

SILICON TRANSISTORS

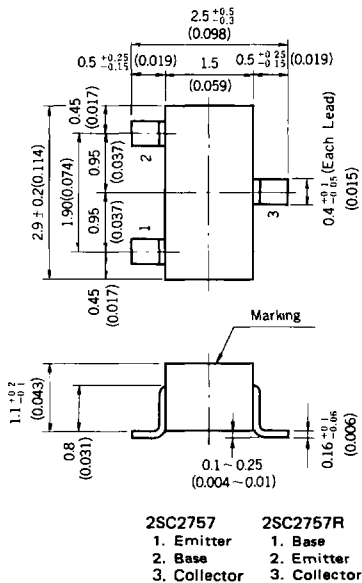
2SC2757, 2SC2757R

UHF/VHF OSCILLATOR AND VHF MIXER

NPN SILICON EPITAXIAL TRANSISTOR

PACKAGE DIMENSIONS

in millimeters (inches)



DESCRIPTION

The 2SC2757, 2SC2757R are NPN silicon epitaxial transistor intended for use as VHF and UHF oscillators and a VHF mixer in a tuner of a TV receiver.

The device features stable oscillation and small frequency drift against any change of the supply voltage and the ambient temperature.

FEATURES

- High gain bandwidth product; $f_T = 1100\text{MHz}$ TYP.
- Low collector to base time constant; $C_c \cdot r_{b'b} = 10\text{ps}$ TYP.
- Low output capacitance; $C_{ob} = 1.5\text{pF}$ MAX.

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

Maximum Voltages and Current

Collector to Base Voltage	V_{CB0}	30	V
Collector to Emitter Voltage	V_{CE0}	15	V
Emitter to Base Voltage	V_{EB0}	5.0	V
Collector Current	I_C	50	mA

Maximum Power Dissipation

Total Power Dissipation	P_T	200	mW
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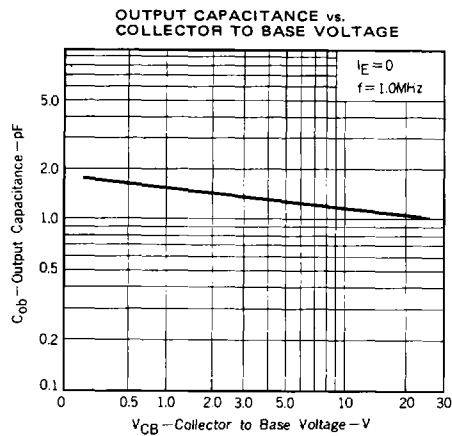
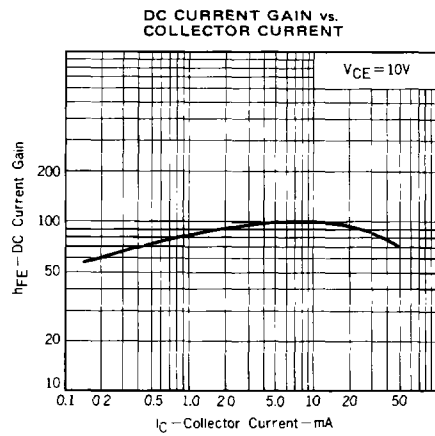
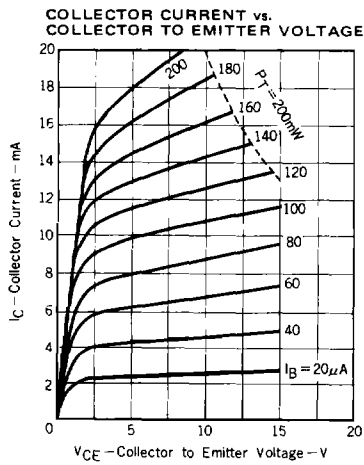
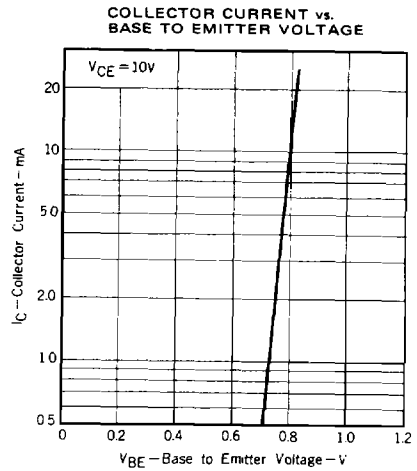
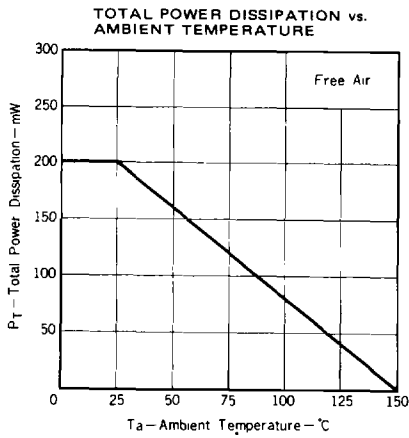
Maximum Temperatures

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

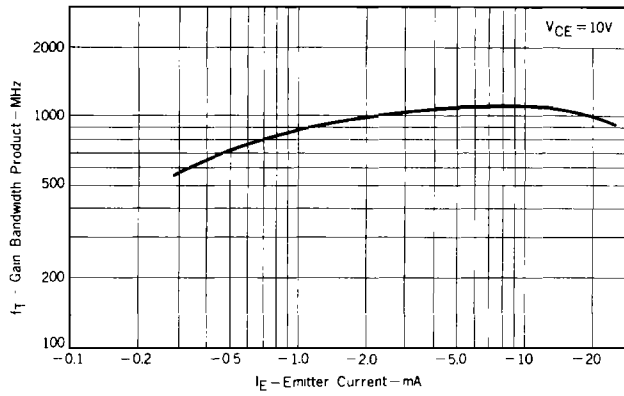
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB} = 12\text{V}$, $I_E = 0$
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	800	1100		MHz	$V_{CE} = 10\text{V}$, $I_E = -5.0\text{mA}$
Output Capacitance	C_{ob}			1.5	pF	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1.0\text{MHz}$
Collector to Base Time Constant	$C_c \cdot r_{b'b}$		10	15	ps	$V_{CE} = 10\text{V}$, $I_E = -5.0\text{mA}$ $f = 31.9\text{MHz}$

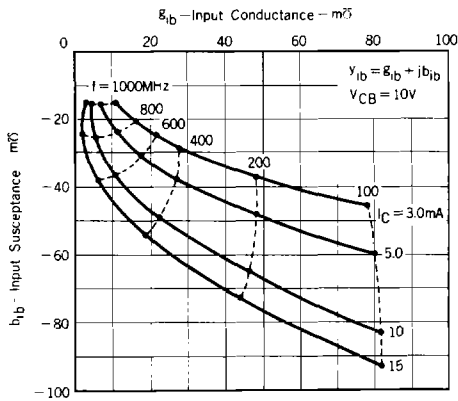
TYPICAL CHARACTERISTICS (Ta = 25°C)



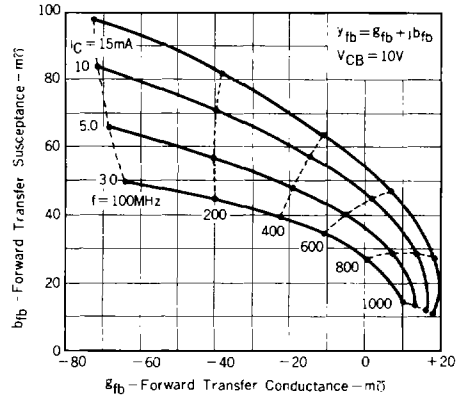
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



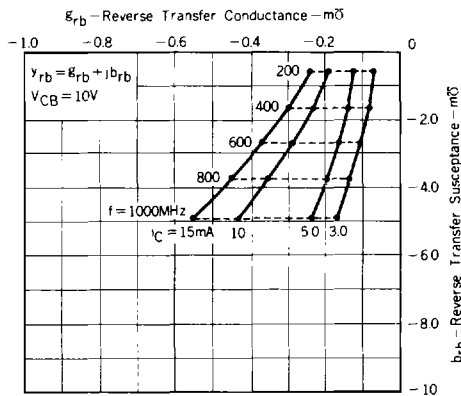
INPUT ADMITTANCE (Y_{ib}) vs. FREQUENCY



FORWARD TRANSFER ADMITTANCE (Y_{fb}) vs. FREQUENCY



REVERSE TRANSFER ADMITTANCE (Y_{rb}) vs. FREQUENCY



OUTPUT ADMITTANCE (Y_{ob}) vs. FREQUENCY

