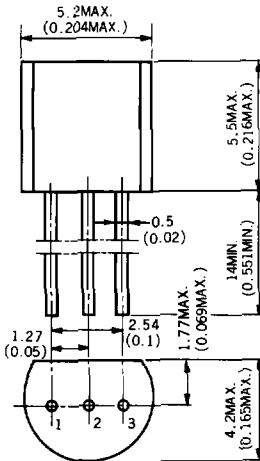


UHF/VHF OSCILLATOR AND VHF MIXER NPN SILICON EPITAXIAL TRANSISTOR

PACKAGE DIMENSIONS in millimeters (inches)



1. Emitter EIAJ : SC-43
2. Collector JEDEC : TO-92
3. Base IEC : PA33

DESCRIPTION

The 2SC1730 is an 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_{CBO}	30V
Collector to Emitter Voltage	V_{CEO}	15V
Emitter to Base Voltage	V_{EBO}	5.0V
Collector Current	I_C	50mA

Maximum Power Dissipation

Total Power Dissipation	P_T	250mW
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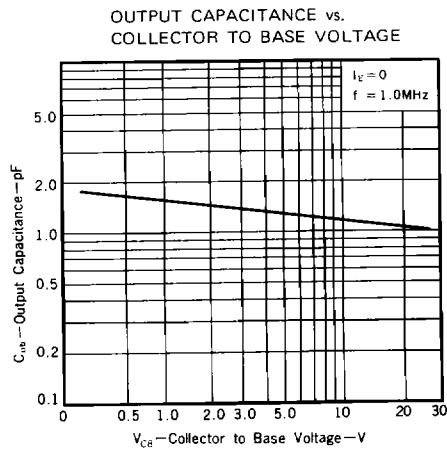
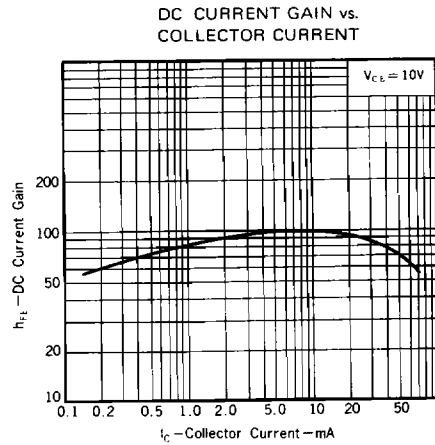
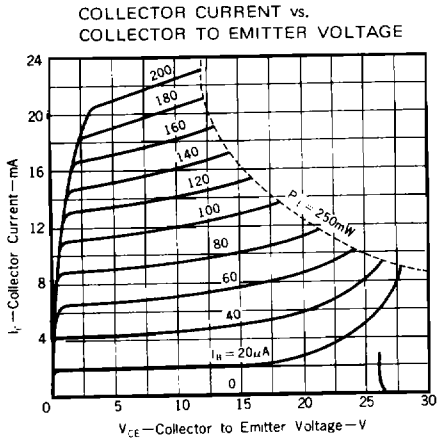
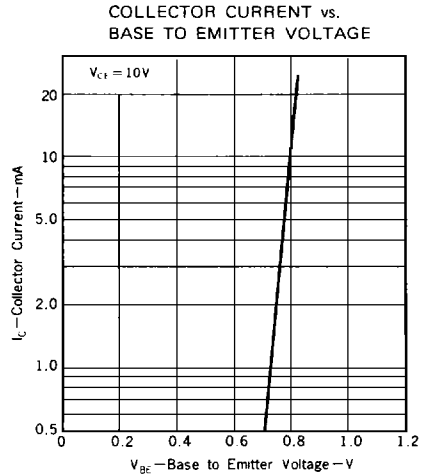
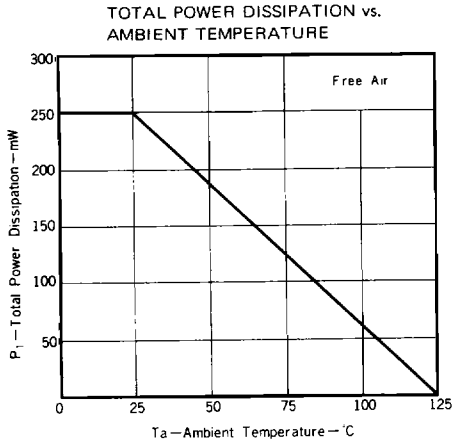
Maximum Temperatures

Junction Temperature	T_j	125°C
Storage Temperature	T_{stg}	-55 to +125°C

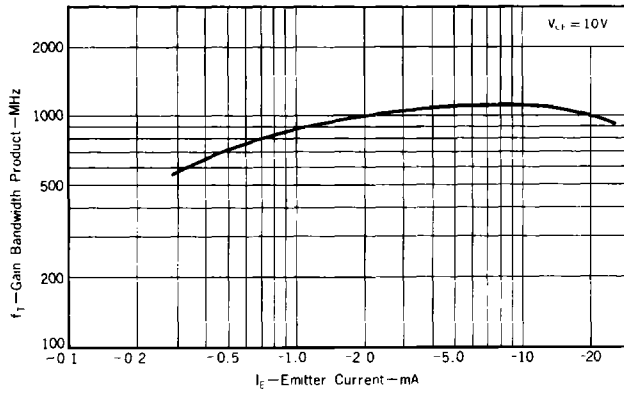
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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}	40	100	180		$V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$
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	$V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$ $f = 31.9\text{MHz}$

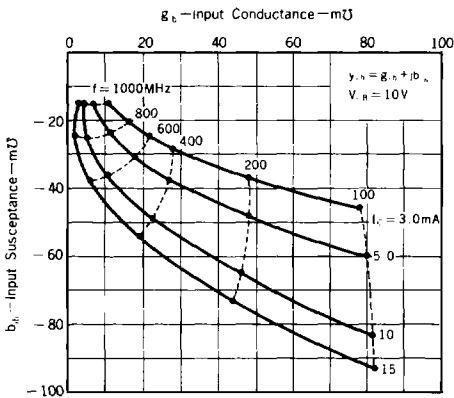
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



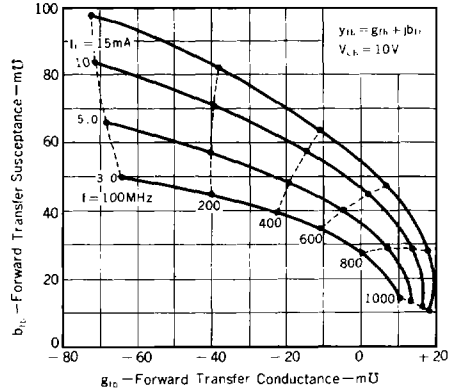
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



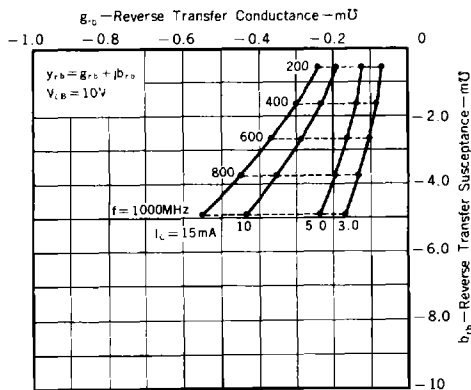
INPUT ADMITTANCE (y_{ib}) vs. FREQUENCY



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



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



OUTPUT ADMITTANCE (y_{ob}) vs. FREQUENCY

