

SILICON TRANSISTOR

2SC2756

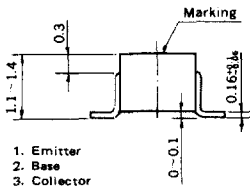
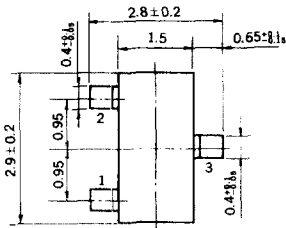
VHF MIXER

NPN SILICON EPITAXIAL TRANSISTOR

MINI MOLD

PACKAGE DIMENSIONS

in millimeters



DESCRIPTION

The 2SC2756 is an NPN silicon epitaxial transistor intended for use as a VHF mixer in a tuner of a TV receiver.

The device features are high conversion gain and low distortion.

It is designed for use in small type equipments especially recommended for Hybrid Integrated Circuit and other applications.

FEATURES

- Low C_{re} : 0.35 pF TYP.
- High conversion gain. : 23 dB TYP.
- Excellent h_{FE} linearity.

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

Maximum Voltages and Current

Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	20	V
Emitter to Base Voltage	V_{EBO}	4.0	V
Collector Current	I_C	30	mA

Maximum Power Dissipation

Total Power Dissipation	P_T	150	mW
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Maximum Temperatures

Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

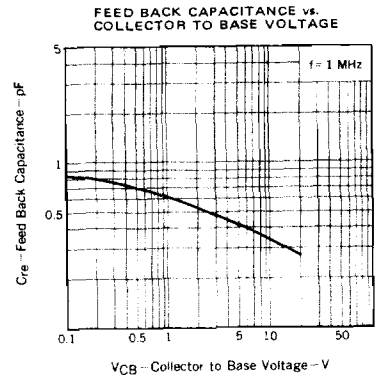
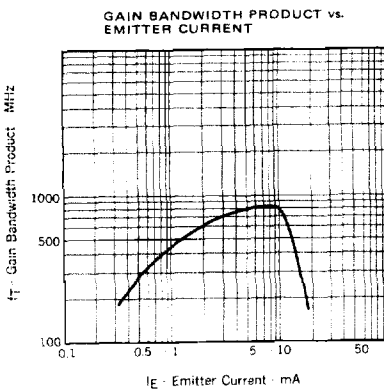
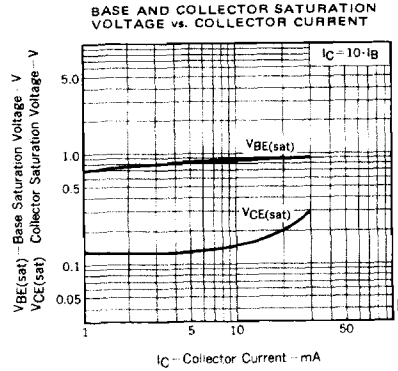
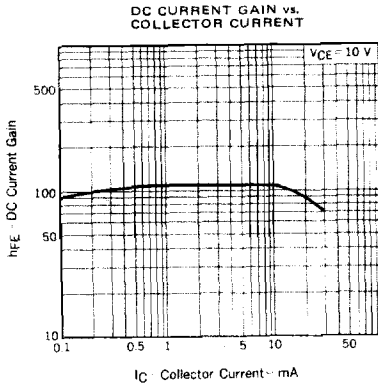
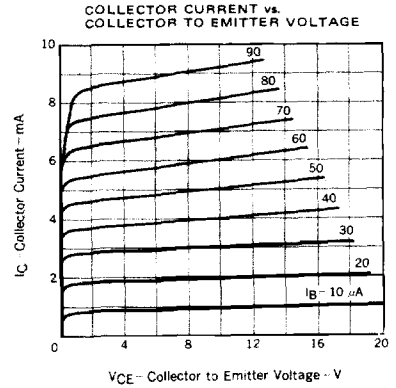
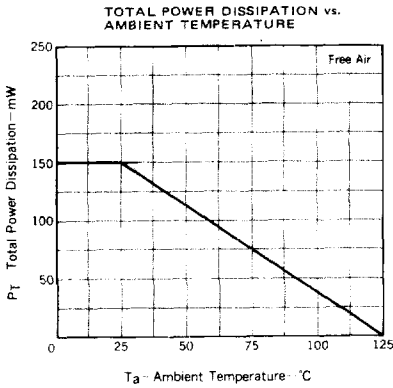
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

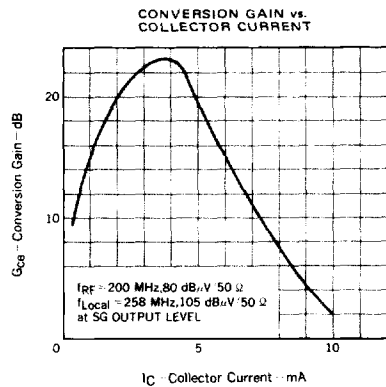
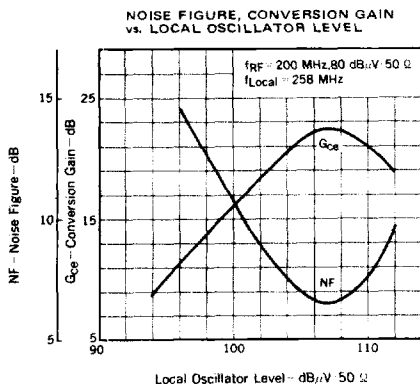
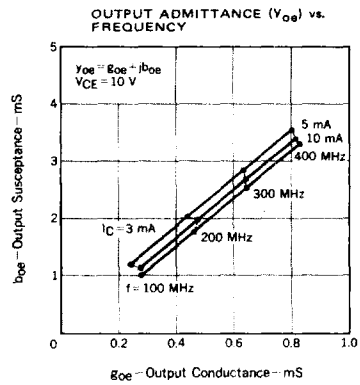
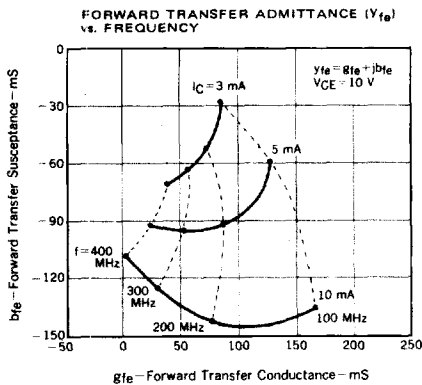
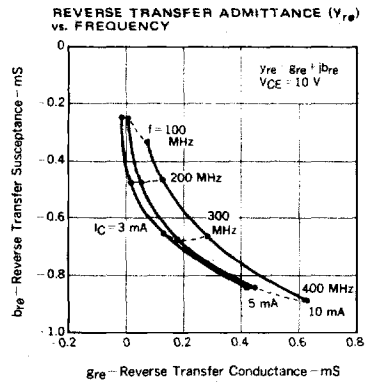
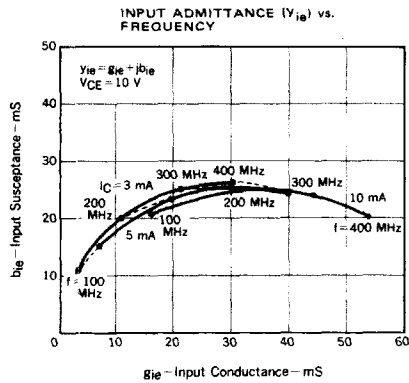
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB} = 20\text{ V}, I_E = 0$
DC Current Gain	h_{FE}	60	120	240		$V_{CE} = 10\text{ V}, I_C = 5.0\text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C = 10\text{ mA}, I_B = 1.0\text{ mA}$
Gain Bandwidth Product	f_T	500	850		MHz	$V_{CE} = 10\text{ V}, I_E = -5.0\text{ mA}$
Feed Back Capacitance	C_{re}		0.35	0.5	pF	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$
Conversion Gain	G_{ce}	15	23		dB	$V_{CE} = 10\text{ V}, I_E = -3.0\text{ mA}$
Noise Figure	NF		6.5		dB	$f = 200\text{ MHz}, f_L = 258\text{ MHz}$

h_{FE} Classification

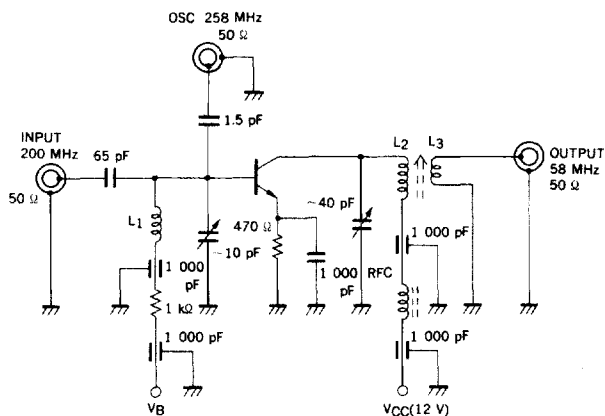
Marking	T22	T23	T24
h_{FE}	60 to 120	90 to 180	120 to 240

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





CONVERSION GAIN TEST CIRCUIT



$f_{RF} = 200$ MHz, 80 dB μ V/50 Ω

$f_{Local} = 258$ MHz, 107 dB μ V/50 Ω
at SG OUTPUT

L1 : 0.8 mm Cu wire Plated with Ag 5.0 ϕ 2T

L2 : 0.8 mm U.E. wire 5.0 ϕ 13T

L3 : 0.8 mm U.E. wire 5.0 ϕ 2T