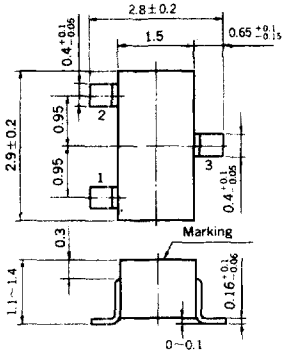
SILICON TRANSISTOR

2SA812

AUDIO FREQUENCY, GENERAL PURPOSE AMPLIFIER
PNP SILICON EPITAXIAL TRANSISTOR
MINI MOLD

PACKAGE DIMENSIONS

in millimeters



1. Emitter
2. Base
3. Collector

FEATURES

- Complementary to 2SC1623
- High DC Current Gain: h_{FE} = 200 TYP. (V_{CE} = −6.0 V, I_C = −1.0 mA)
- High Voltage: V_{CEO} = −50 V

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current (T_a = 25 °C)			
Collector to Base Voltage	V_{CBO}	−60	V
Collector to Emitter Voltage	V_{CEO}	−50	V
Emitter to Base Voltage	V_{EBO}	−5.0	V
Collector Current (DC)	I_C	−100	mA
Maximum Power Dissipation (T_a = 25 °C)			
Total Power Dissipation	P_T	200	mW
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			−0.1	μA	V_{CB} = −60 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			−0.1	μA	V_{EB} = −5.0 V, I_C = 0
DC Current Gain	h_{FE}	90	200	600		V_{CE} = −6.0 V, I_C = −1.0 mA*
Collector Saturation Voltage	$V_{CE(sat)}$		−0.18	−0.3	V	I_C = −100 mA, I_B = −10 mA
Base to Emitter Voltage	V_{BE}	−0.55	−0.62	−0.65	V	V_{CE} = −6.0 V, I_C = −1.0 mA
Gain Bandwidth Product	f_T		180		MHz	V_{CE} = −6.0 V, I_E = 10 mA
Output Capacitance	C_{ob}		4.5		pF	V_{CB} = −10 V, I_E = 0, f = 1.0 MHz

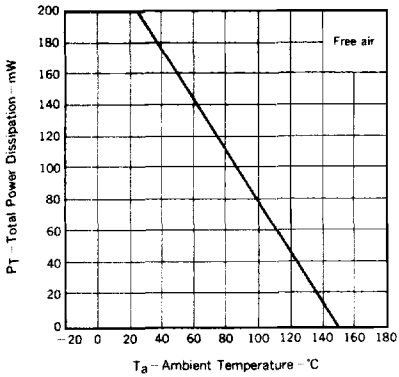
* Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE} Classification

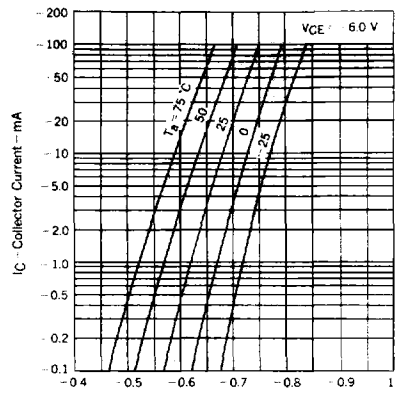
Marking	M4	M5	M6	M7
h_{FE}	90 to 180	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS (T_a = 25 °C)

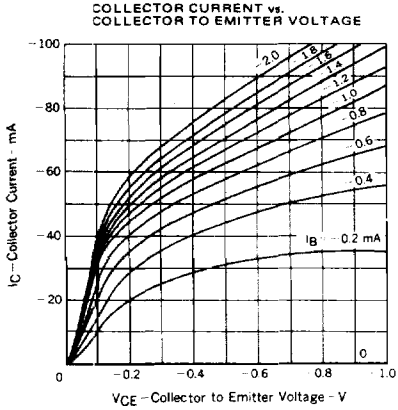
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



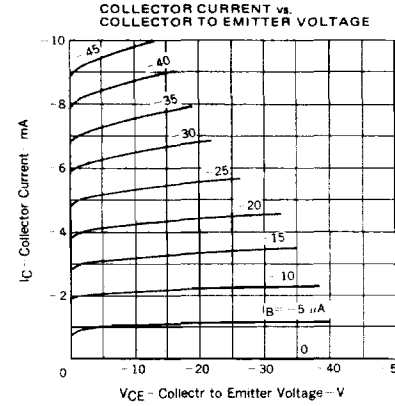
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



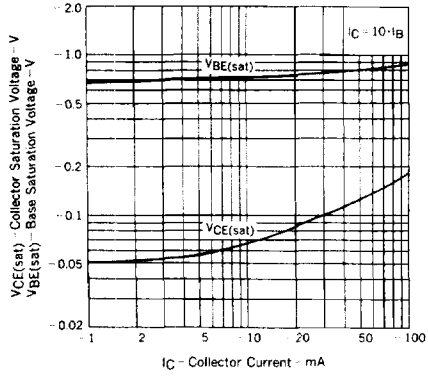
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



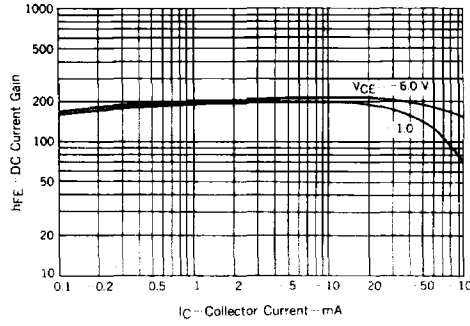
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



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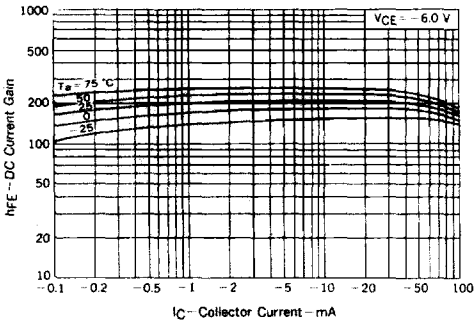
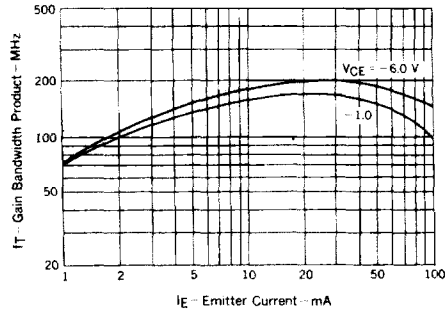
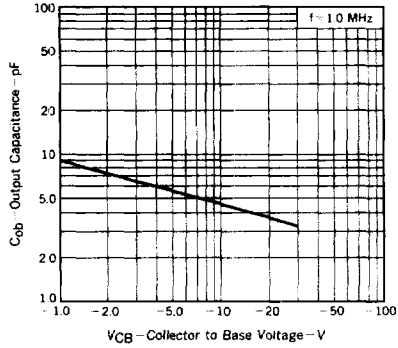
DC CURRENT GAIN vs.
COLLECTOR CURRENT



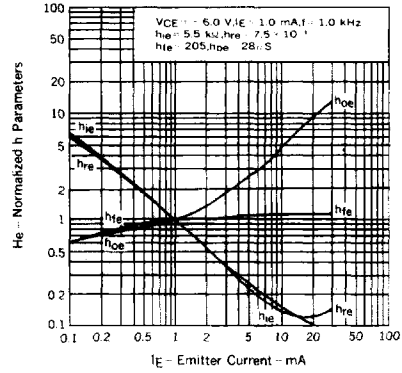
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



OUTPUT CAPACITANCE vs.
REVERSE VOLTAGE



NORMALIZED h PARAMETER vs
EMITTER CURRENT



NORMALIZED h PARAMETER vs.
COLLECTOR TO EMITTER VOLTAGE