

PNP SILICON TRANSISTOR 2SA1005

2

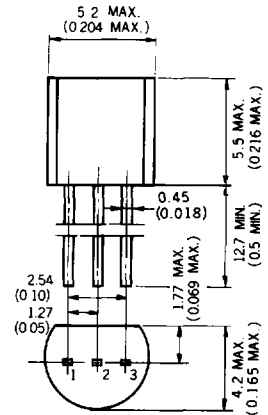
DESCRIPTION The 2SA1005 is designed for use in RF amplifier, conv., and oscillator of FM tuner.

- FEATURES**
- High gain bandwidth product: $f_T = 400$ MHz TYP.
@ $V_{CE} = -10$ V, $I_E = 1.0$ mA
 - Small output capacitance: $C_{ob} = 1.1$ pF TYP.
@ $V_{CB} = -10$ V, $f = 1.0$ MHz
 - Low noise figure: $NF = 3.5$ dB TYP.

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)
- V_{CBO} Collector to Base Voltage -40 V
 - V_{CEO} Collector to Emitter Voltage -40 V
 - V_{EBO} Emitter to Base Voltage -5.0 V
 - I_C Collector Current -30 mA
 - I_B Base Current -20 mA

PACKAGE DIMENSIONS
in millimeters (inches)



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

ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

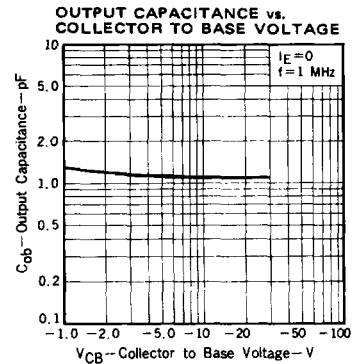
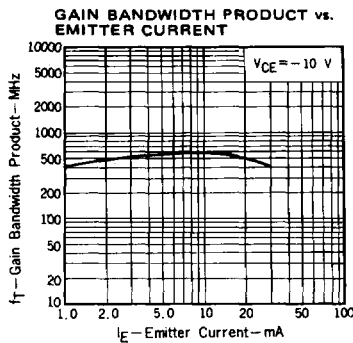
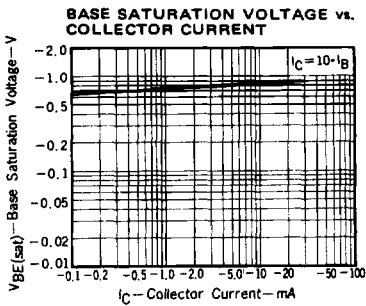
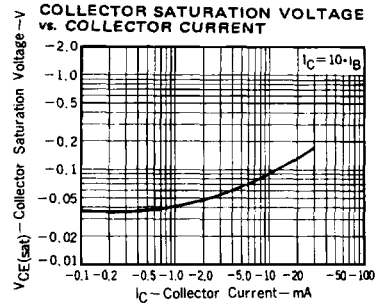
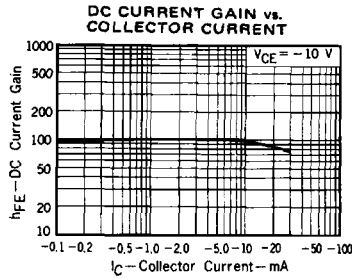
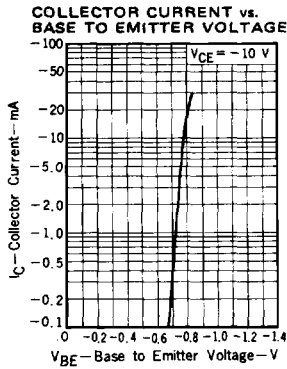
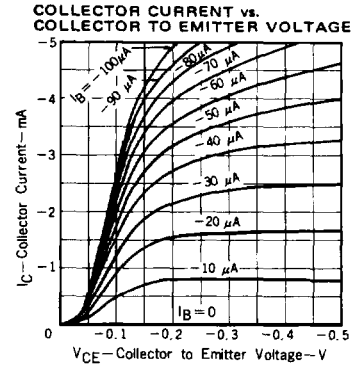
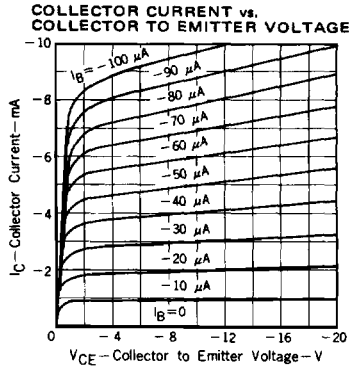
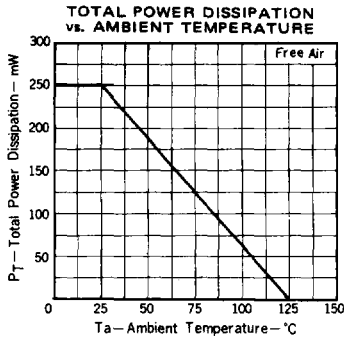
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{CBO}	Collector Cutoff Current			-100	nA	$V_{CB} = -40$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			-100	nA	$V_{EB} = -4.0$ V, $I_C = 0$
h_{FE}	DC Current Gain	40	90	180	—	$V_{CE} = -10$ V, $I_C = -1.0$ mA
V_{BE}	Base to Emitter Voltage	-0.67	-0.72		V	$V_{CE} = -10$ V, $I_C = -1.0$ mA
$V_{CE(sat)}$	Collector Saturation Voltage		-0.09	-0.3	V	$I_C = -10$ mA, $I_B = -1.0$ mA
f_T	Gain Bandwidth Product	250	400		MHz	$V_{CE} = -10$ V, $I_E = 1.0$ mA
C_{ob}	Output Capacitance		1.1	2.0	pF	$V_{CB} = -10$ V, $I_E = 0$, $f = 1.0$ MHz
$C_{c'rb'b}$	Collector to Base Time Constant			20	ps	$V_{CE} = -10$ V, $I_E = 1.0$ mA, $f = 31.9$ MHz
NF	Noise Figure		3.5		dB	$V_{CE} = -10$ V, $I_C = -1.0$ mA, $R_G = 500$ Ω, $f = 1.0$ MHz

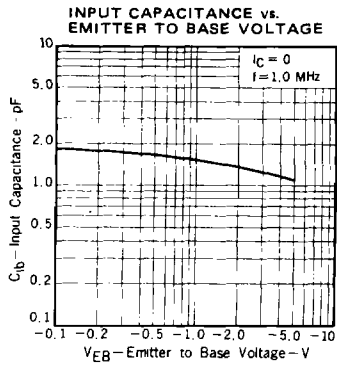
Classification of h_{FE}

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

h_{FE} Test Conditions : $V_{CE} = -10$ V, $I_C = -1.0$ mA

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





2