

NEC

NPN SILICON TRANSISTOR 2SC945

DESCRIPTION The 2SC945 is designed for use in driver stage of AF amplifier and low speed switching.

FEATURES

- High Voltage LV_{CEO} : 50 V MIN.
- Excellent h_{FE} Linearity
 h_{FE1} (0.1 mA)/ h_{FE2} (1.0 mA) : 0.92 TYP.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +125 °C

Junction Temperature +125 °C Maximum

Maximum Power Dissipation (Ta = 25 °C)

Total Power Dissipation 250 mW

Maximum Voltages and Currents (Ta = 25 °C)

V_{CB0} Collector to Base Voltage 60 V

V_{CEO} Collector to Emitter Voltage 50 V

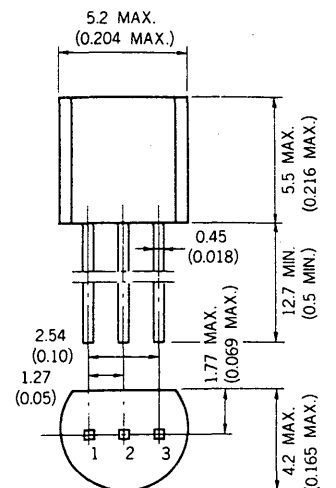
V_{EB0} Emitter to Base Voltage 5.0 V

I_C Collector Current 100 mA

I_B 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 (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	50	185			V _{CE} =6.0 V, I _C =0.1 mA
h_{FE2}	DC Current Gain	90	200	600		V _{CE} =6.0 V, I _C =1.0 mA
NF	Noise Figure		0.8	15	dB	V _{CE} =6.0 V, I _C =0.1 mA, R _G =2.0 kΩ, f=1.0 kHz
f _T	Gain Bandwidth Product	150	250	450	MHz	V _{CE} =6.0 V, I _E =-10 mA
C _{ob}	Collector to Base Capacitance		3.0	4.0	pF	V _{CB} =6.0 V, I _E =0, f=1.0 MHz
I _{CB0}	Collector Cutoff Current			100	nA	V _{CB} =60 V, I _E =0
I _{EB0}	Emitter Cutoff Current			100	nA	V _{EB} =5.0 V, I _C =0
V _{BE}	Base to Emitter Voltage	0.55	0.62	0.65	V	V _{CE} =6.0 V, I _C =1.0 mA
V _{CE(sat)}	Collector Saturation Voltage		0.15	0.3	V	I _C =100 mA, I _B =10 mA
V _{BE(sat)}	Base Saturation Voltage		0.86	1.0	V	I _C =100 mA, I _B =10 mA

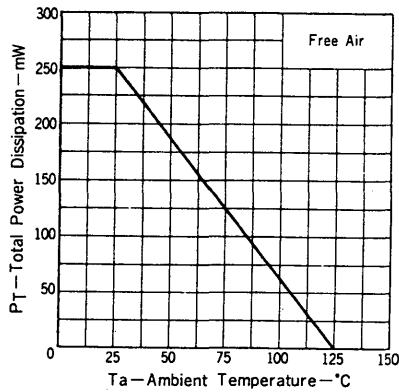
Classification of h_{FE2}

Rank	R	Q	P	K
Range	90 - 180	135 - 270	200 - 400	300 - 600

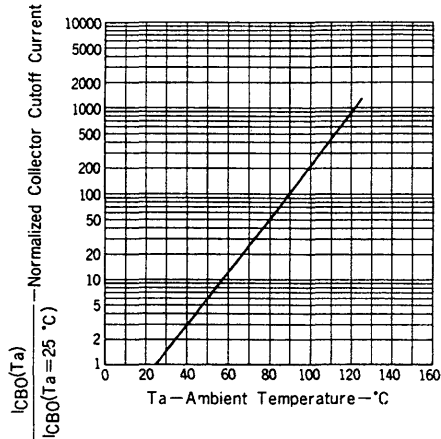
h_{FE2} Test Conditions : V_{CE} = 6.0 V, I_C = 1.0 mA

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

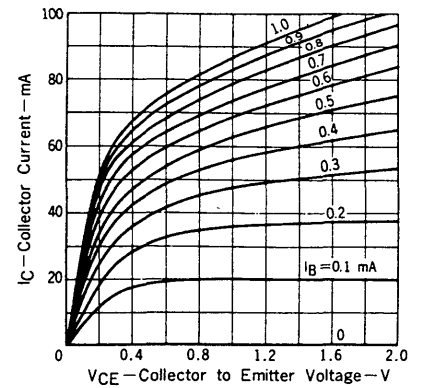
TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE



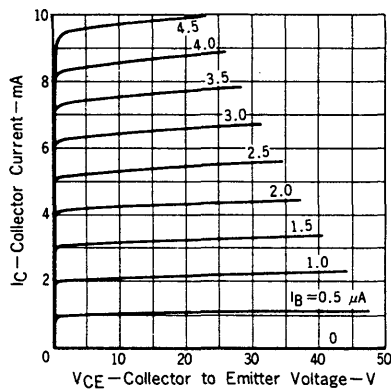
NORMALIZED COLLECTOR CUTOFF
CURRENT vs. AMBIENT TEMPERATURE



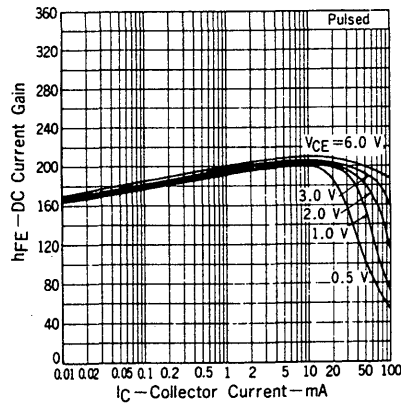
COLLECTOR CURRENT
vs. COLLECTOR TO EMITTER VOLTAGE



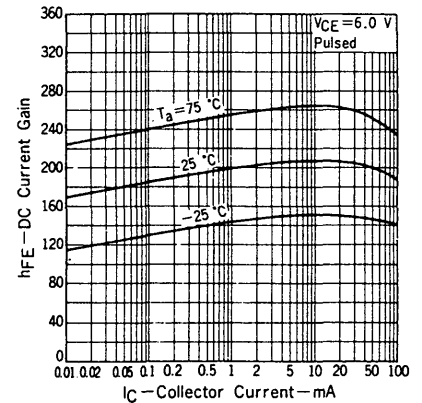
COLLECTOR CURRENT
vs. COLLECTOR TO EMITTER VOLTAGE



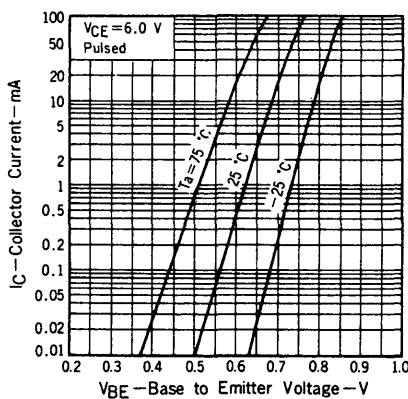
DC CURRENT GAIN
vs. COLLECTOR CURRENT



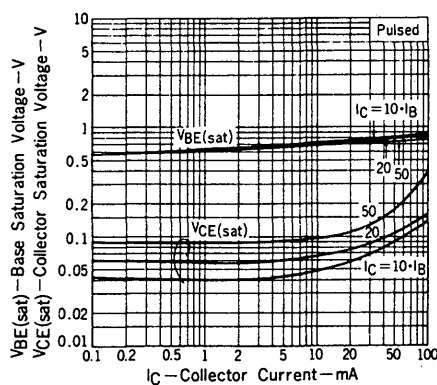
DC CURRENT GAIN
vs. COLLECTOR CURRENT



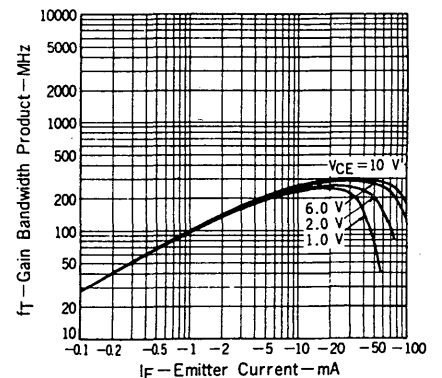
COLLECTOR CURRENT
vs. BASE TO EMITTER VOLTAGE



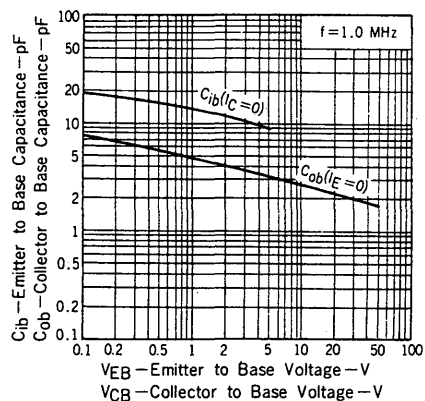
COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



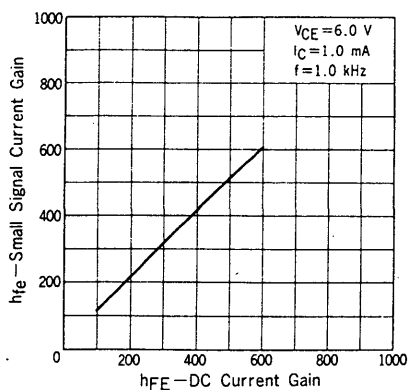
GAIN BANDWIDTH PRODUCT
vs. EMITTER CURRENT



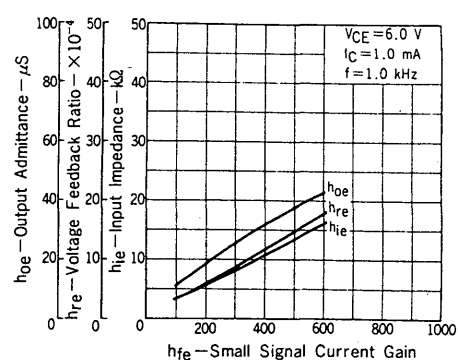
EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE



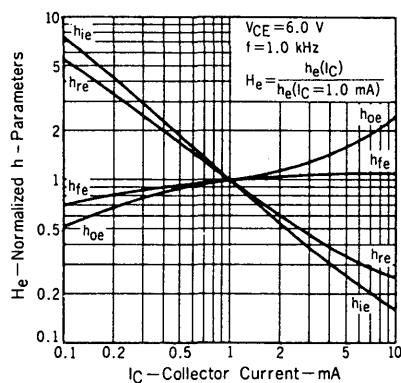
SMALL SIGNAL CURRENT GAIN vs. DC CURRENT GAIN



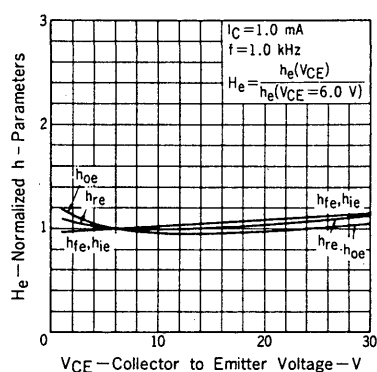
INPUT IMPEDANCE, VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN



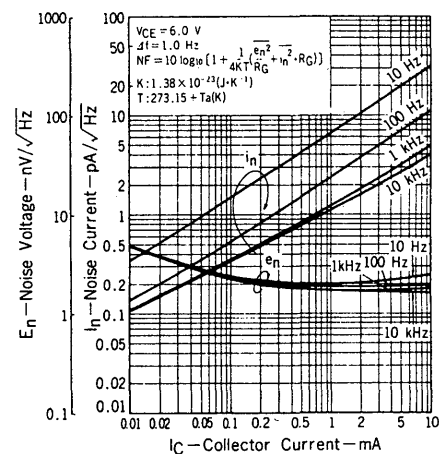
NORMALIZED h-PARAMETERS vs. COLLECTOR CURRENT



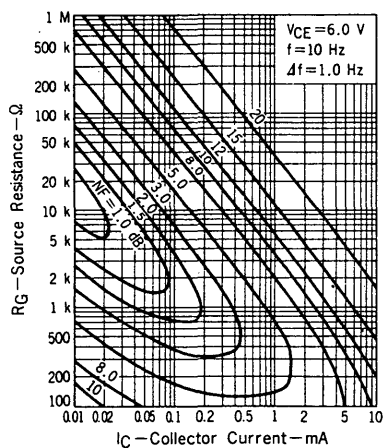
NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE



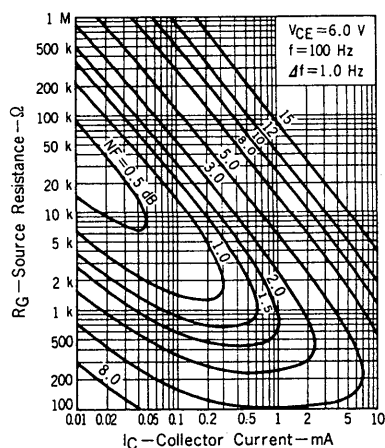
E_n AND I_n vs. COLLECTOR CURRENT



NOISE FIGURE MAP 1



NOISE FIGURE MAP 2



NOISE FIGURE MAP 3

