

# SILICON TRANSISTORS

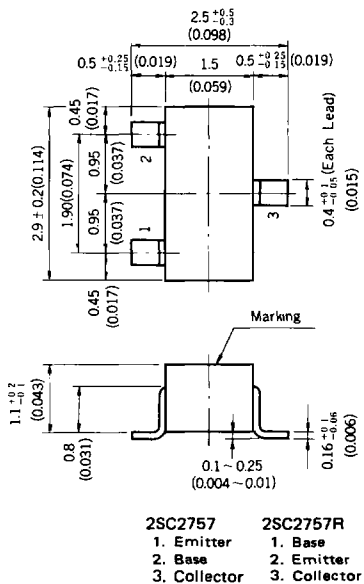
## 2SC2757, 2SC2757R

### 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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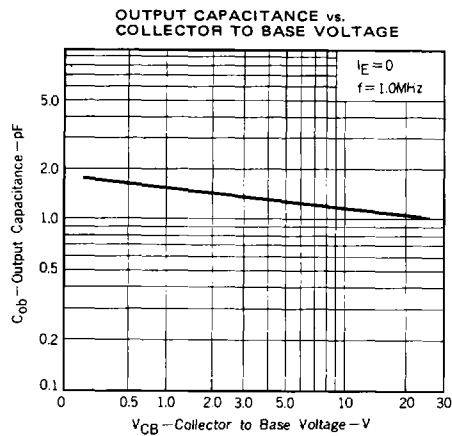
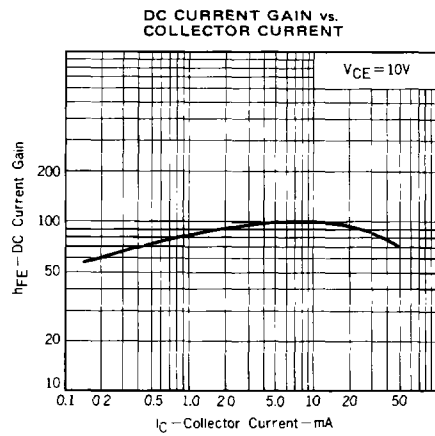
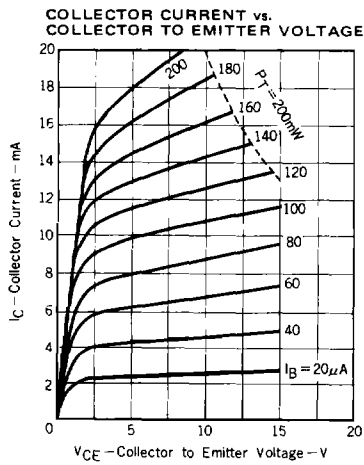
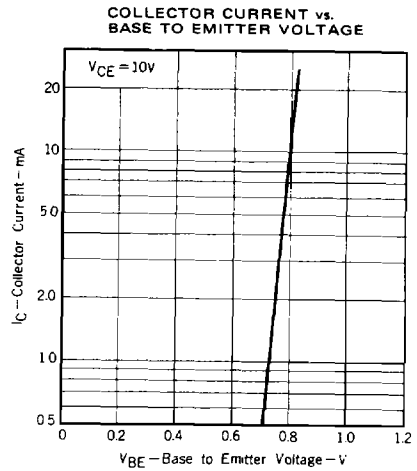
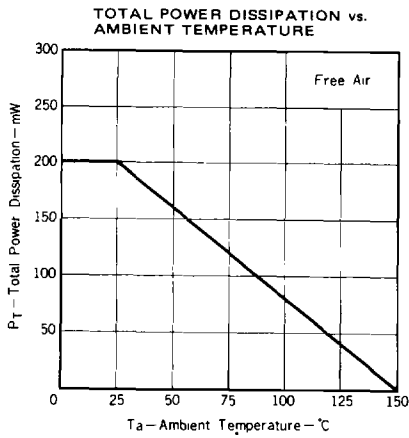
##### Maximum Temperatures

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

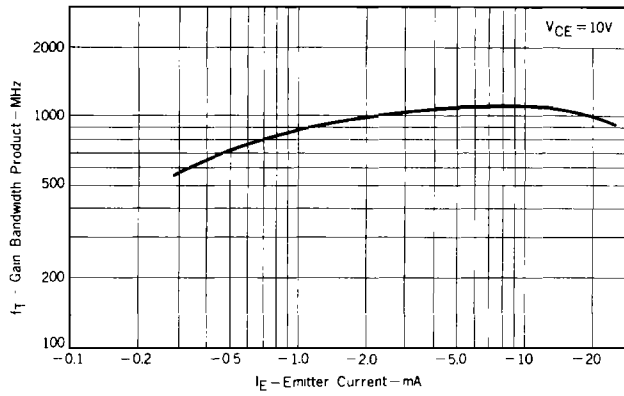
#### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			0.1	$\mu\text{A}$	$V_{CB} = 12\text{V}, I_E = 0$
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	$V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$ $f = 31.9\text{MHz}$

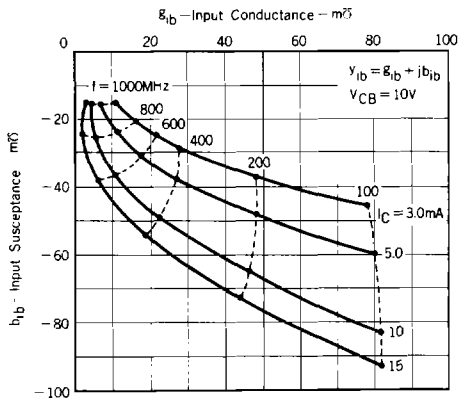
TYPICAL CHARACTERISTICS (Ta = 25°C)



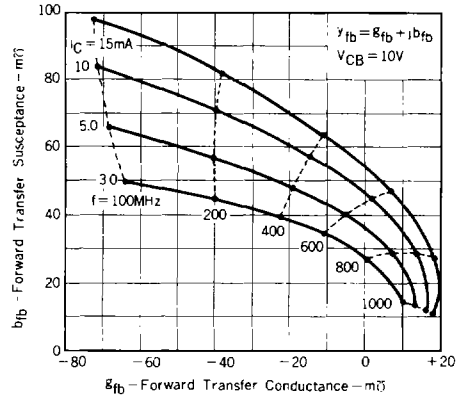
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



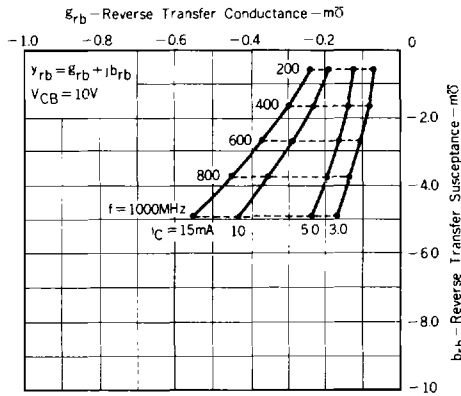
INPUT ADMITTANCE ( $Y_{ib}$ ) vs. FREQUENCY



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



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



OUTPUT ADMITTANCE ( $Y_{ob}$ ) vs. FREQUENCY

