

NPN SILICON TRANSISTOR

DESCRIPTION

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

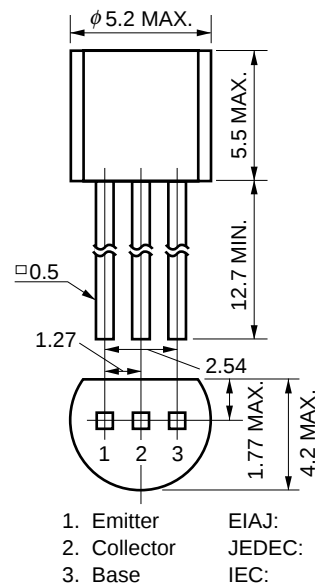
FEATURES

- 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 Temperature	
Storage Temperature	-55 to +150°C
Junction Temperature	+150°C Maximum
Maximum Power Dissipation ($T_A = 25^\circ\text{C}$)	
Total Power Dissipation	250 mW
Maximum Voltages and Currents ($T_A = 25^\circ\text{C}$)	
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

★ PACKAGE DRAWING (Unit: mm)



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

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

CLASSIFICATION OF h_{FE2}

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

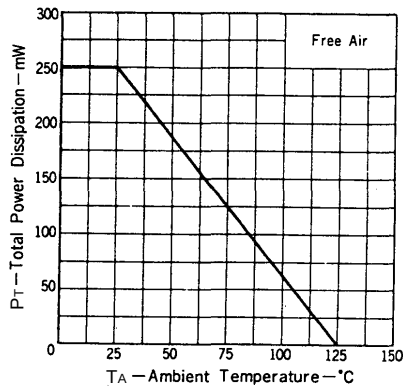
Remark h_{FE2} Test Conditions: $V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$

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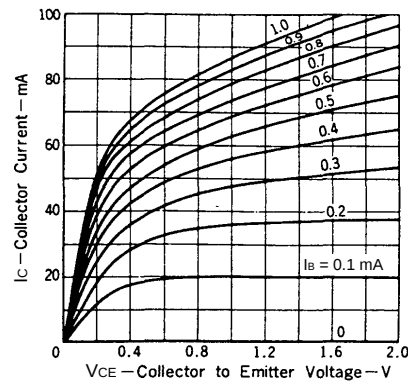
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TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise noted.)

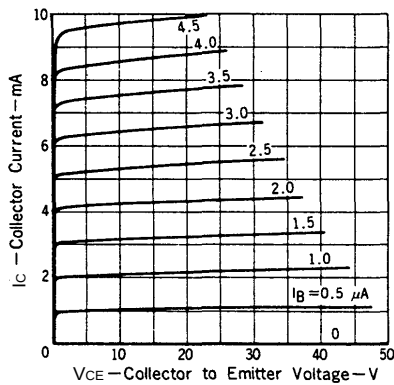
TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE



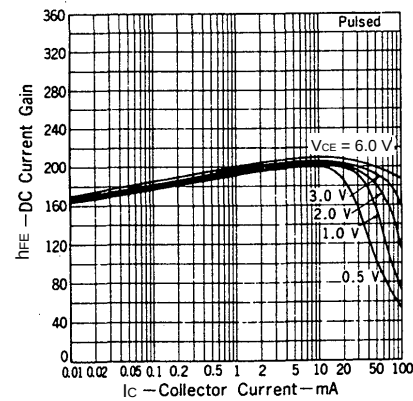
COLLECTOR CURRENT
vs. COLLECTOR TO EMITTER VOLTAGE



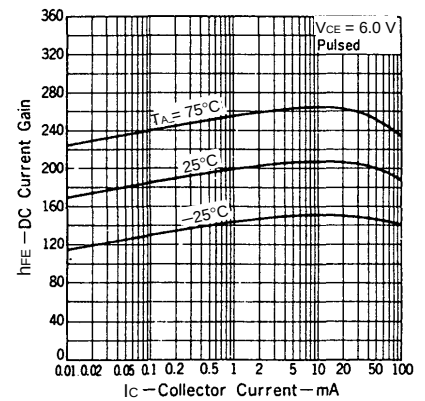
COLLECTOR CURRENT
vs. COLLECTOR TO EMITTER VOLTAGE



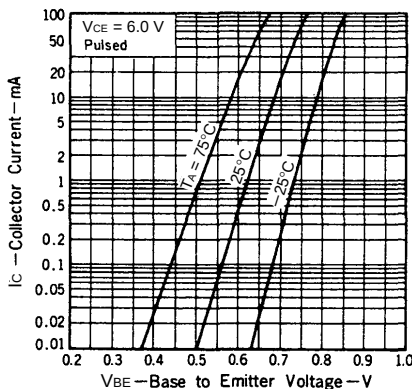
DC CURRENT GAIN
vs. COLLECTOR CURRENT



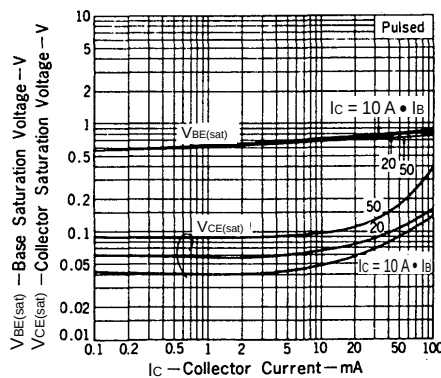
DC CURRENT GAIN
vs. COLLECTOR CURRENT



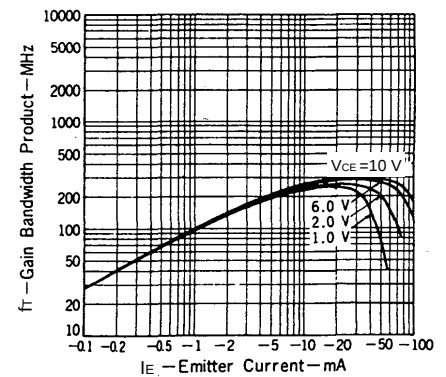
COLLECTOR CURRENT
vs. BASE TO EMITTER VOLTAGE



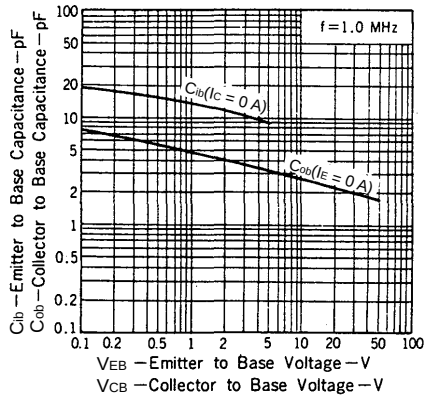
COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



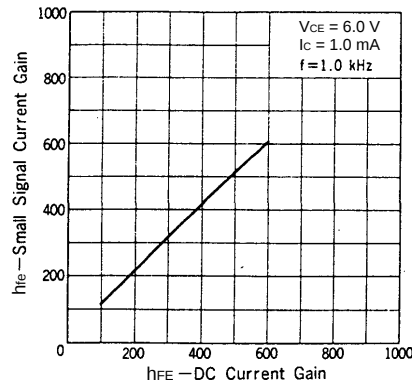
GAIN BANDWIDTH PRODUCT
vs. EMITTER CURRENT



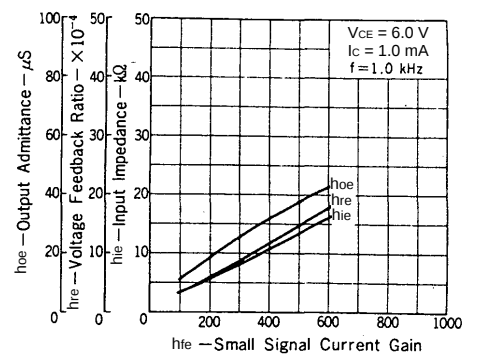
EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE



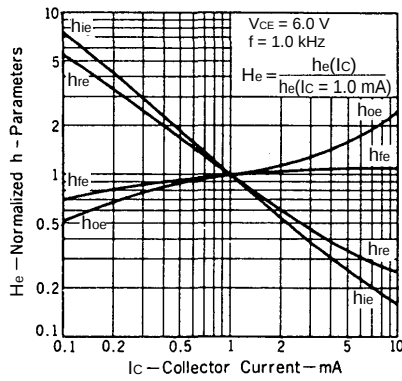
SMALL SIGNAL CURRENT GAIN vs. DC CURRENT GAIN



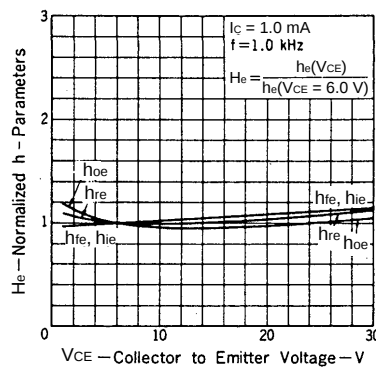
INPUT IMPEDANCE, VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN



NORMALIZED h-PARAMETERS vs. COLLECTOR CURRENT



NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE



E_n AND I_n vs. COLLECTOR CURRENT

