NEC
ELECTRON DEVICE

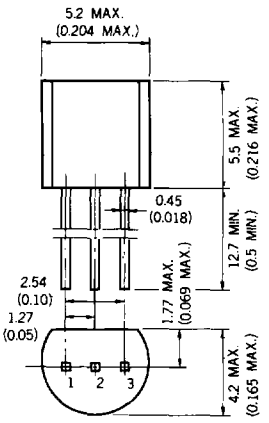
NPN SILICON TRANSISTOR
2SC1840

DESCRIPTION The 2SC1840 is designed for use in AF amplifier, driver and low speed switching.

FEATURES

- High h_{FE} h_{FE} : 400 TYP. (V_{CE} = 6.0 V, I_C = 1.0 mA)

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 . . . . . 500 mW

Maximum Voltages and Currents (Ta = 25 °C)

- V_{CBO} Collector to Base Voltage . . . . . 40 V
- V_{CEO} Collector to Emitter Voltage . . . . . 35 V
- V_{EBO} Emitter to Base Voltage . . . . . 5.0 V
- I_C Collector Current . . . . . 100 mA
- I_B Base Current . . . . . 20 mA

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	150	370		–	V_{CE} = 6.0 V, I_C = 0.1 mA
h_{FE2}	DC Current Gain	200	400	800	–	V_{CE} = 6.0 V, I_C = 1.0 mA
f_T	Gain Bandwidth Product	50	100		MHz	V_{CE} = 6.0 V, I_C = 1.0 mA
Cob	Output Capacitance			8.0	pF	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz
I_{CBO}	Collector Cutoff Current			50	nA	V_{CB} = 40 V, I_E = 0
I_{CEO}	Collector Cutoff Current			1.0	μA	V_{CE} = 30 V, R_{BE} = ∞
I_{EBO}	Emitter Cutoff Current			50	nA	V_{EB} = 5.0 V, I_C = 0
V_{BE}	Base to Emitter Voltage	0.55	0.59	0.65	V	V_{CE} = 6.0 V, I_C = 1.0 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.13	0.30	V	I_C = 100 mA, I_B = 10 mA
$V_{BE(sat)}$	Base Saturation Voltage		0.84	1.00	V	I_C = 100 mA, I_B = 10 mA

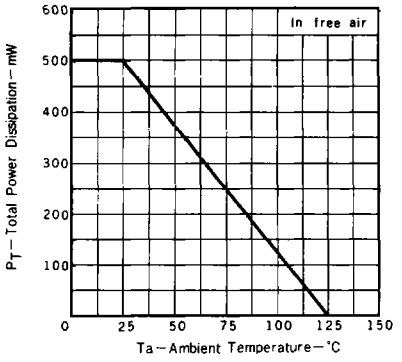
Classification of h_{FE2}

Rank	P	F	E
Range	200 – 400	300 – 600	400 – 800

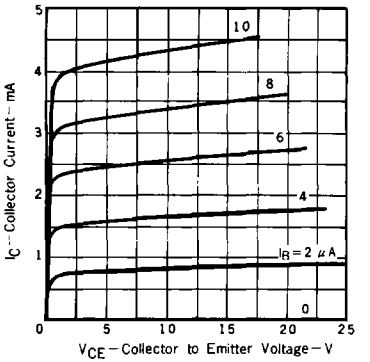
h_{FE} Test Conditions : V_{CE} = 6.0 V, I_C = 1.0 mA

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

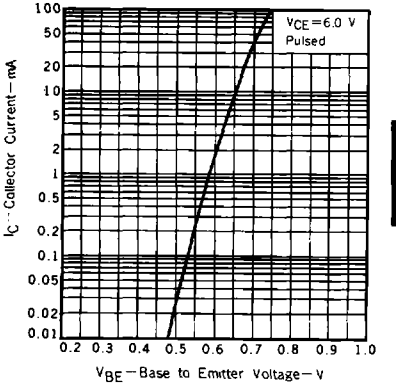
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



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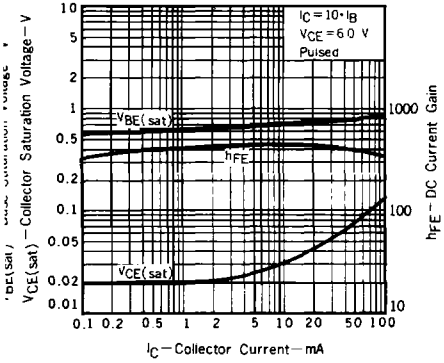
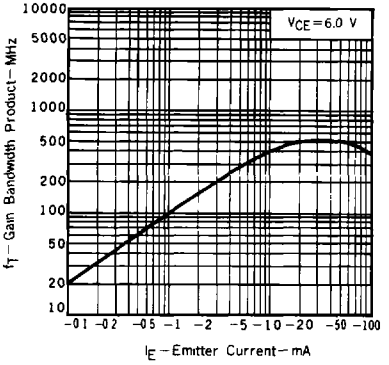
DC CURRENT GAIN, COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE