

DATA SHEET

NEC

SILICON TRANSISTOR 2SC2954

NPN SILICON EPITAXIAL TRANSISTOR POWER MINI MOLD

DESCRIPTION

The 2SC2954 is an NPN epitaxial silicon transistor designed for low noise wide band amplifier and buffer amplifier of OSC, for VHF and CATV band.

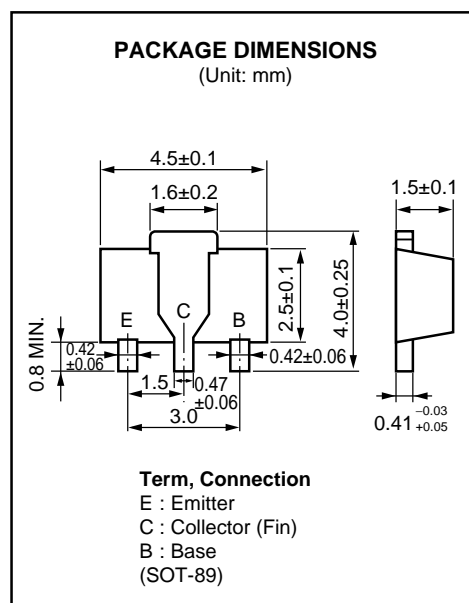
FEATURES

- Low Noise and High Gain.
 $f = 200 \text{ MHz}, 500 \text{ MHz}$
 $\text{NF}: 2.3 \text{ dB}, 2.4 \text{ dB}$
 $|S_{21e}|: 20 \text{ dB}, 12.5 \text{ dB}$
- Large P_T in Small Package.
 $P_T: 2 \text{ W}$ with $16 \text{ cm}^2 \times 0.7 \text{ mm}$ Ceramic Substrate.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25 \text{ }^\circ\text{C}$)

Collector to Base Voltage	V_{CB0}	35	V
Collector to Emitter Voltage	V_{CE0}	18	V
Emitter to Base Voltage	V_{EB0}	3.0	V
Collector Current	I_c	150	mA
Total Power Dissipation	P_T^*	2.0	W
Thermal Resistance	$R_{th(j-a)}^*$	62.5	$^\circ\text{C/W}$
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

* With $16 \text{ cm}^2 \times 0.7 \text{ mm}$
Ceramic Substrate

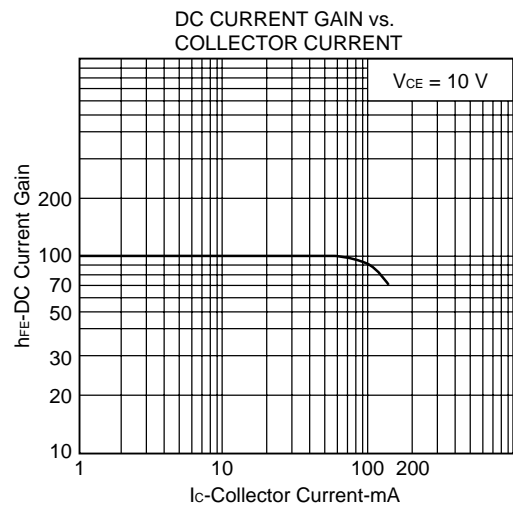
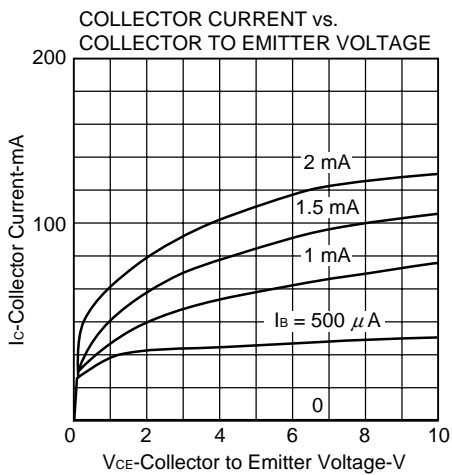
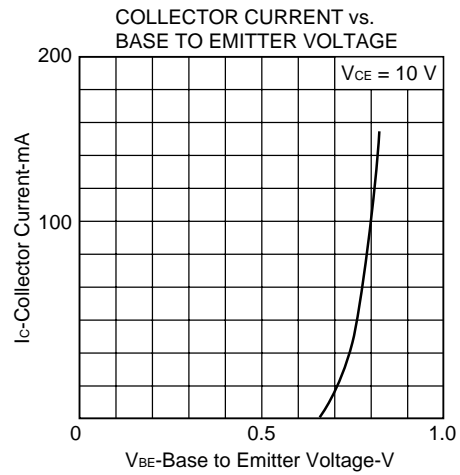
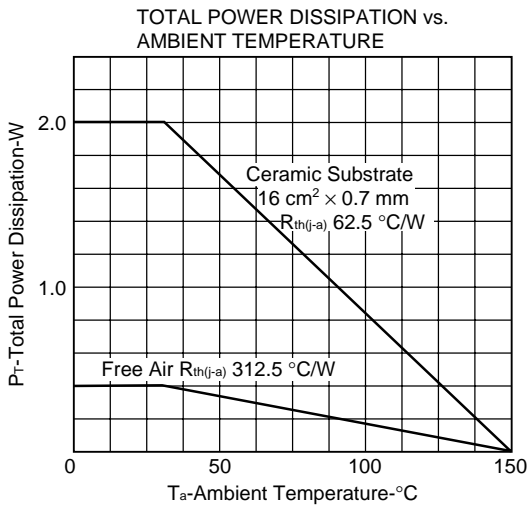


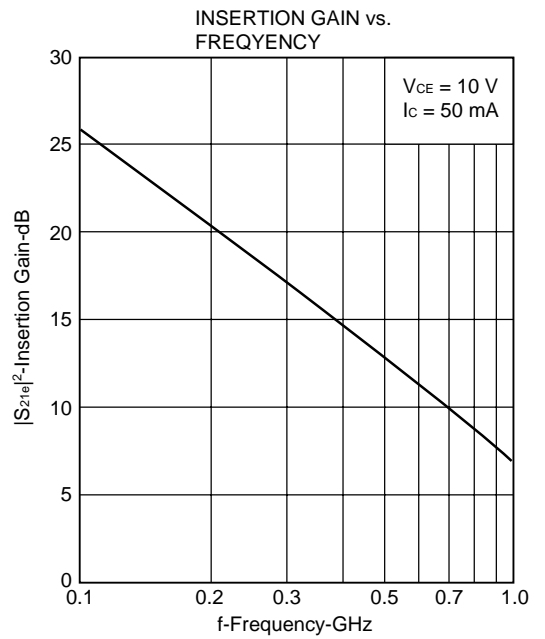
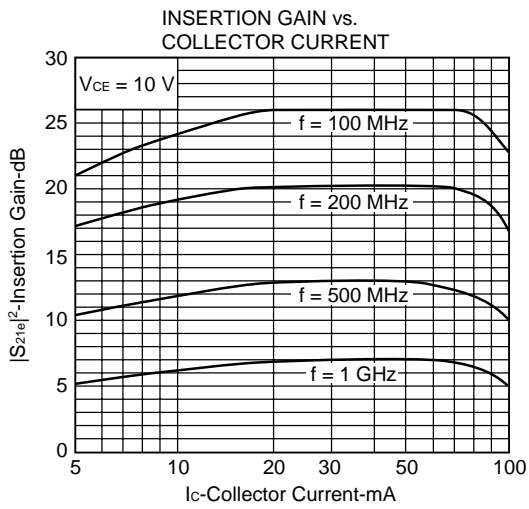
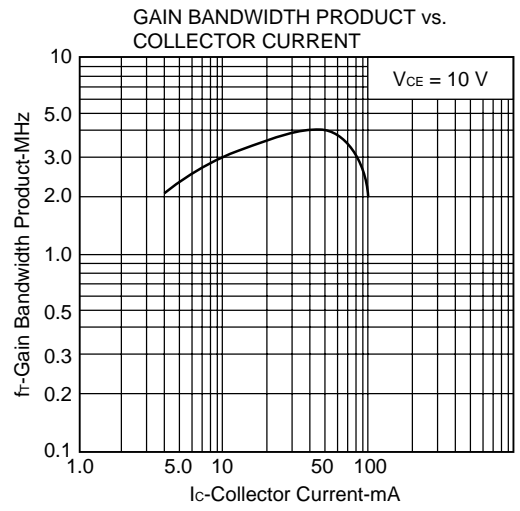
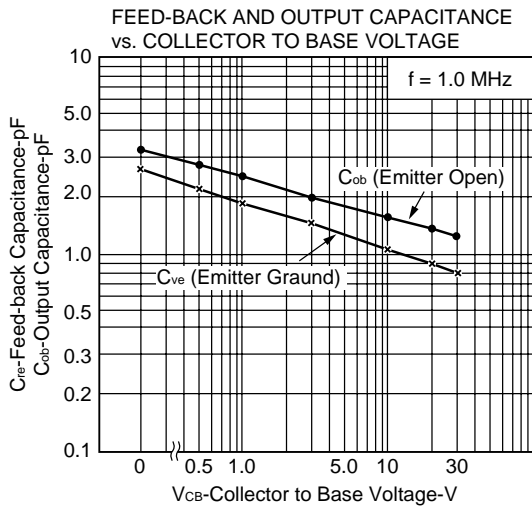
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cutoff Current	I _{CB0}	V _{CB} = 10 V, I _E = 0			100	nA
DC Current Gain	h _{FE}	V _{CE} = 10 V, I _c = 50 mA *1	30	100	200	-
Gain Bandwidth Product	f _T	V _{CE} = 10 V, I _c = 50 mA	3.0	4.0		GHz
Feedback Capacitance	C _{re}	V _{CB} = 10 V, Emitter Grounded, f = 1.0 MHz		1.1	1.8	pF
Insertion Power Gain	S _{21e} ²	V _{CE} = 10 V, I _c = 50 mA, f = 500 MHz R _G = 50 Ω	10	12.5		dB
Noise Figure	NF	V _{CE} = 10 V, I _c = 30 mA, f = 500 MHz R _G = 50 Ω		2.4	4.0	dB

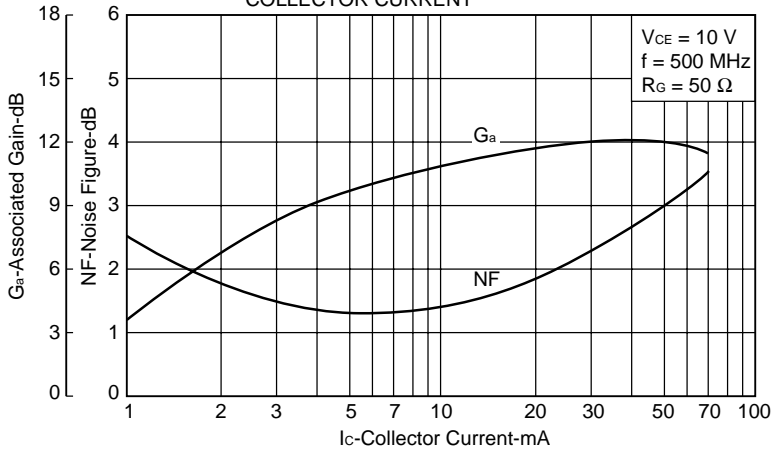
*1 Pulse Measurement PW ≤ 350 μs, duty cycle 2 %/Pulsed

TYPICAL CHARACTERISTICS (T_A = 25 °C)

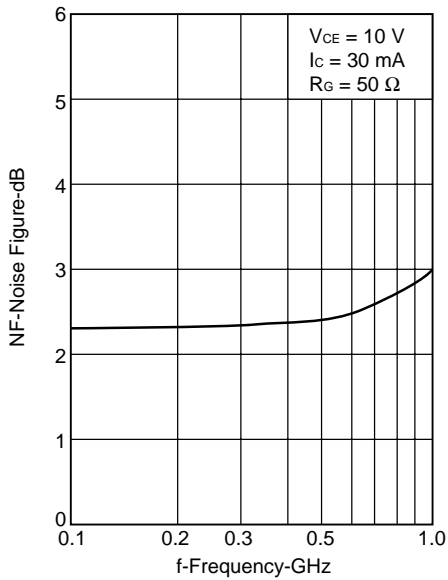




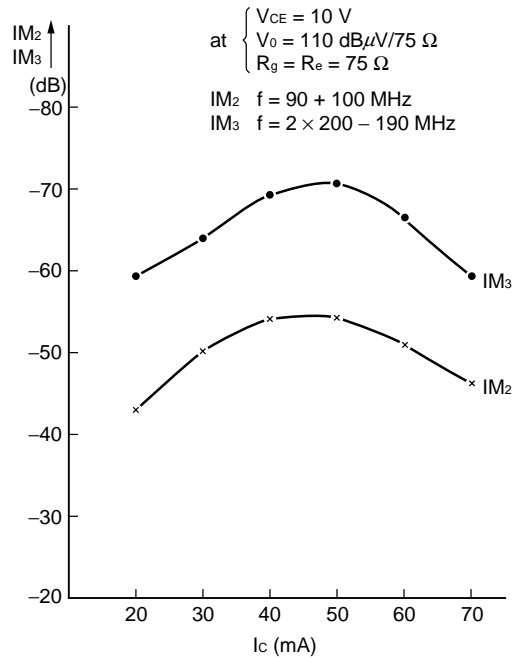
NOISE FIGURE, ASSOCIATED GAIN vs. COLLECTOR CURRENT



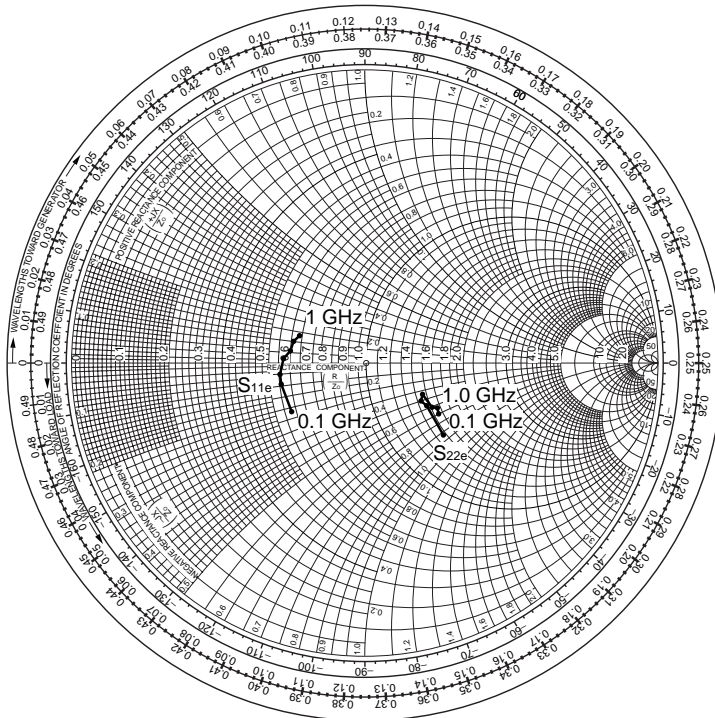
NOISE FIGURE, vs. FREQUENCY



2SC2945 IM_2 , IM_3 vs. I_c

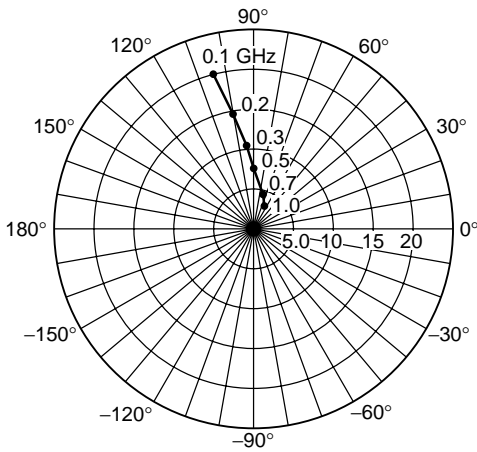


S_{11e}, S_{22e}-FREQUENCY



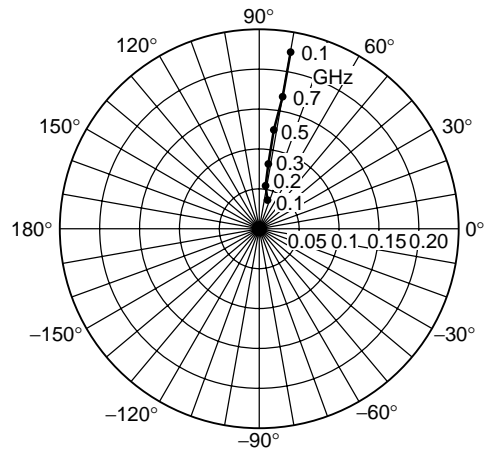
CONDITION $V_{CE} = 10\text{ V}$
 $I_C = 50\text{ mA}$
 $f = 0.1\text{ to }1.0\text{ GHz (STEP: }100\text{ MHz)}$

S_{21e}-FREQUENCY



CONDITION $V_{CE} = 10\text{ V}$
 $I_C = 50\text{ mA}$

S_{12e}-FREQUENCY



CONDITION $V_{CE} = 10\text{ V}$
 $I_C = 50\text{ mA}$

[MEMO]

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Anti-radioactive design is not implemented in this product.