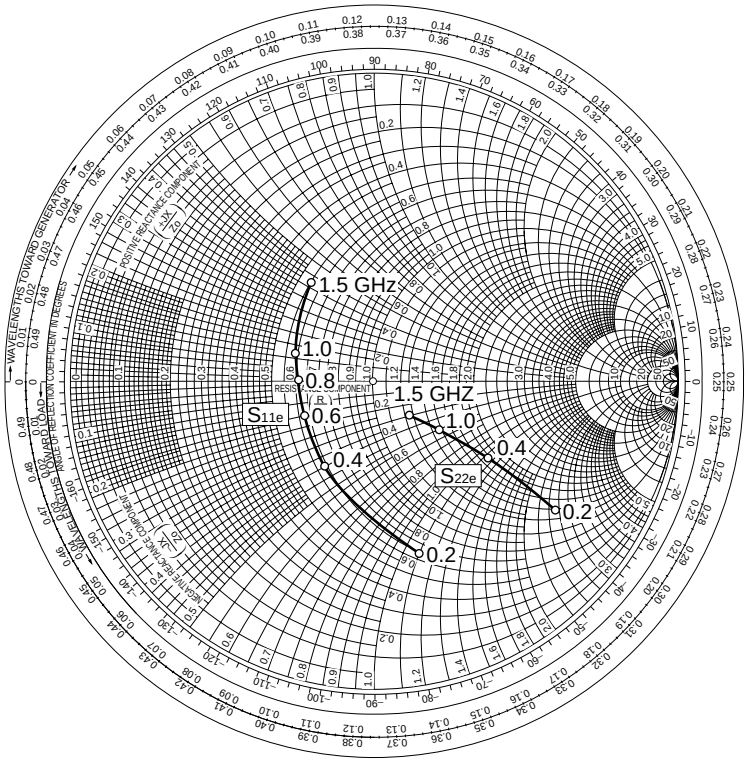
NOISE FIGURE vs. COLLECTOR CURRENT



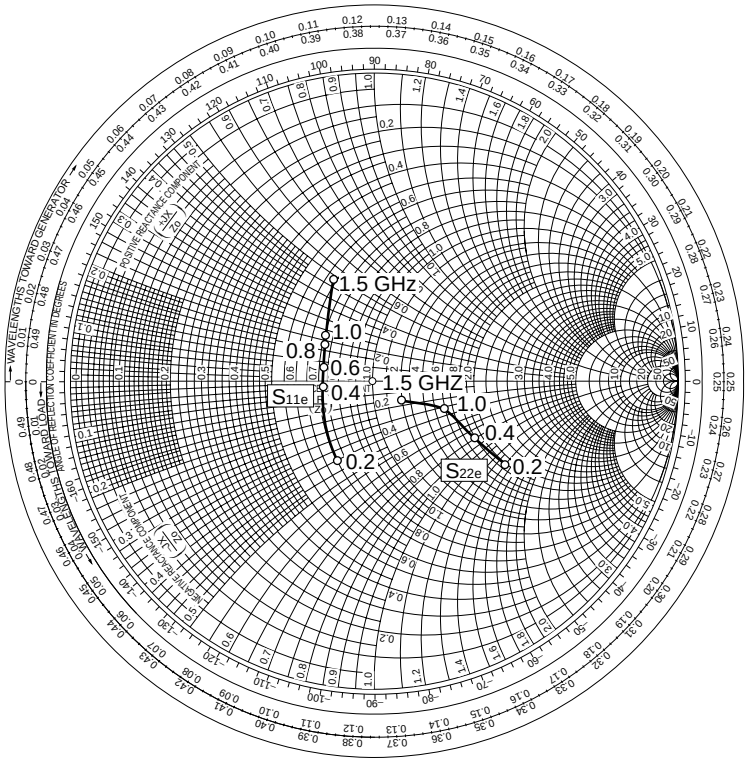
Remark The graphs indicate nominal characteristics.

SMITH CHART

V_{CE} = 10 V
I_C = 5 mA
Z_O = 50 Ω

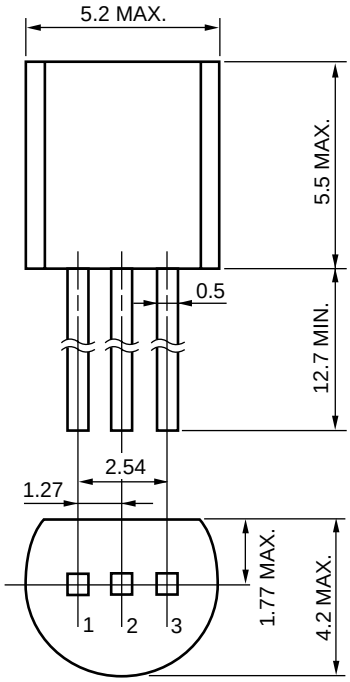


V_{CE} = 10 V
I_C = 20 mA
Z_O = 50 Ω



★ **PACKAGE DIMENSIONS**

TO-92 (UNIT: mm)



PIN CONNECTIONS

1. Base
2. Emitter
3. Collector

EIAJ : SC-43B
JEDEC : TO-92
IEC : PA33

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M8E 00.4-0110

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