

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.

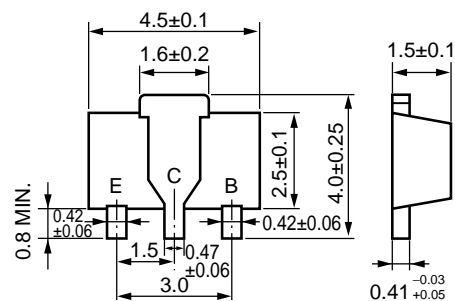
## FEATURES

- Low Noise and High Gain.  
 $f = 200 \text{ MHz}, 500 \text{ MHz}$   
 $NF: 2.3 \text{ dB}, 2.4 \text{ dB}$   
 $|S_{21e}|: 20 \text{ dB}, 12.5 \text{ dB}$
- 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 ( $T_A = 25^\circ\text{C}$ )

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

PACKAGE DIMENSIONS  
(Unit: mm)

## Term, Connection

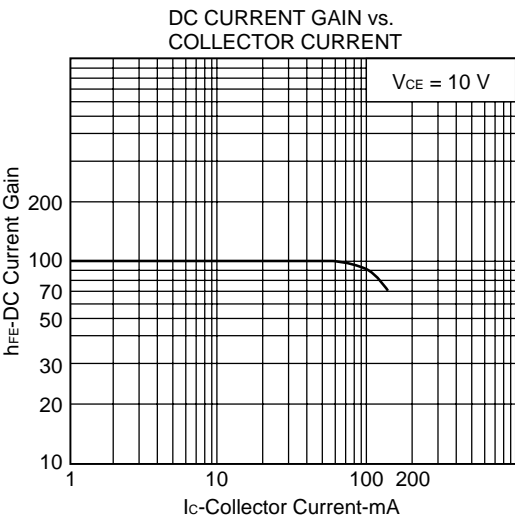
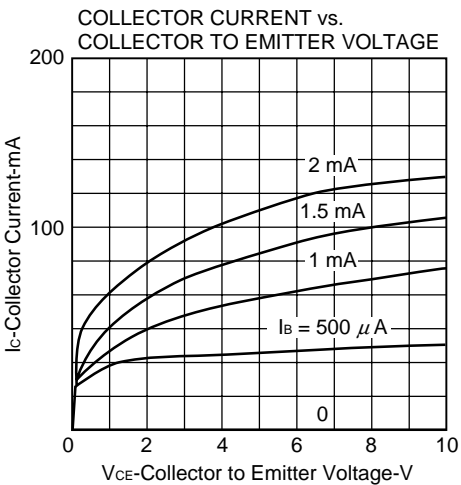
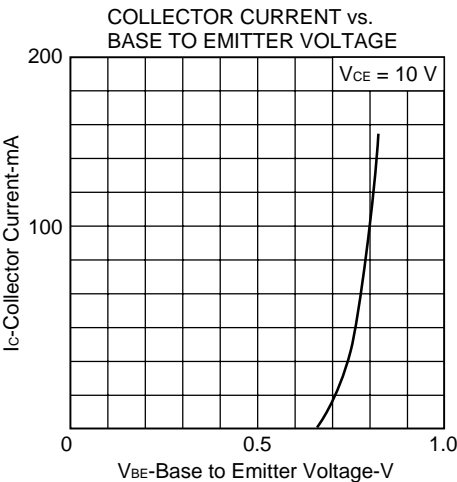
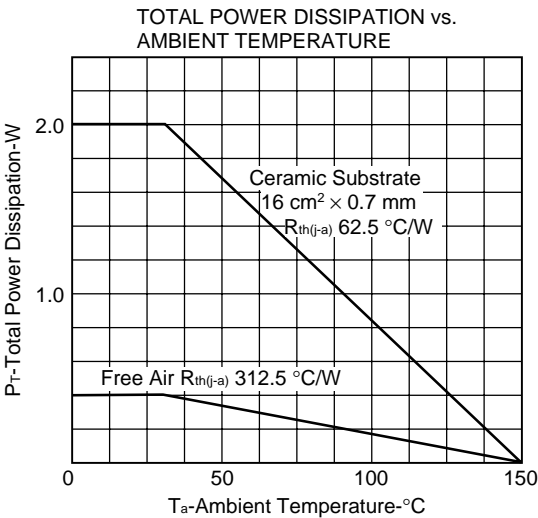
E : Emitter  
 C : Collector (Fin)  
 B : Base  
 (SOT-89)

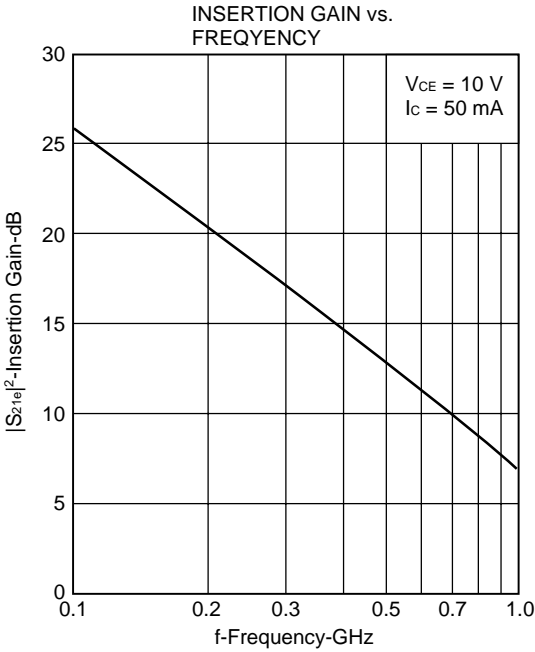
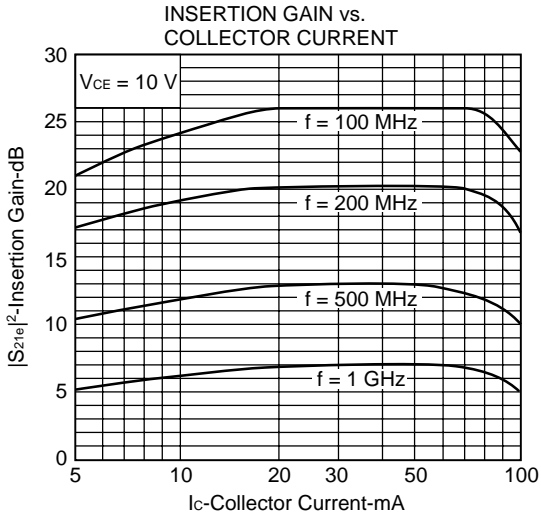
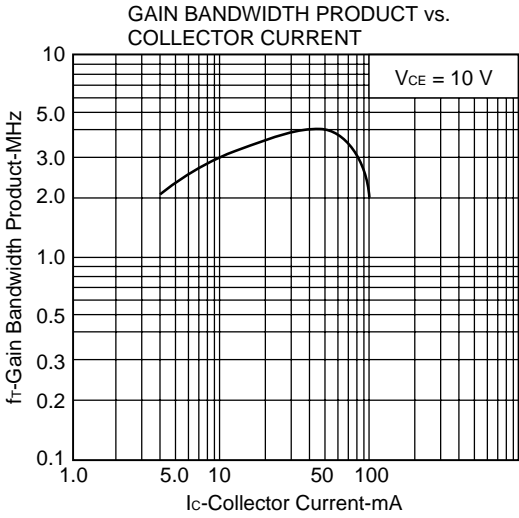
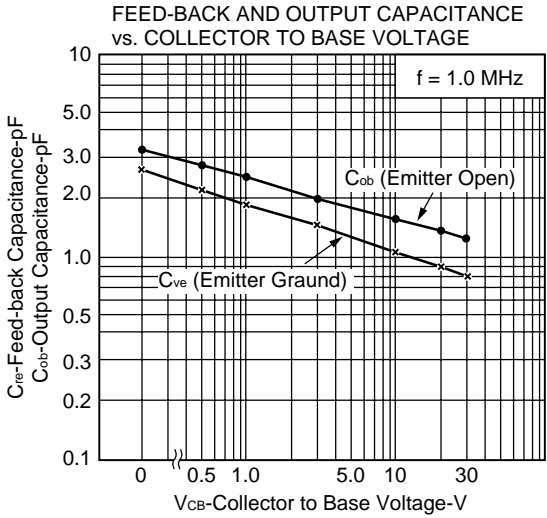
ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)

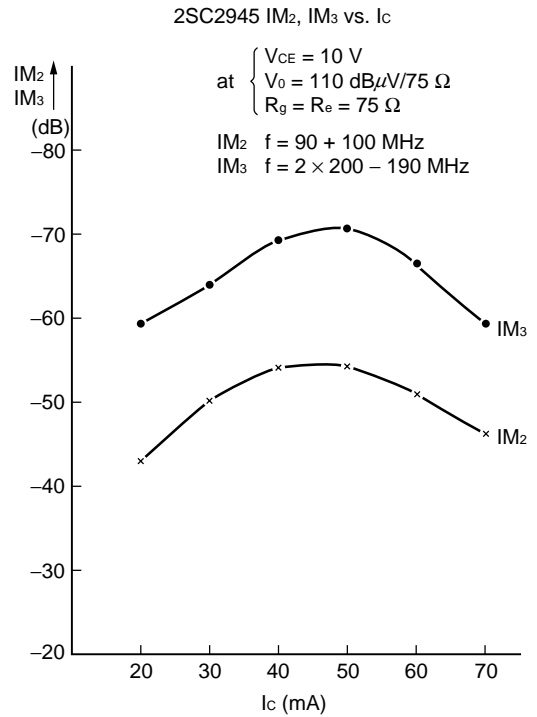
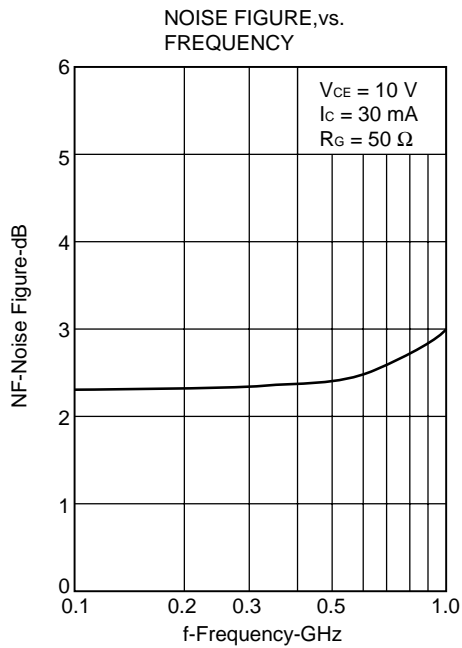
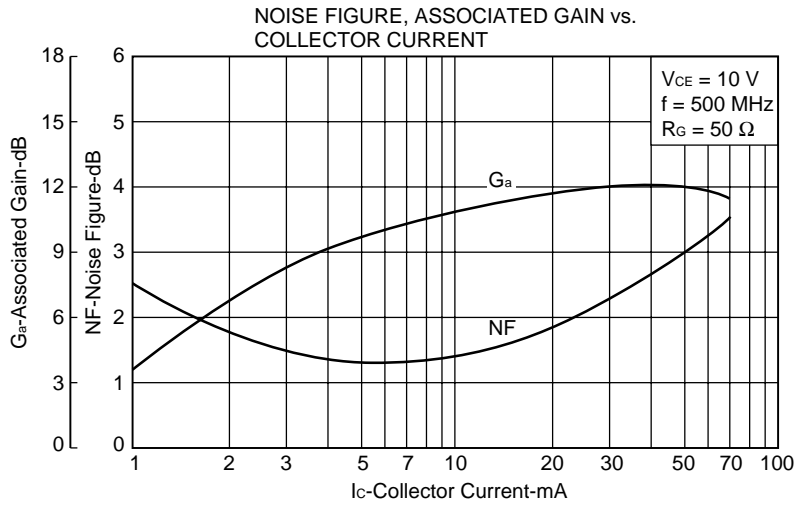
CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0			100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 50 mA *1	30	100	200	–
Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 50 mA	3.0	4.0		GHz
Feedback Capacitance	C <sub>re</sub>	V <sub>CB</sub> = 10 V, Emitter Grounded, f = 1.0 MHz		1.1	1.8	pF
Insertion Power Gain	S <sub>21e</sub>   <sup>2</sup>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 50 mA, f = 500 MHz R <sub>G</sub> = 50 Ω	10	12.5		dB
Noise Figure	NF	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 30 mA, f = 500 MHz R <sub>G</sub> = 50 Ω		2.4	4.0	dB

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

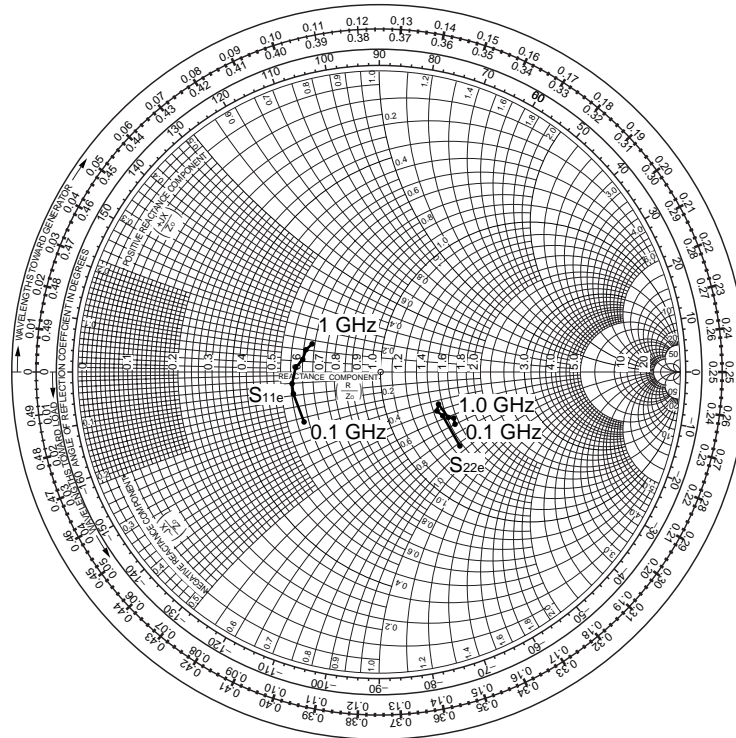
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)





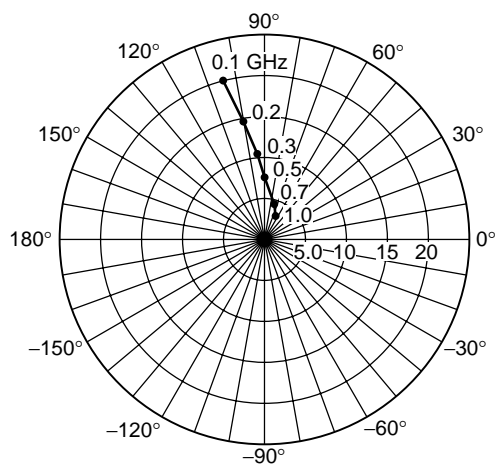


S<sub>11e</sub>, S<sub>22e</sub>-FREQUENCY



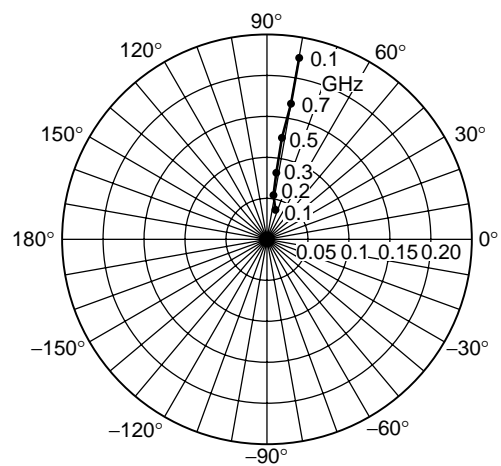
CONDITION  $V_{CE} = 10\text{ V}$   
 $I_C = 50\text{ mA}$   
 $f = 0.1\text{ to }1.0\text{ GHz (STEP: }100\text{ MHz)}$

S<sub>21e</sub>-FREQUENCY



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

S<sub>12e</sub>-FREQUENCY



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

[MEMO]

[MEMO]

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Anti-radioactive design is not implemented in this product.