

AUDIO FREQUENCY, GENERAL PURPOSE AMPLIFIER

PNP SILICON EPITAXIAL TRANSISTOR

FEATURES

- Complementary to 2SC4177
- High DC Current Gain: $h_{FE} = 200$ TYP. ($V_{CE} = -6.0$ V, $I_C = -1.0$ mA)
- High Voltage: $V_{CEO} = -50$ V

QUALITY GRADE

Standard

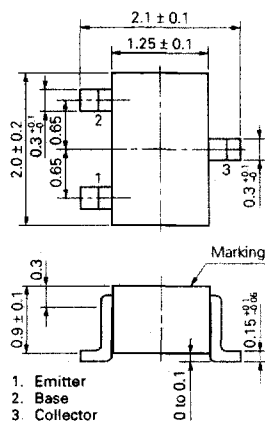
Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CB0}	-60	V
Collector to Emitter Voltage	V_{CE0}	-50	V
Emitter to Base Voltage	V_{EB0}	-5.0	V
Collector Current (DC)	I_C	-100	mA
Total Power Dissipation	P_T	150	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

PACKAGE DIMENSIONS

in millimeters



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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{C0}			-0.1	μA	$V_{CB} = -60$ V, $I_E = 0$
Emitter Cutoff Current	I_{E0}			-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, $I_E = -10$ mA
Base to Emitter Voltage	V_{BE}	-0.58	-0.62	-0.68	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

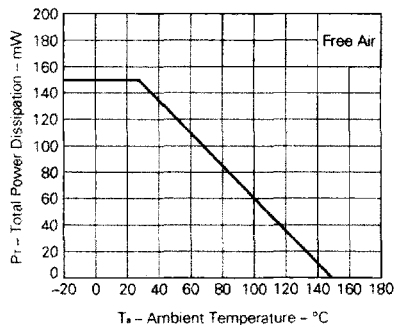
* Pulsed: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

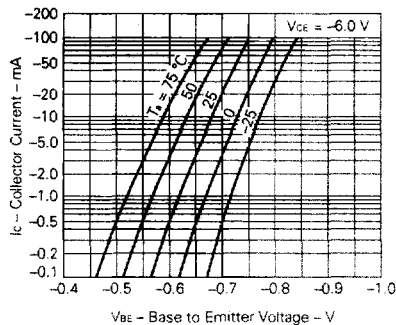
Marking	M4	M5	M6	M7
h_{FE}	90 to 180	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS (T_a = 25 °C)

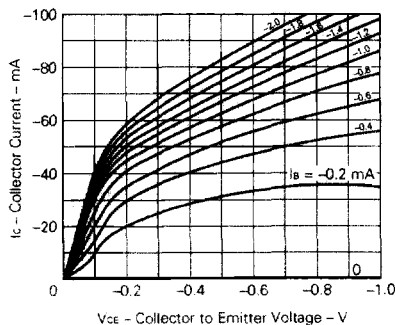
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



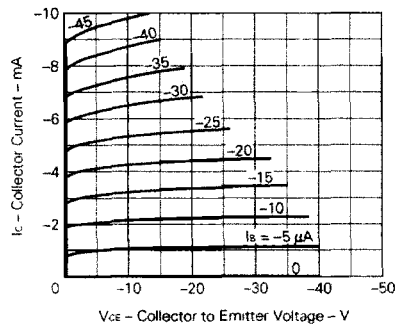
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



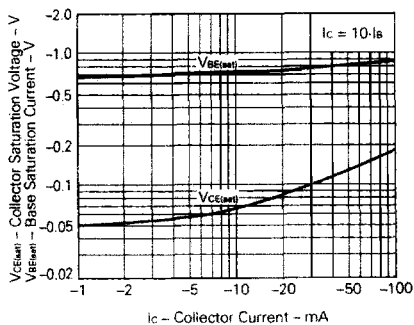
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



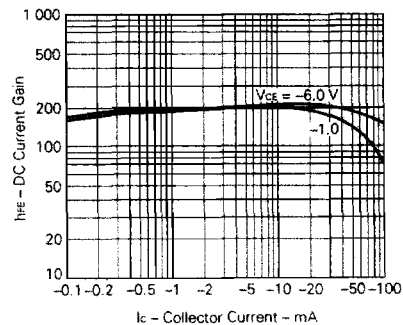
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



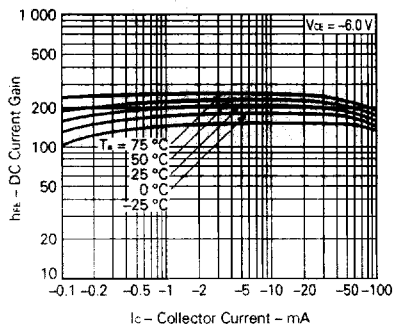
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



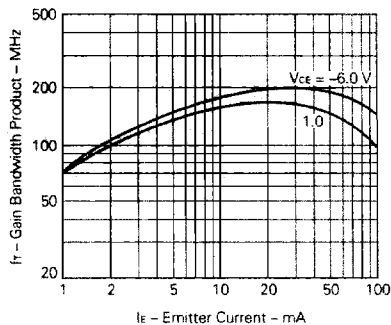
DC CURRENT GAIN vs.
COLLECTOR CURRENT



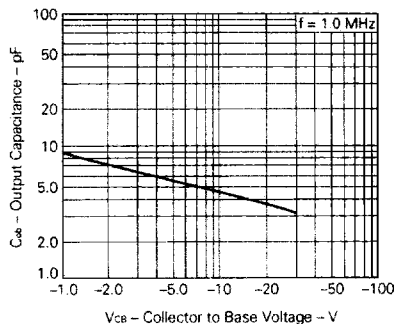
DC CURRENT GAIN vs.
COLLECTOR CURRENT



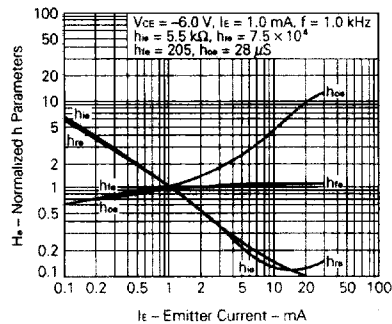
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



OUTPUT CAPACITANCE vs.
REVERSE VOLTAGE



NORMALIZED h PARAMETER vs.
EMITTER CURRENT



NORMALIZED h PARAMETER vs.
COLLECTOR TO EMITTER VOLTAGE

