

DESCRIPTION

The 2SC1674 is designed for use in FM RF amplifier and local oscillator of FM tuner.

FEATURES

- High gain bandwidth product ($f_T = 600$ MHz TYP.)
- Small output capacitance ($C_{ob} = 1.0$ pF TYP.)
- Low noise figure (NF = 3.0 dB TYP. @100 MHz)

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +125 °C

Junction Temperature +125 °C Maximum

Maximum Power Dissipation ($T_a = 25$ °C)

Total Power Dissipation 250 mW

Maximum Voltages and Currents ($T_a = 25$ °C)

VCBO Collector to Base Voltage 30 V

VCEO Collector to Emitter Voltage 20 V

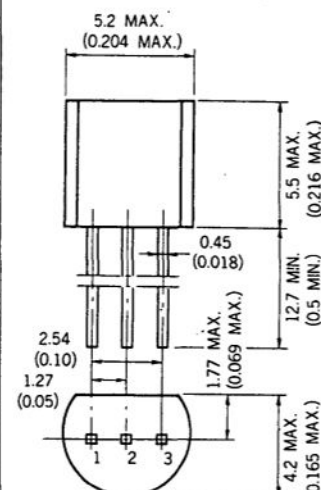
VEBO Emitter to Base Voltage 4.0 V

IC Collector Current 20 mA

IB Base Current 20 mA

PACKAGE DIMENSIONS

in millimeters (inches)



1. EMITTER EIAJ : SC-43B
2. COLLECTOR JEDEC : TO-92
3. BASE IEC : PA33

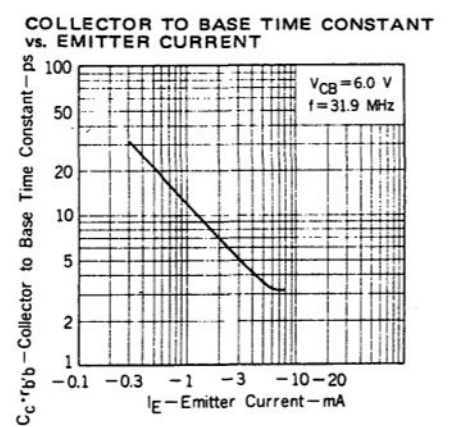
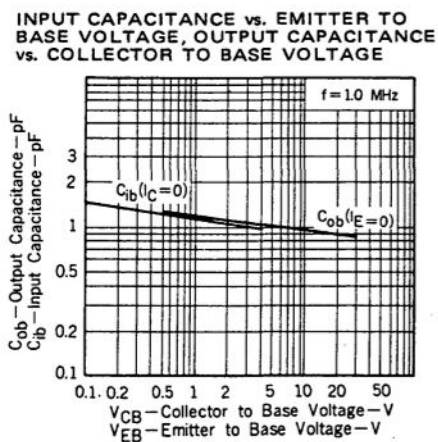
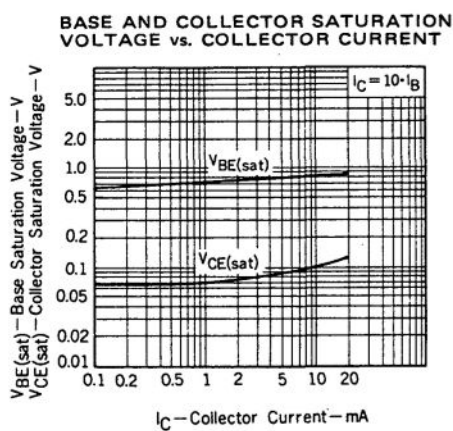
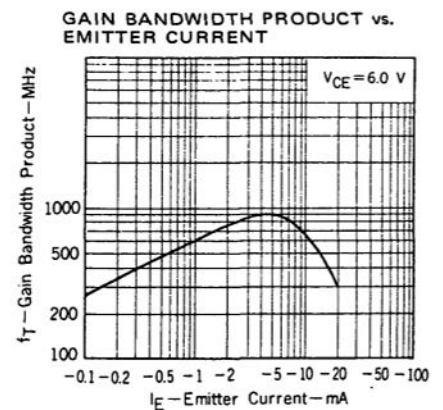
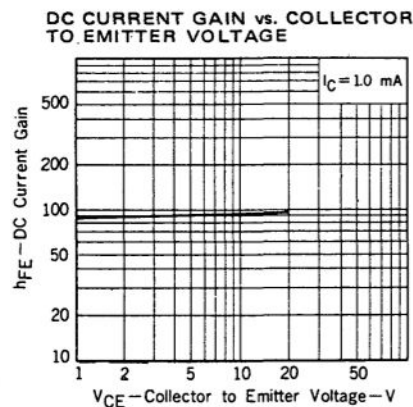
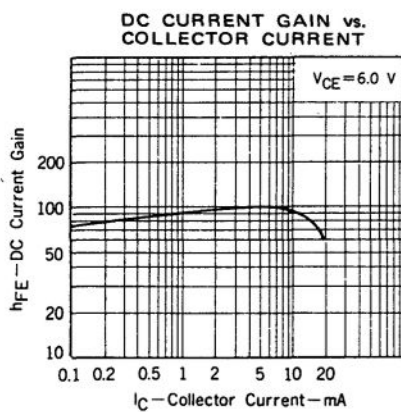
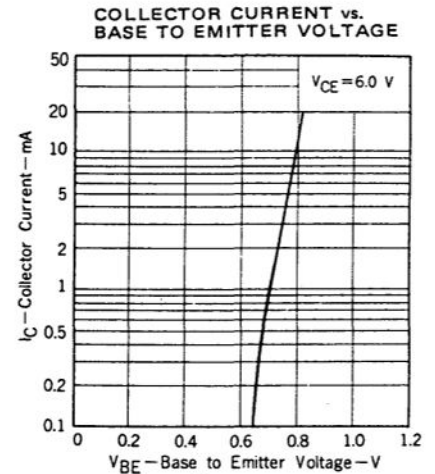
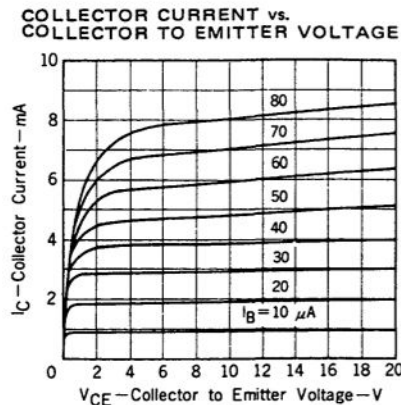
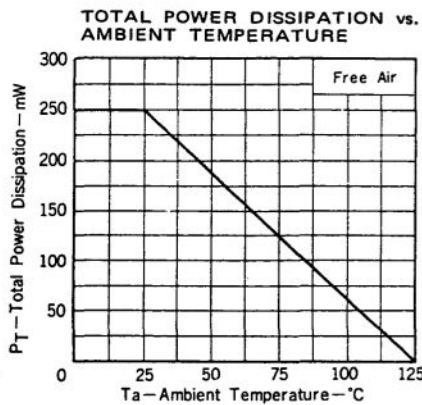
ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	90	180	—	$V_{CE} = 6.0$ V, $I_C = 1.0$ mA
C_{ob}	Output Capacitance		1.0	1.3	pF	$V_{CB} = 6.0$ V, $I_E = 0$, $f = 1.0$ MHz
NF	Noise Figure		3.0	5.0	dB	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA, $R_G = 50$ Ω , $f = 100$ MHz See test circuit
f_T	Gain Bandwidth Product	400	600		MHz	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA
G_{pe}	Power Gain	18	22		dB	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA, $R_G = 50$ Ω , $f = 100$ MHz See test circuit
$C_{c-rb'b}$	Collector to Base Time Constant		12	15	ps	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA, $f = 31.9$ MHz
I_{CBO}	Collector Cutoff Current			100	nA	$V_{CB} = 30$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			100	nA	$V_{EB} = 3.0$ V, $I_C = 0$
V_{BE}	Base to Emitter Voltage		0.72		V	$V_{CE} = 6.0$ V, $I_C = 1.0$ mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.1	0.3	V	$I_C = 10$ mA, $I_B = 1.0$ mA

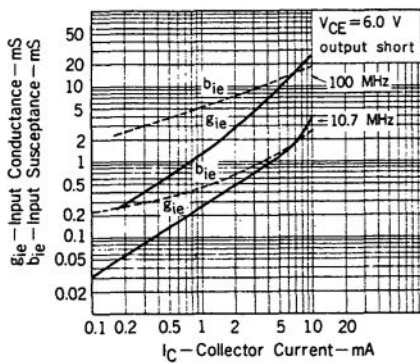
Classification of h_{FE}

Rank	M	L	K
Range	40 — 80	60 — 120	90 — 180

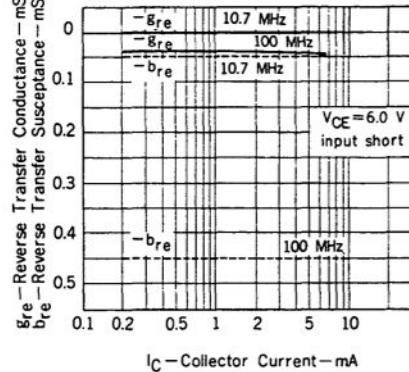
h_{FE} Test Conditions : $V_{CE} = 6.0$ V, $I_C = 1.0$ mA

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

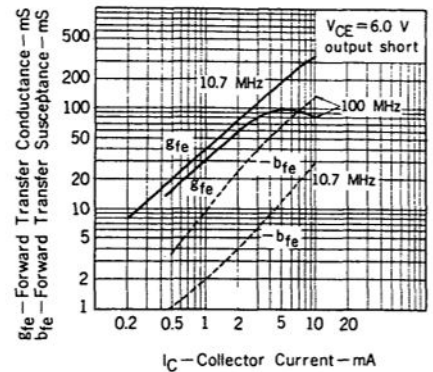
INPUT ADMITTANCE vs. COLLECTOR CURRENT



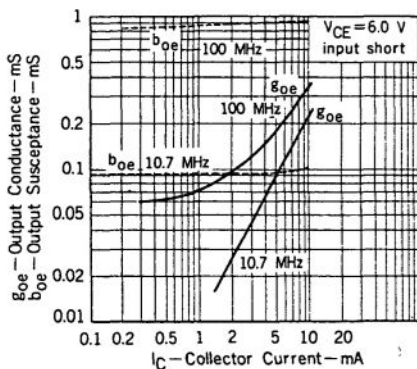
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



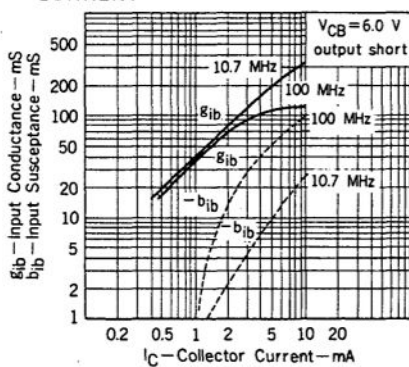
FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



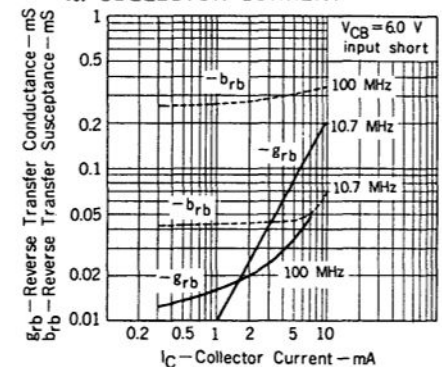
OUTPUT ADMITTANCE vs. COLLECTOR CURRENT



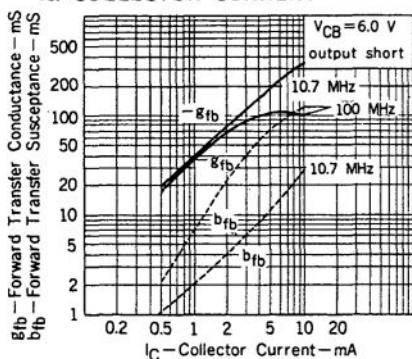
INPUT ADMITTANCE vs. COLLECTOR CURRENT



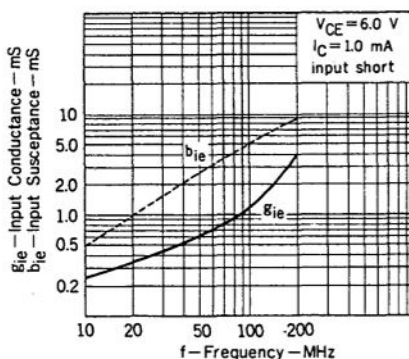
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



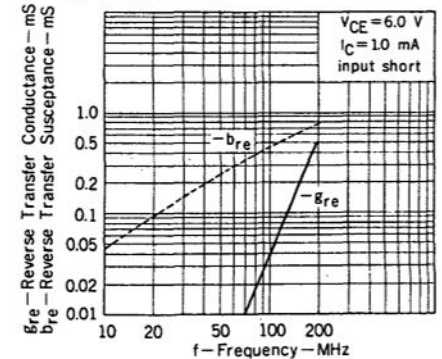
FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT

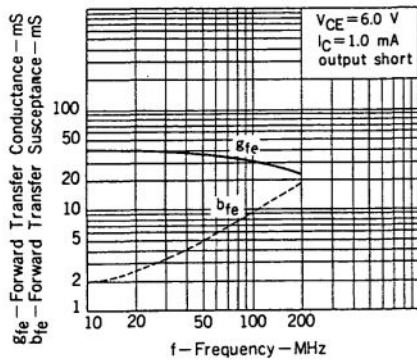
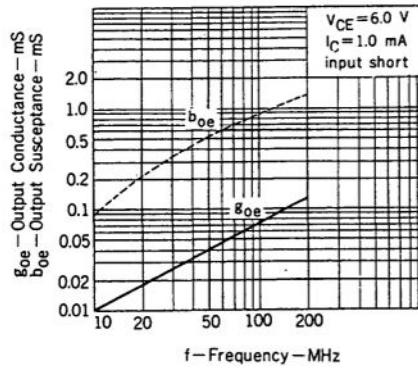
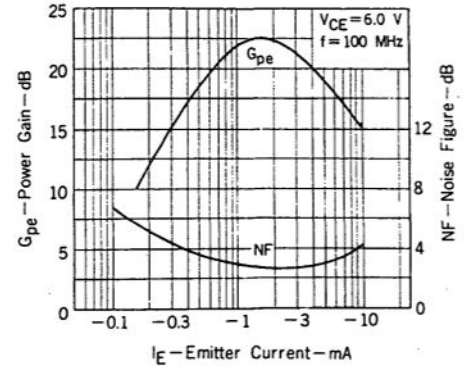


INPUT ADMITTANCE vs. FREQUENCY



REVERSE TRANSFER ADMITTANCE vs. FREQUENCY



FORWARD TRANSFER ADMITTANCE
vs. FREQUENCYOUTPUT ADMITTANCE
vs. FREQUENCYPOWER GAIN, NOISE FIGURE
vs. EMITTER CURRENT100 MHz G_{pe} , NF TEST CIRCUIT