

NPN SILICON TRANSISTOR 2SC2786

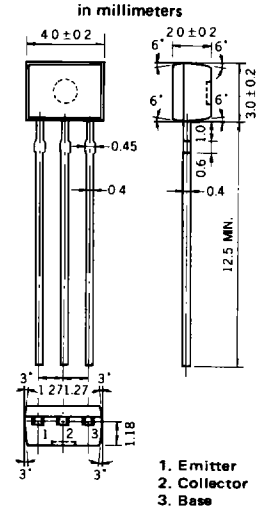
DESCRIPTION The 2SC2786 is designed for use in FM RF amplifier and local oscillator of FM tuner.

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

Maximum Temperatures	
Storage Temperature	-55 to +125 °C
Junction Temperature	+125 °C Maximum
Maximum Power Dissipation ($T_a = 25^\circ\text{C}$)	
Total Power Dissipation	300 mW
Maximum Voltages and Currents	
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



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

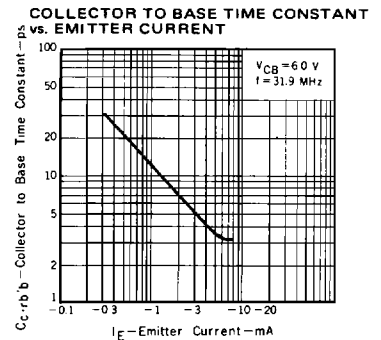
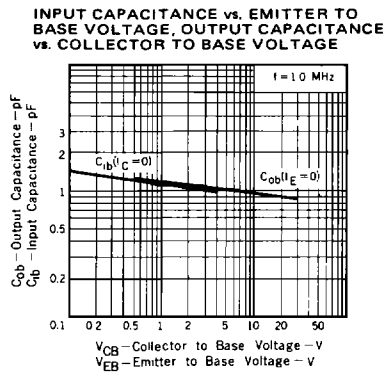
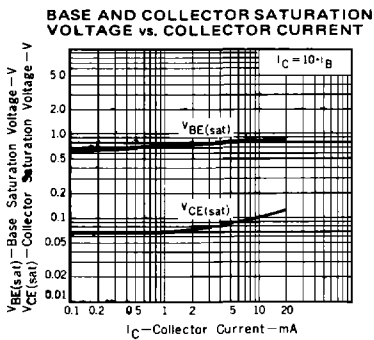
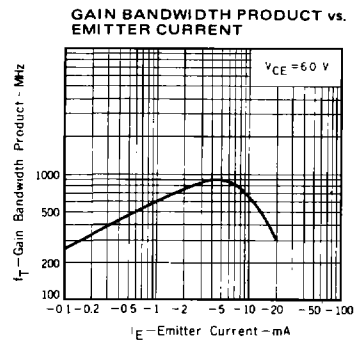
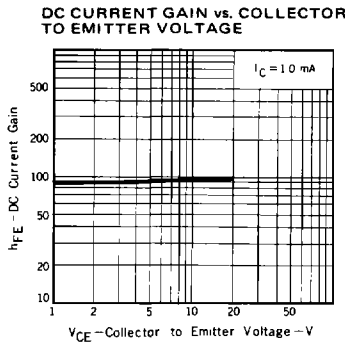
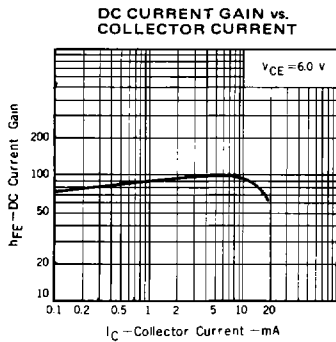
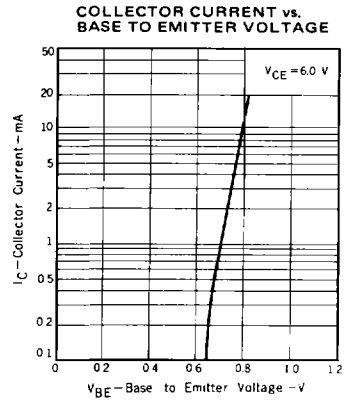
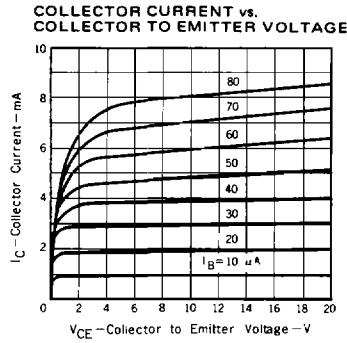
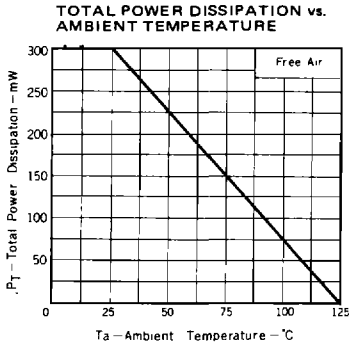
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	90	180	—	$V_{CE}=6.0$ V, $I_C=1.0$ mA
C_{ob}	Output Capacitance		1.0	1.3	pF	$V_{CB}=6.0$ V, $I_E=0$, $f=1.0$ MHz
NF	Noise Figure		3.0	5.0	dB	$V_{CE}=6.0$ V, $I_E=-1.0$ mA, $R_G=50 \Omega$ $f=100$ MHz, See test circuit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

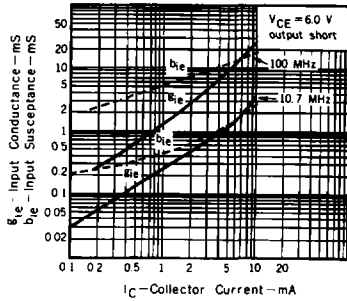
Rank	M	L	K
Range	40 – 80	60 – 120	90 – 180

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

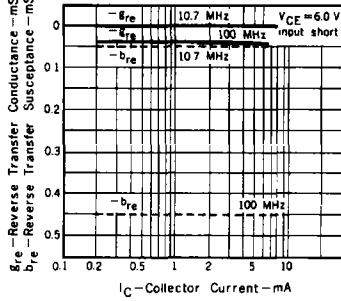
TYPICAL CHARACTERISTICS (Ta = 25 °C unless otherwise noted)



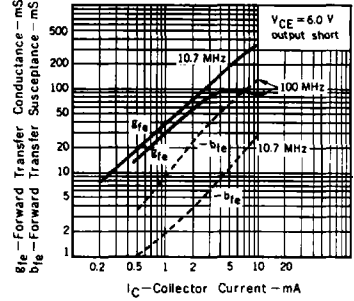
INPUT ADMITTANCE vs. COLLECTOR CURRENT



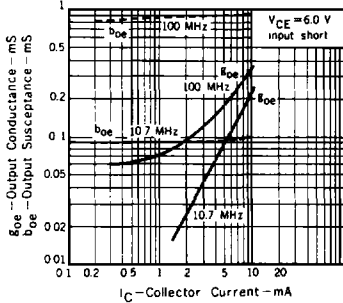
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



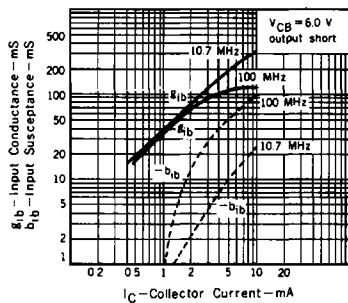
FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



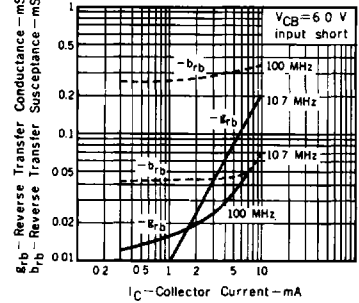
OUTPUT ADMITTANCE vs. COLLECTOR CURRENT



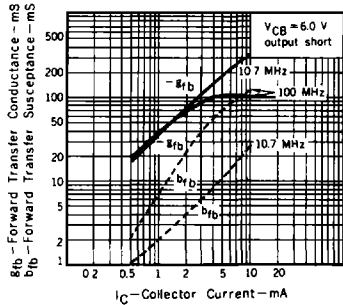
INPUT ADMITTANCE vs. COLLECTOR CURRENT



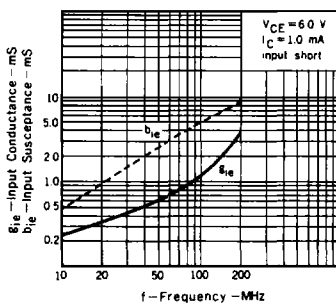
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



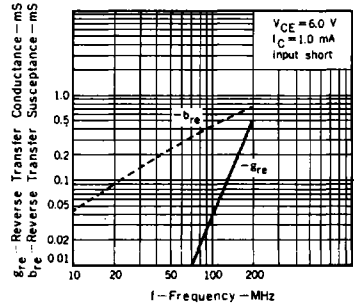
FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



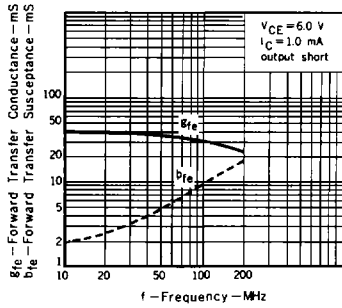
INPUT ADMITTANCE vs. FREQUENCY



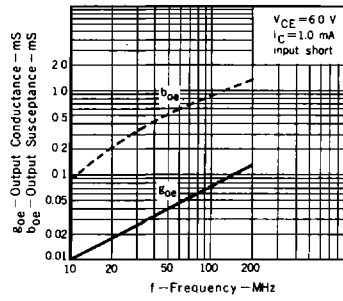
REVERSE TRANSFER ADMITTANCE vs. FREQUENCY



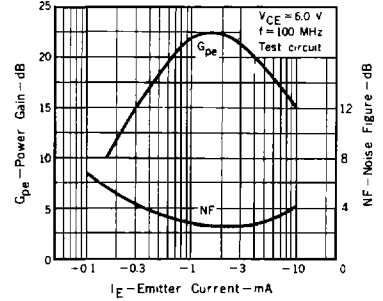
FORWARD TRANSFER ADMITTANCE vs. FREQUENCY



OUTPUT ADMITTANCE vs. FREQUENCY



POWER GAIN, NOISE FIGURE vs. EMITTER CURRENT



100MHz G_{pe}, NF TEST CIRCUIT

