

SILICON TRANSISTORS

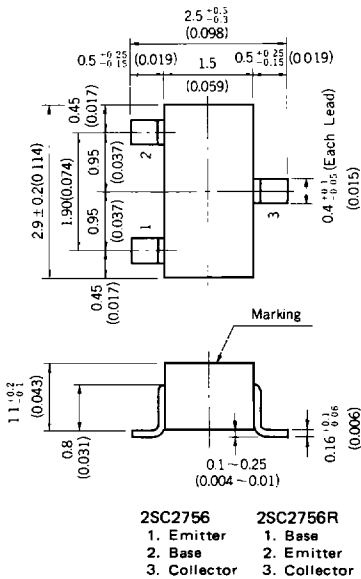
2SC2756, 2SC2756R

VHF MIXER

NPN SILICON EPITAXIAL TRANSISTOR

PACKAGE DIMENSIONS

in millimeters (inches)



DESCRIPTION

The 2SC2756, 2SC2756R are 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.

FEATURES

- Low C_{re} : 0.4pF TYP.
- High conversion gain : 15dB 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	200	mW
-------------------------	-------	-----	----

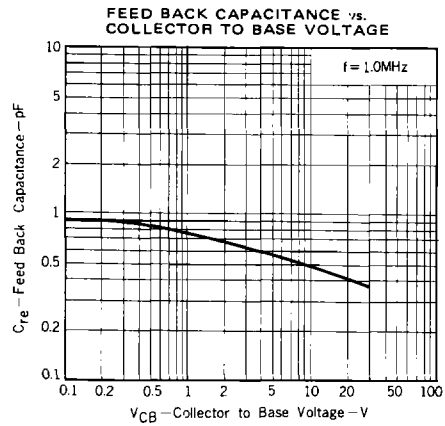
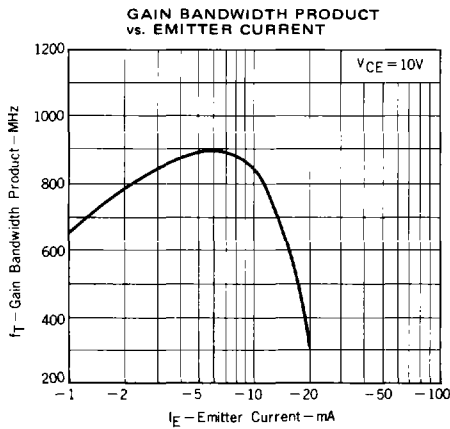
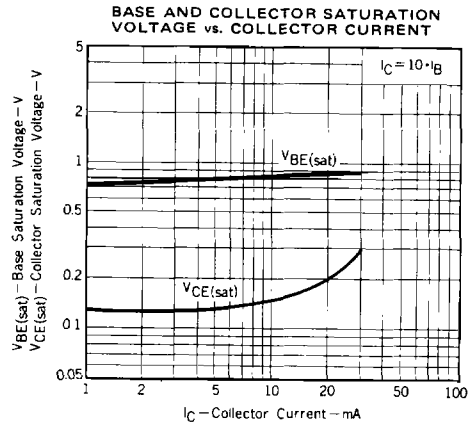
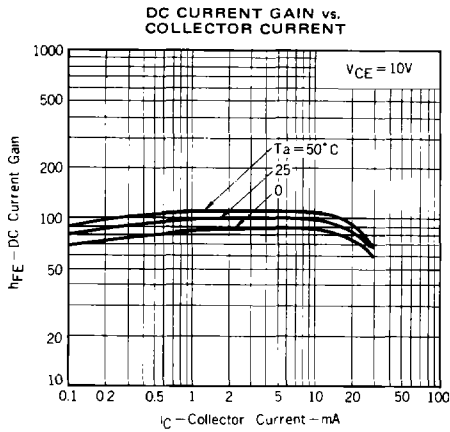
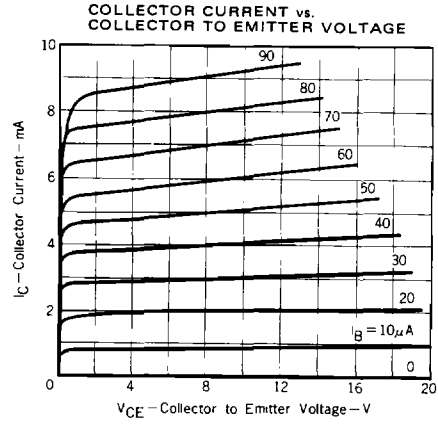
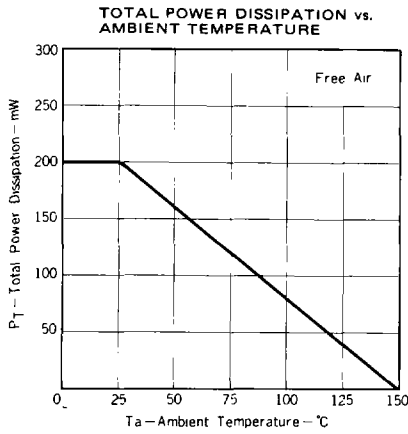
Maximum Temperatures

Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

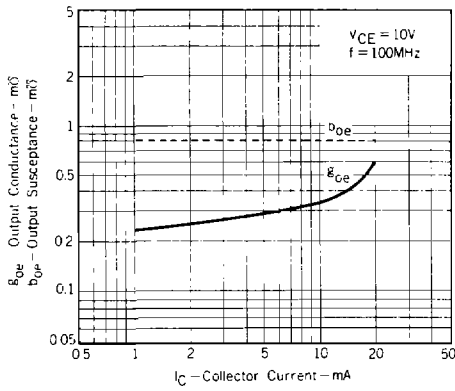
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB} = 20\text{V}, I_E = 0$
DC Current Gain	h_{FE}	60	100	240		$V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$
Collector Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$
Gain Bandwidth Product	f_T	500	850		MHz	$V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$
Feed Back Capacitance	C_{re}		0.4	0.7	pF	$V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$
Conversion Gain	G_C	12			dB	$V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$ $f = 200\text{MHz}, f_{LO} = 258\text{MHz}$

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

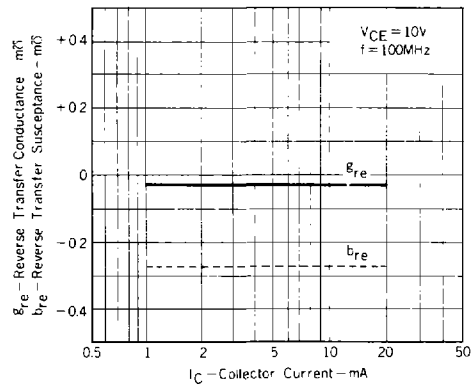


5

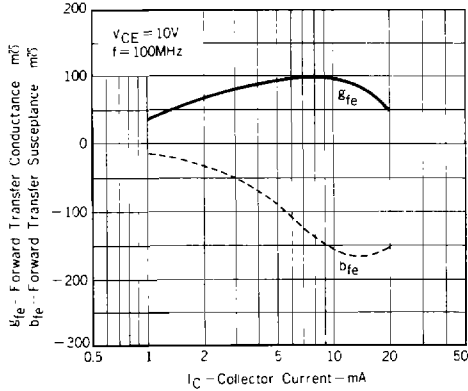
OUTPUT ADMITTANCE vs. COLLECTOR CURRENT



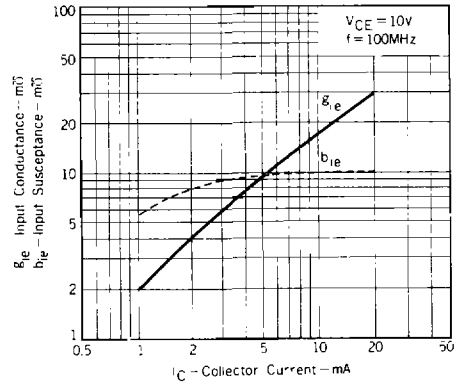
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



INPUT ADMITTANCE vs. COLLECTOR CURRENT



CONVERSION GAIN TEST CIRCUIT

