

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

FEATURES

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

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature $-55 \text{ to } +125 \text{ }^{\circ}\text{C}$

Junction Temperature $+125 \text{ }^{\circ}\text{C}$ Maximum

Maximum Power Dissipation ($T_a = 25 \text{ }^{\circ}\text{C}$)

Total Power Dissipation 250 mW

Maximum Voltages and Currents ($T_a = 25 \text{ }^{\circ}\text{C}$)

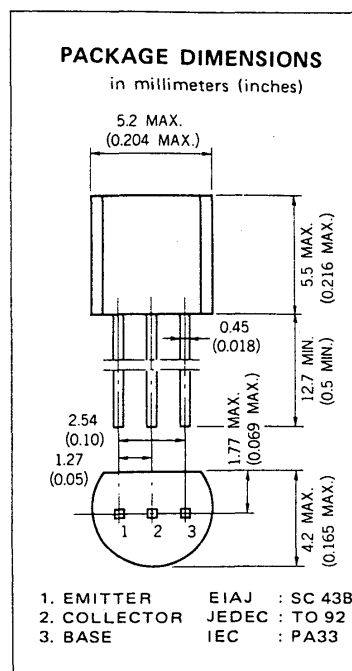
V_{CBO} Collector to Base Voltage 60 V

V_{CEO} Collector to Emitter Voltage 50 V

V_{EBO} Emitter to Base Voltage 5.0 V

I_C Collector Current 100 mA

I_B Base Current 20 mA



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

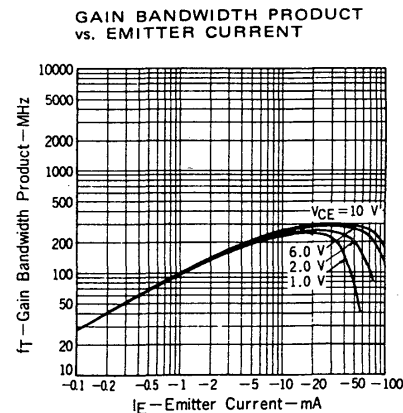
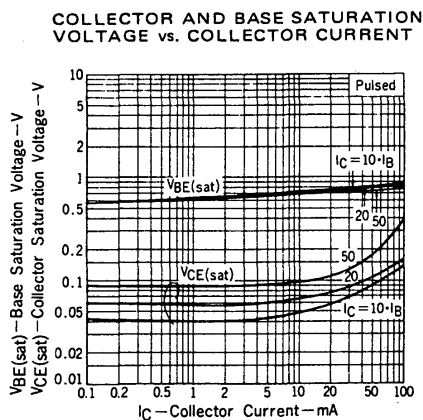
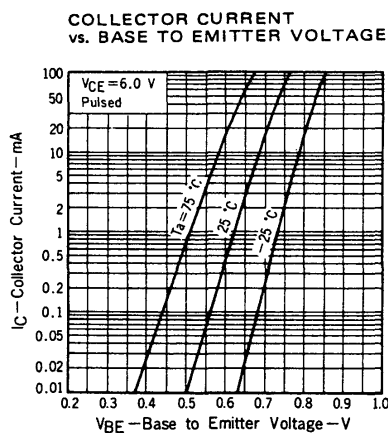
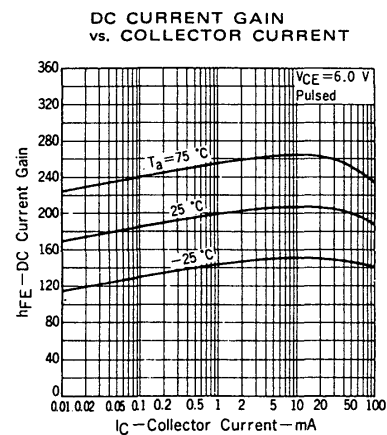
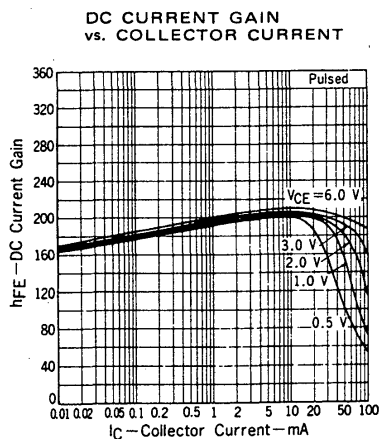
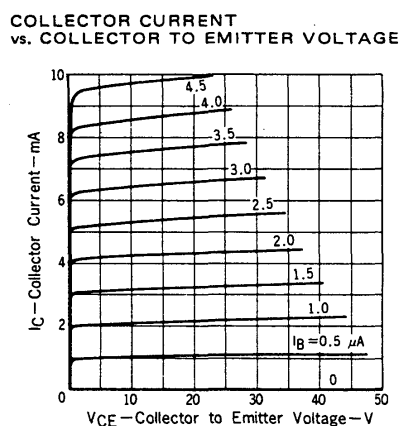
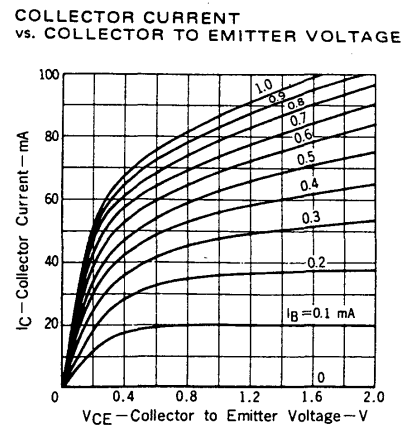
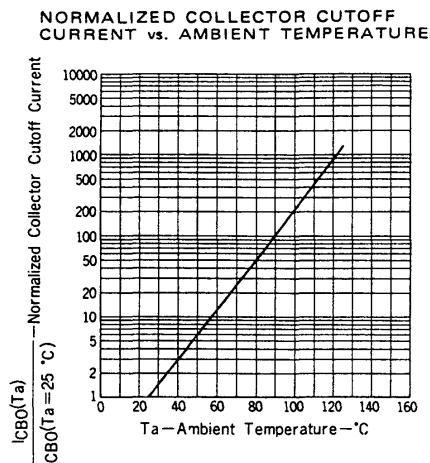
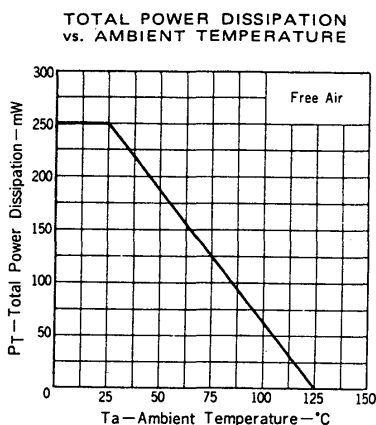
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	50	185			$V_{CE}=6.0 \text{ V}, I_C=0.1 \text{ mA}$
h_{FE2}	DC Current Gain	90	200	600		$V_{CE}=6.0 \text{ V}, I_C=1.0 \text{ mA}$
NF	Noise Figure		0.8	15	dB	$V_{CE}=6.0 \text{ V}, I_C=0.1 \text{ mA}, R_G=2.0 \text{ k}\Omega, f=1.0 \text{ kHz}$
f_T	Gain Bandwidth Product	150	250	450	MHz	$V_{CE}=6.0 \text{ V}, I_E=-10 \text{ mA}$
C_{ob}	Collector to Base Capacitance		3.0	4.0	pF	$V_{CB}=6.0 \text{ V}, I_E=0, f=1.0 \text{ MHz}$
I_{CBO}	Collector Cutoff Current			100	nA	$V_{CB}=60 \text{ V}, I_E=0$
I_{EBO}	Emitter Cutoff Current			100	nA	$V_{EB}=5.0 \text{ V}, I_C=0$
V_{BE}	Base to Emitter Voltage	0.55	0.62	0.65	V	$V_{CE}=6.0 \text{ V}, I_C=1.0 \text{ mA}$
$V_{CE(sat)}$	Collector Saturation Voltage		0.15	0.3	V	$I_C=100 \text{ mA}, I_B=10 \text{ mA}$
$V_{BE(sat)}$	Base Saturation Voltage		0.86	1.0	V	$I_C=100 \text{ mA}, I_B=10 \text{ mA}$

Classification of h_{FE2}

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

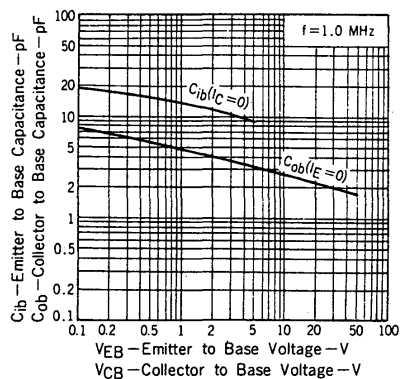
h_{FE2} Test Conditions : $V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$

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

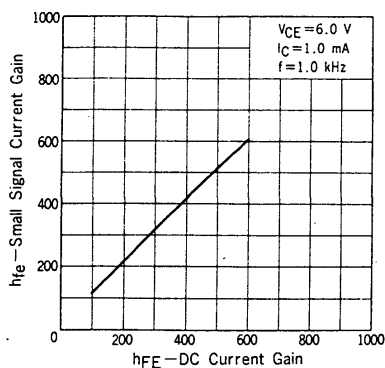


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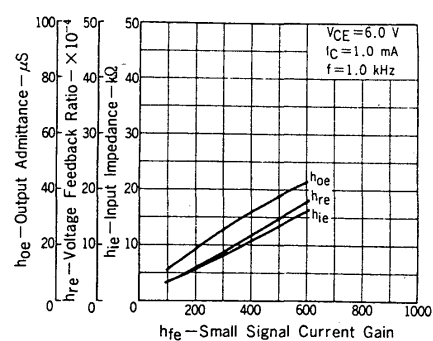
EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE



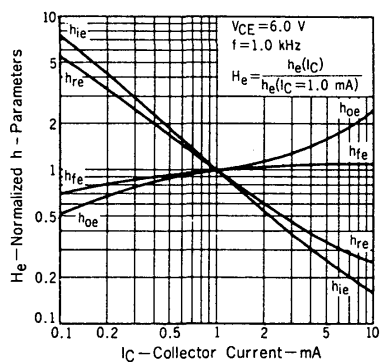
SMALL SIGNAL CURRENT GAIN vs. DC CURRENT GAIN



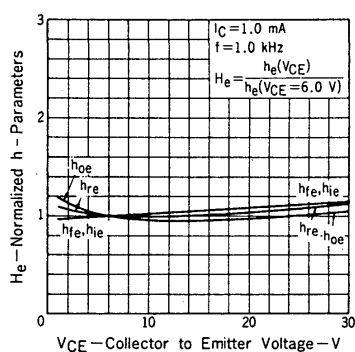
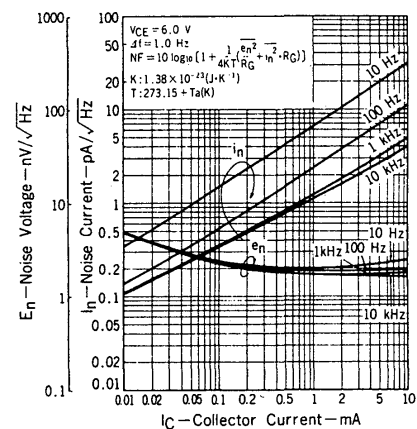
INPUT IMPEDANCE, VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN



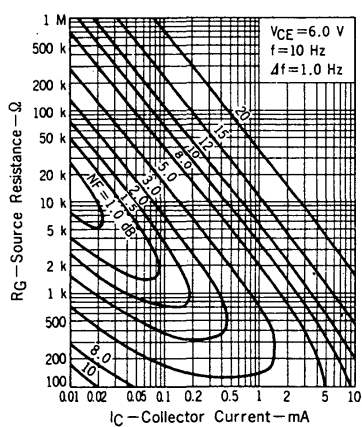
NORMALIZED h-PARAMETERS vs. COLLECTOR CURRENT



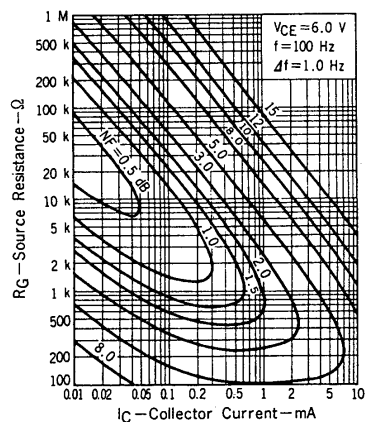
NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE

 E_n AND I_n vs. COLLECTOR CURRENT

NOISE FIGURE MAP 1



NOISE FIGURE MAP 2



NOISE FIGURE MAP 3

