

NPN SILICON TRANSISTOR

DESCRIPTION

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

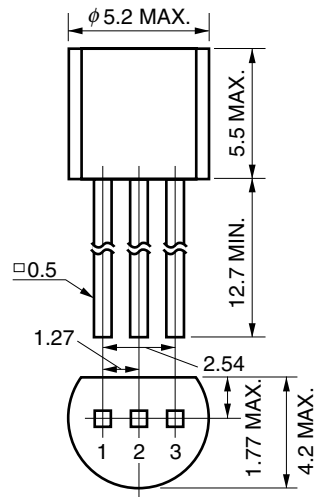
FEATURES

- High voltage  
LV<sub>CEO</sub> = 50 V MIN.
- Excellent h<sub>FE</sub> linearity  
h<sub>FE1</sub> = (0.1 mA)/h<sub>FE2</sub> (1.0 mA) = 0.92 TYP.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperature	
Storage Temperature	-55 to +150°C
Junction Temperature	+150°C Maximum
Maximum Power Dissipation (T <sub>A</sub> = 25°C)	
Total Power Dissipation	250 mW
Maximum Voltages and Currents (T <sub>A</sub> = 25°C)	
V <sub>CB0</sub> Collector to Base Voltage	60 V
V <sub>CEO</sub> Collector to Emitter Voltage	50 V
V <sub>EBO</sub> Emitter to Base Voltage	5.0 V
I <sub>C</sub> Collector Current	100 mA
I <sub>B</sub> Base Current	20 mA

★ PACKAGE DRAWING (Unit: mm)



- |              |        |       |
|--------------|--------|-------|
| 1. Emitter   | EIAJ:  | SC43B |
| 2. Collector | JEDEC: | TO92  |
| 3. Base      | IEC:   | PA33  |

ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 0.1 mA	50	185		
DC Current Gain	h <sub>FE2</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 1.0 mA	90	200	600	
Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 6.0 V, I <sub>E</sub> = -10 mA		250		MHz
Collector to Base Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 6.0 V, I <sub>E</sub> = 0, f = 1.0 MHz		3.0		pF
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0 A			100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5.0 V, I <sub>C</sub> = 0 A			100	nA
Base to Emitter Voltage	V <sub>BE</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 1.0 mA	0.55	0.62	0.65	V
Collector Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 100 mA, I <sub>B</sub> = 10 mA		0.15	0.3	V
Base Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 100 mA, I <sub>B</sub> = 10 mA		0.86	1.0	V

CLASSIFICATION OF h<sub>FE2</sub>

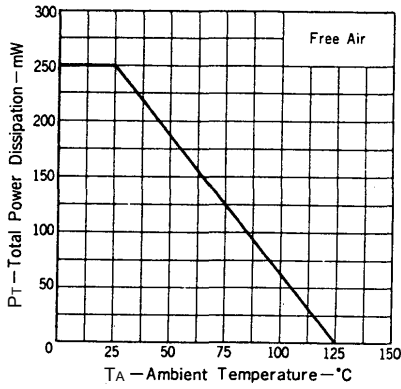
Rank	R	Q	P	K
Range	90 to 180	135 to 270	200 to 400	300 to 600

Remark h<sub>FE2</sub> Test Conditions: V<sub>CE</sub> = 6.0 V, I<sub>C</sub> = 1.0 mA

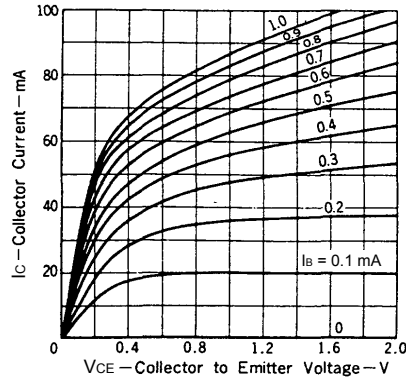
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TYPICAL CHARACTERISTICS (TA = 25°C, unless otherwise noted.)

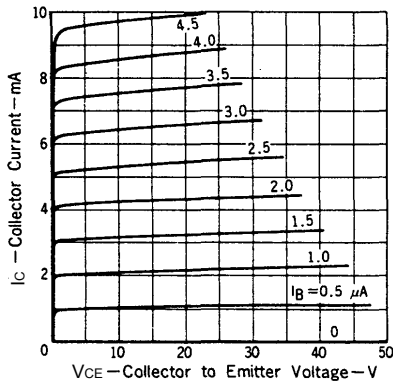
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



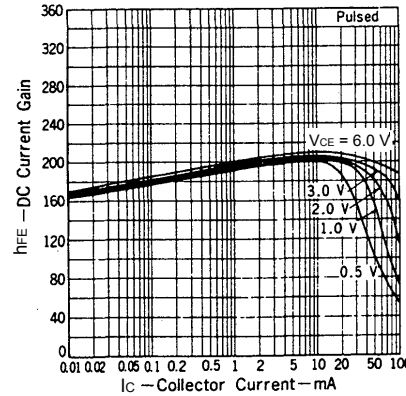
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



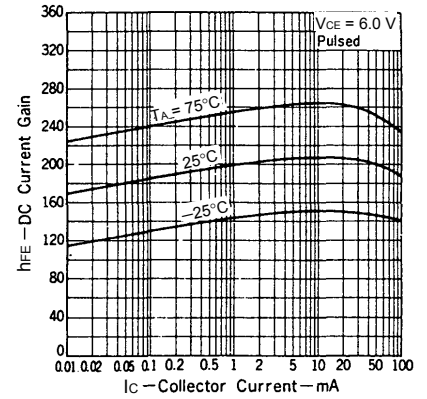
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



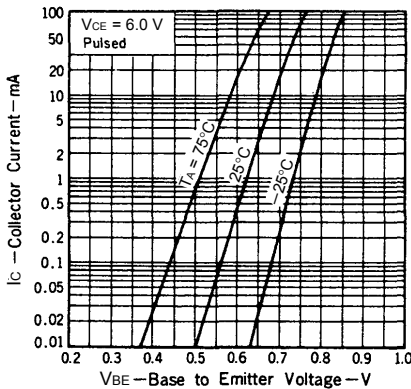
DC CURRENT GAIN vs. COLLECTOR CURRENT



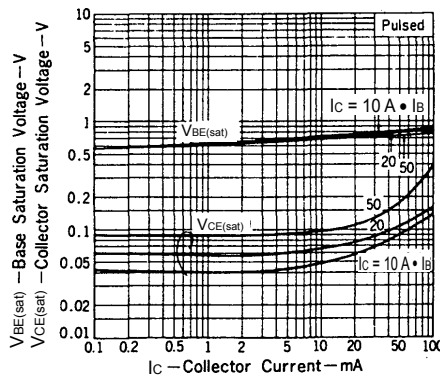
DC CURRENT GAIN vs. COLLECTOR CURRENT



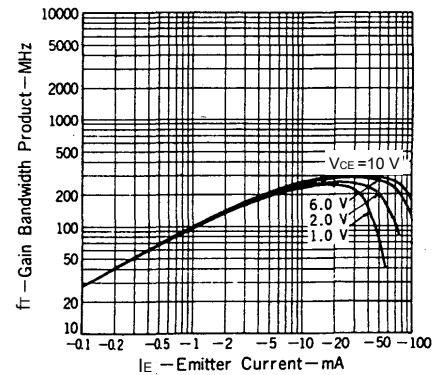
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



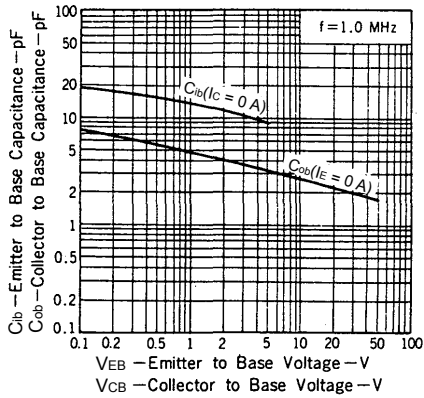
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



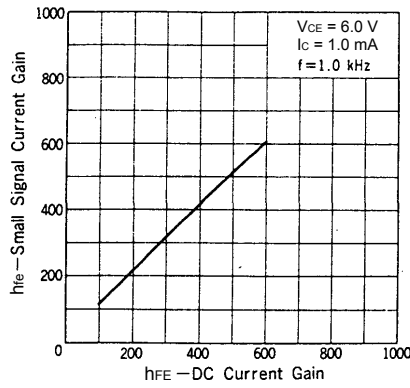
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



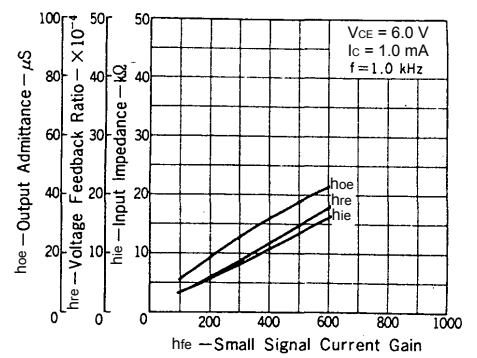
EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE



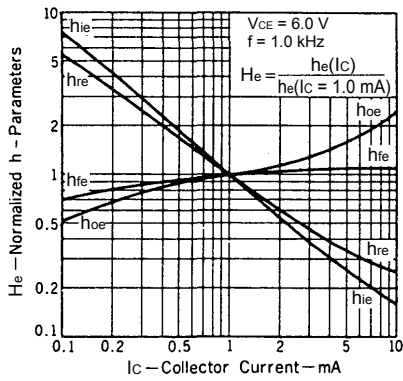
SMALL SIGNAL CURRENT GAIN vs. DC CURRENT GAIN



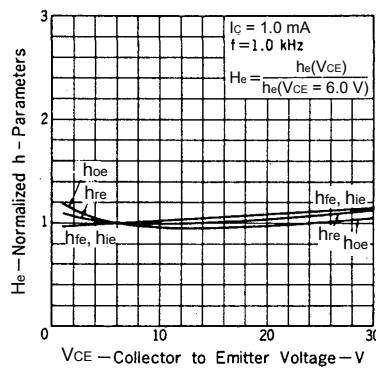
INPUT IMPEDANCE, VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN



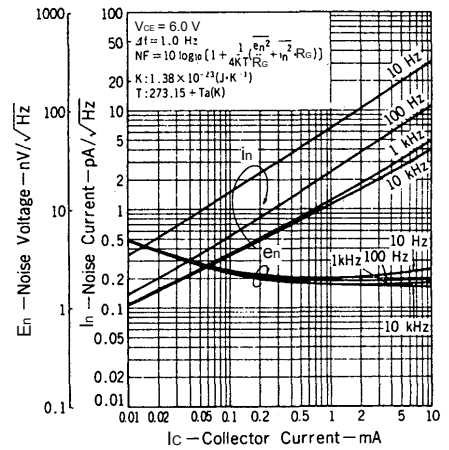
NORMALIZED h-PARAMETERS vs. COLLECTOR CURRENT



NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE



E\_n AND I\_n vs. COLLECTOR CURRENT



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