

DESCRIPTION The 2SC2786 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 +150 °C

Junction Temperature +150 °C Maximum

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

Total Power Dissipation 250 mW

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

V_{CBO} Collector to Base Voltage 30 V

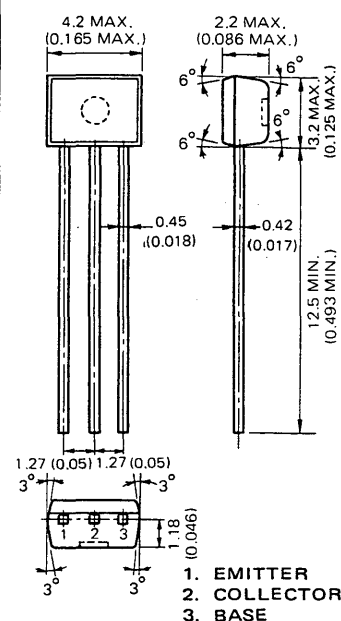
V_{CEO} Collector to Emitter Voltage 20 V

V_{EBO} Emitter to Base Voltage 4.0 V

I_C Collector Current 20 mA

I_B Base Current 20 mA

PACKAGE DIMENSIONS in millimeters (inches)



ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

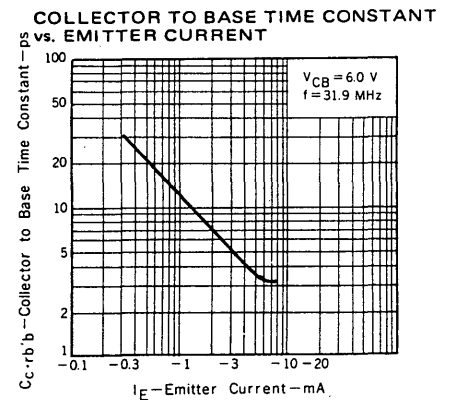
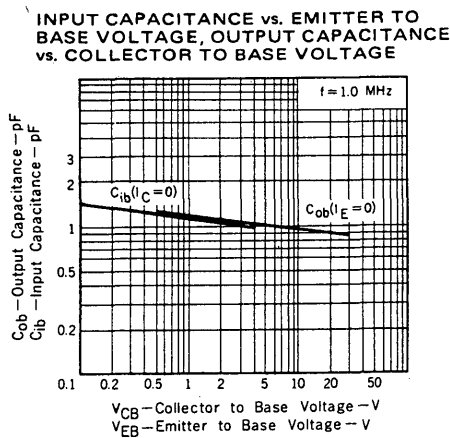
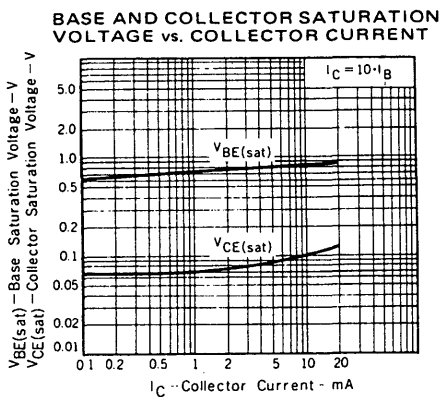
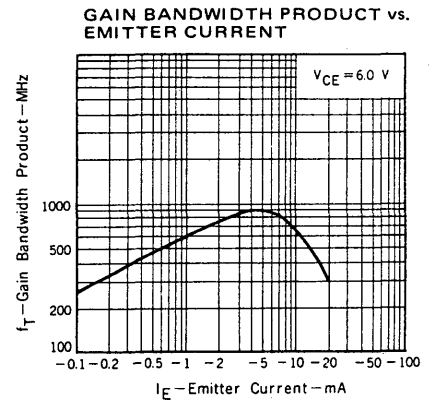
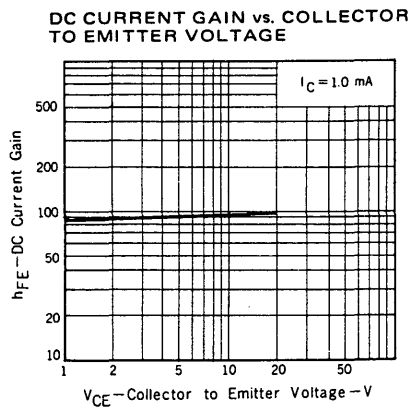
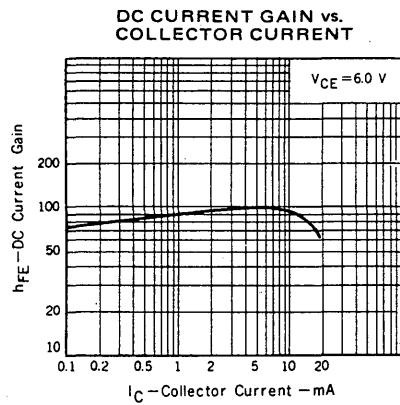
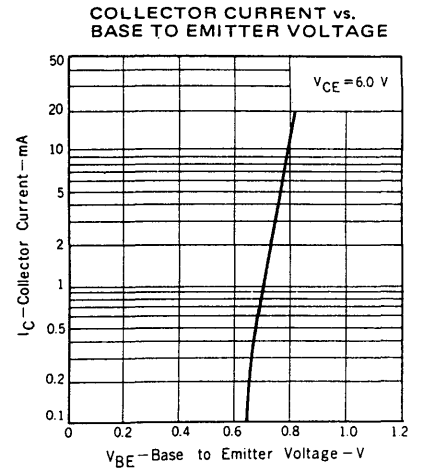
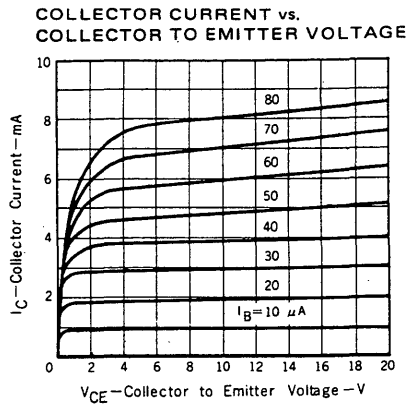
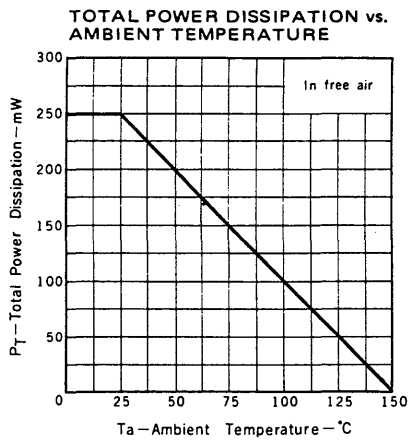
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	90	180	—	$V_{CE}=6.0$ V, $I_C=1.0$ mA
C_{ob}	Output Capacitance		1.0	1.3	pF	$V_{CB}=6.0$ V, $I_E=0$, $f=1.0$ MHz
NF	Noise Figure		3.0	5.0	dB	$V_{CE}=6.0$ V, $I_E=-1.0$ mA, $R_G=50$ Ω $f=100$ MHz, See test circuit
f_T	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	$V_{EB}=4.0$ 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

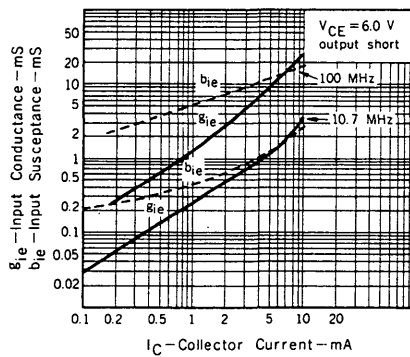
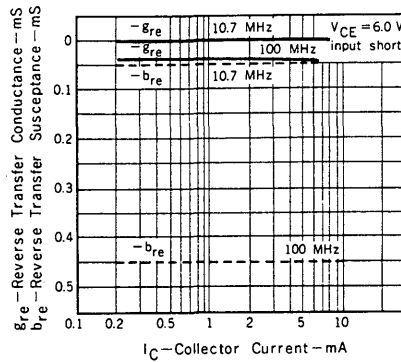
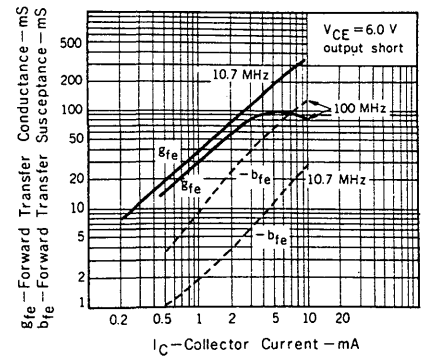
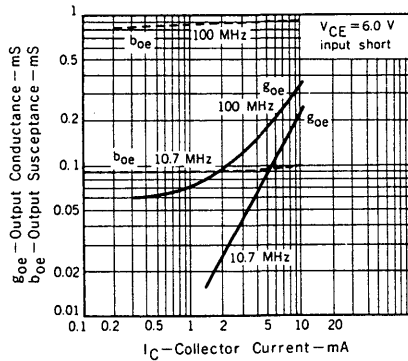
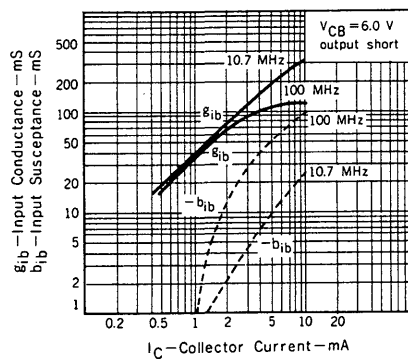
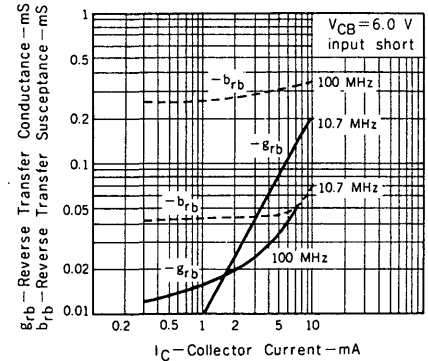
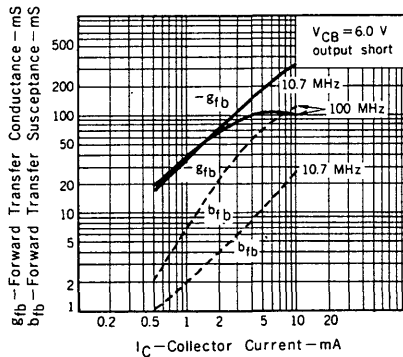
Classification of h_{FE}

Rank	MF	LF	KF
Range	40 — 80	60 — 120	90 — 180

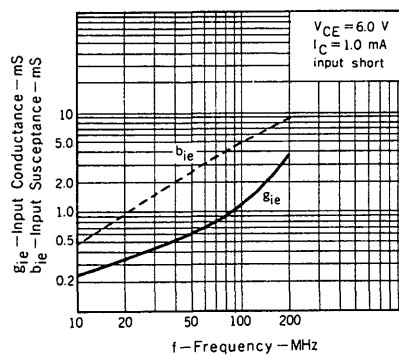
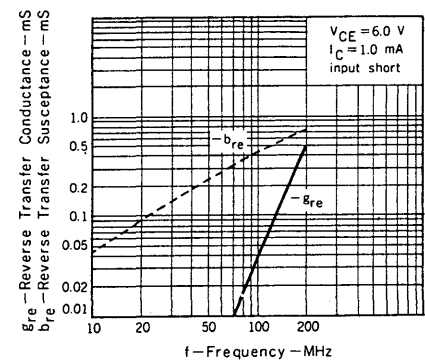
h_{FE} Test Conditions : $V_{CE}=6.0$ V, $I_C=1.0$ mA

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

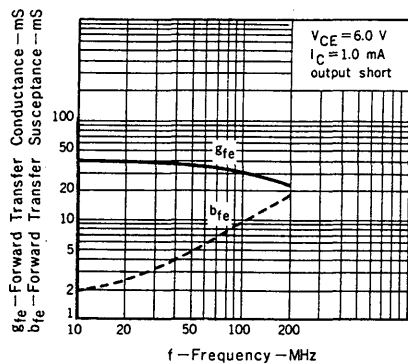


INPUT ADMITTANCE vs.
COLLECTOR CURRENTREVERSE TRANSFER ADMITTANCE
vs. COLLECTOR CURRENTFORWARD TRANSFER ADMITTANCE
vs. COLLECTOR CURRENTOUTPUT ADMITTANCE vs.
COLLECTOR CURRENTINPUT ADMITTANCE vs. COLLECTOR
CURRENTREVERSE TRANSFER ADMITTANCE
vs. COLLECTOR CURRENTFORWARD TRANSFER ADMITTANCE
vs. COLLECTOR CURRENT

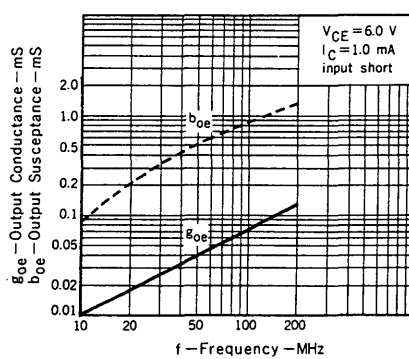
INPUT ADMITTANCE vs. FREQUENCY

REVERSE TRANSFER ADMITTANCE
vs. FREQUENCY

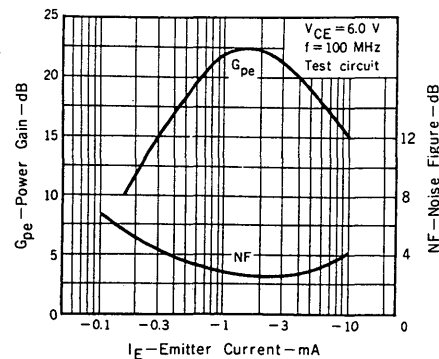
FORWARD TRANSFER ADMITTANCE
vs. FREQUENCY



OUTPUT ADMITTANCE
vs. FREQUENCY



POWER GAIN, NOISE FIGURE
vs. EMITTER CURRENT



100MHz G_{pe} , NF TEST CIRCUIT

