NEC
ELECTRON DEVICE

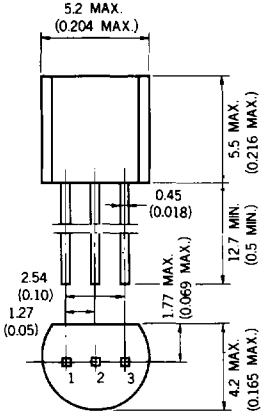
NPN SILICON TRANSISTOR
2SC1675

DESCRIPTION The 2SC1675 is designed for use in AM converter, AM/FM IF amplifier and local oscillator of AM/FM tuner.

FEATURES

- Small output capacitance (C_{ob} = 1.9 pF TYP.)
- Low noise figure (NF = 2.0 dB TYP. @1.0 MHz)

PACKAGE DIMENSIONS
in millimeters (inches)



1. EMITTER
2. COLLECTOR
3. BASE

EIAJ : SC-43
JEDEC: TO-92
IEC : PA33

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_{CBO} Collector to Base Voltage . . . . . 50 V
- V_{CEO} Collector to Emitter Voltage . . . . . 30 V
- V_{EBO} Emitter to Base Voltage . . . . . 5.0 V
- I_C Collector Current . . . . . 30 mA
- I_B Base Current . . . . . 30 mA

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	90	180	—	V_{CE}=6.0 V, I_C=1.0 mA
C_{ob}	Output Capacitance		1.9	2.2	pF	V_{CB}=6.0 V, I_E=0, f=1.0 MHz
NF	Noise Figure		2.0	4.0	dB	V_{CE}=6.0 V, I_E=−1.0 mA, R_G=500 Ω, f=1.0 MHz
f_T	Gain Bandwidth Product	150	250		MHz	V_{CE}=6.0 V, I_E=−1.0 mA
$C_{c}\cdot r_{b'b}$	Collector to Base Time Constant		10	15	ps	V_{CE}=6.0 V, I_E=−10 mA, f=31.9 MHz
I_{CBO}	Collector Cutoff Current			100	nA	V_{CB}=50 V, I_E=0
I_{EBO}	Emitter Cutoff Current			100	nA	V_{EB}=5.0 V, I_C=0
V_{BE}	Base to Emitter Voltage	0.65	0.70	0.75	V	V_{CE}=6.0 V, I_C=1.0 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.08	0.30	V	I_C=10 mA, I_B=1.0 mA

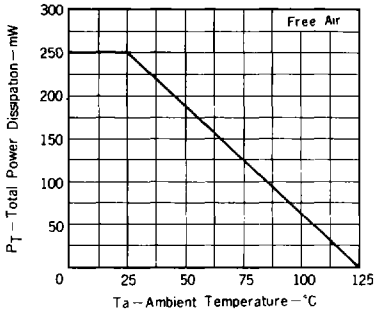
Classification of h_{FE}

Rank	M	L	K
Range	40−80	60−120	90−180

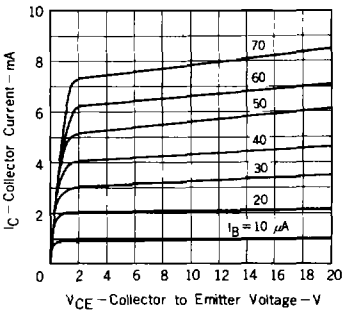
h_{FE} Test Conditions : V_{CE} = 6.0 V, I_C = 1.0 mA

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

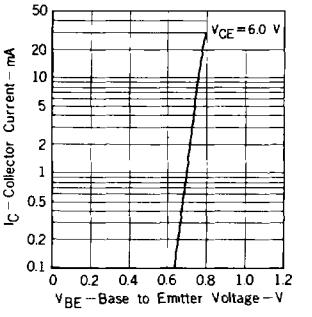
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



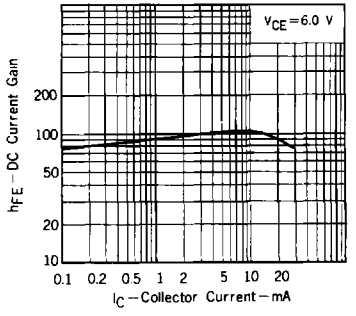
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



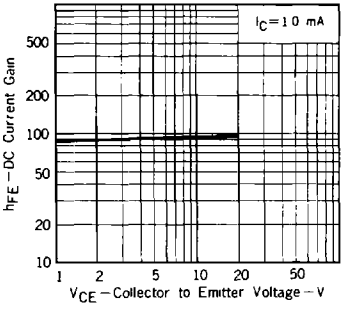
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



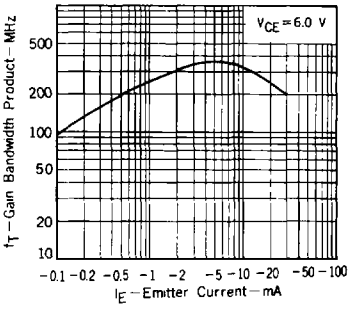
DC CURRENT GAIN vs. COLLECTOR CURRENT



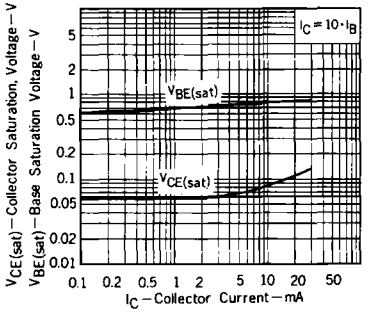
DC CURRENT GAIN vs. COLLECTOR TO EMITTER VOLTAGE



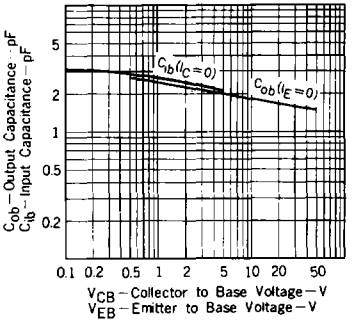
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



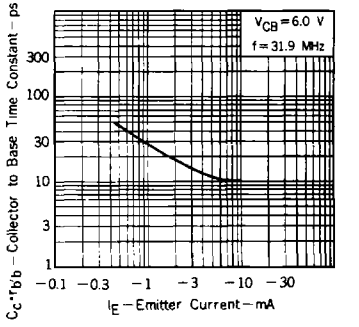
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



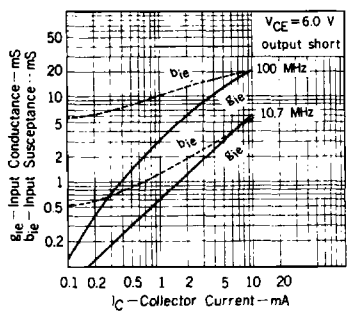
INPUT CAPACITANCE vs. EMITTER TO BASE VOLTAGE, OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



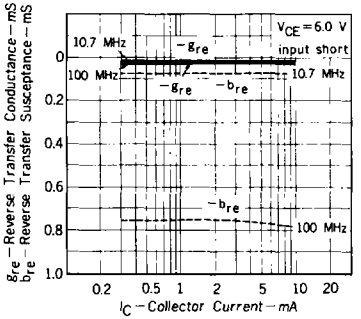
COLLECTOR TO BASE TIME CONSTANT vs. EMITTER CURRENT



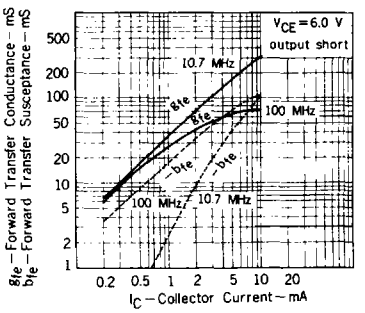
INPUT ADMITTANCE vs. COLLECTOR CURRENT



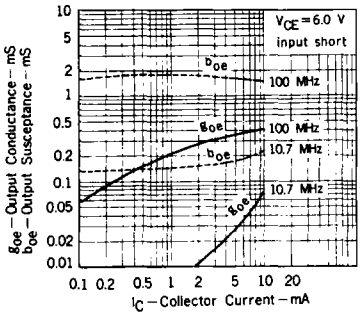
REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



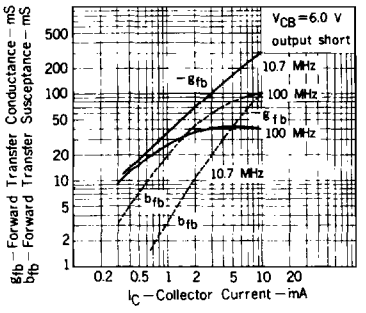
FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



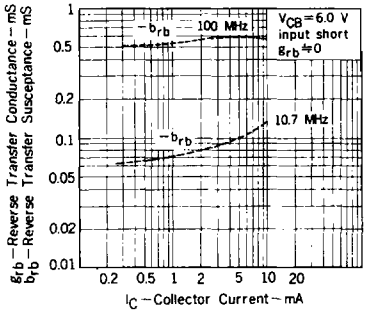
OUTPUT ADMITTANCE vs. COLLECTOR CURRENT



FORWARD TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



REVERSE TRANSFER ADMITTANCE vs. COLLECTOR CURRENT



INPUT ADMITTANCE vs. COLLECTOR CURRENT