

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

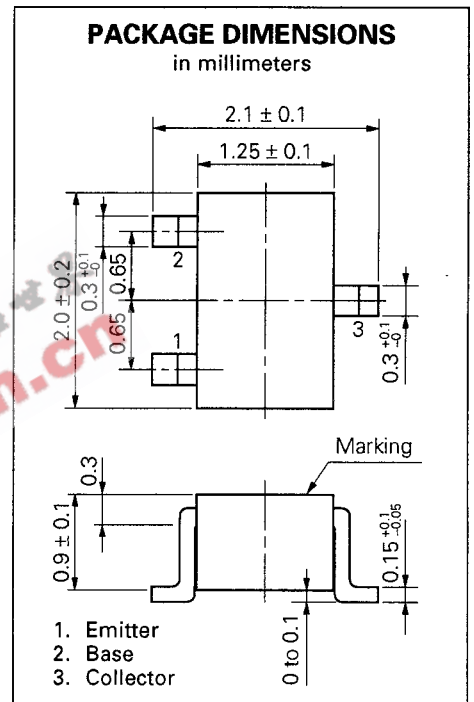
QUALITY GRADE

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 ( $T_a = 25$  °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
Total Power Dissipation	$P_T$	150	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55 to +150	°C



ELECTRICAL CHARACTERISTICS ( $T_a = 25$  °C)

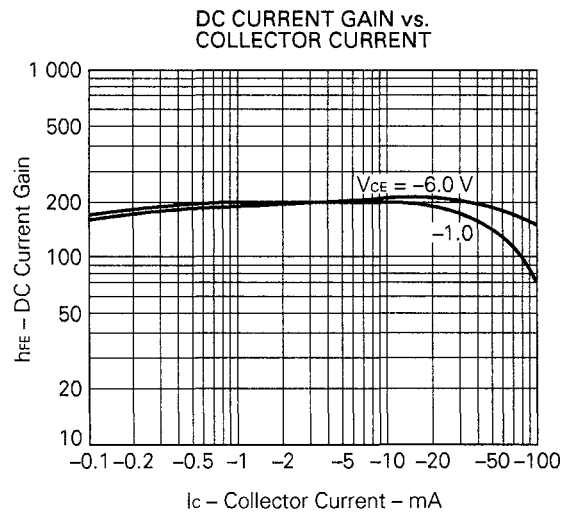
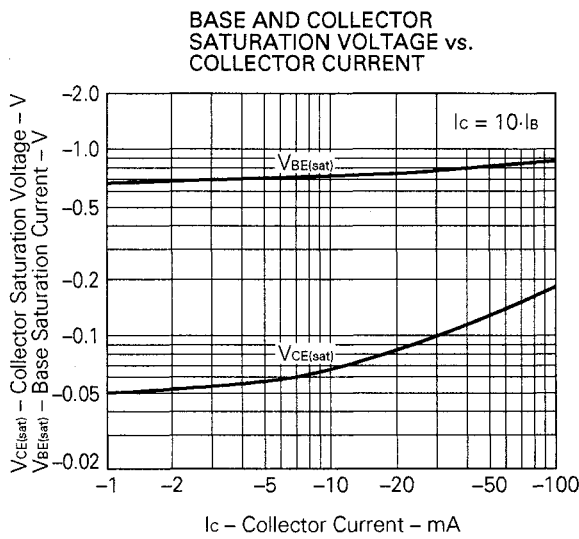
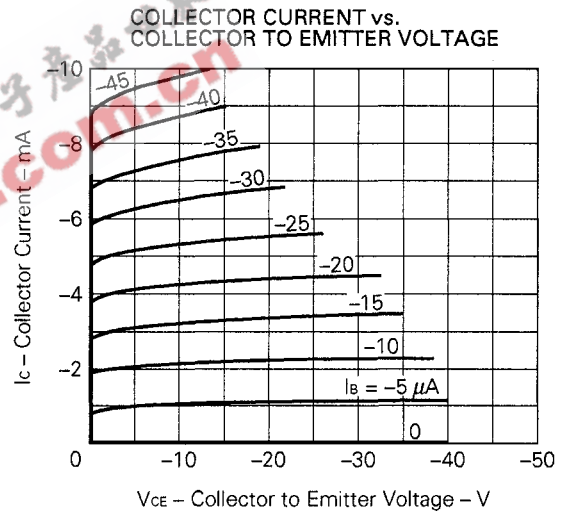
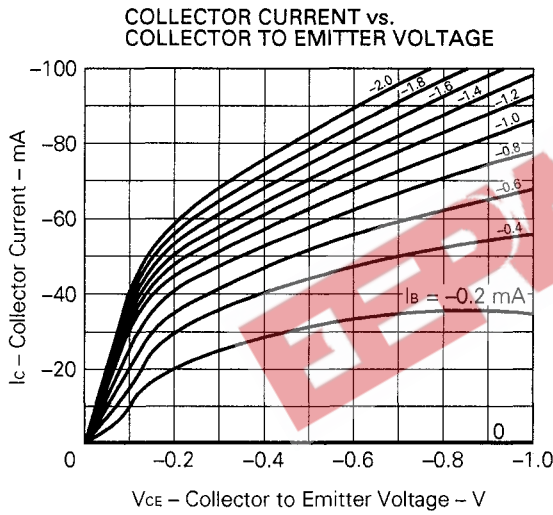
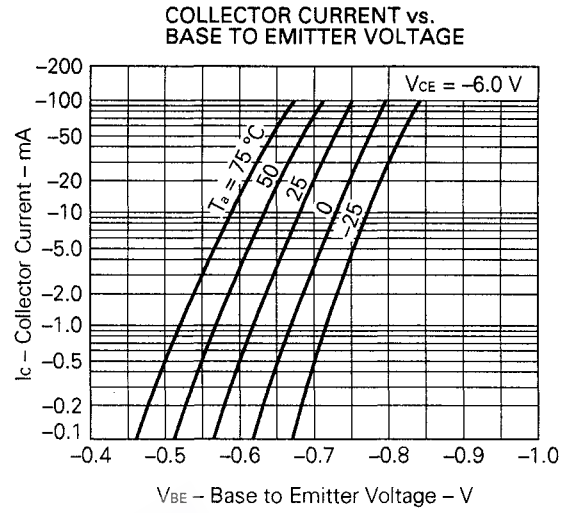
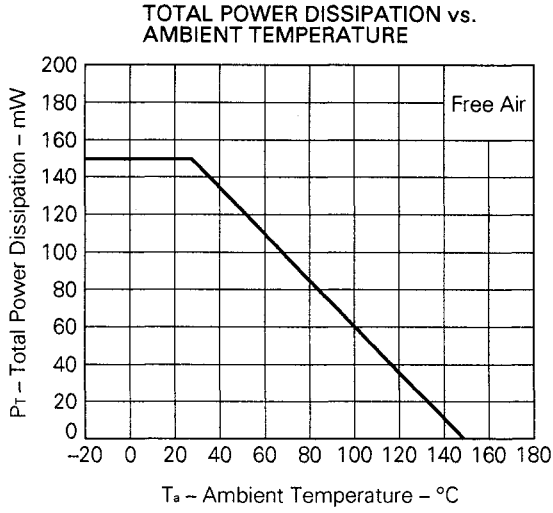
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			-0.1	$\mu$ A	$V_{CB} = -60$ V, $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			-0.1	$\mu$ A	$V_{EB} = -5.0$ V, $I_c = 0$
DC Current Gain	$h_{FE}$	90	200	600		$V_{CE} = -6.0$ V, $I_c = -1.0$ mA*
Collector Saturation Voltage	$V_{CE(sat)}$		-0.18	-0.3	V	$I_c = -100$ mA, $I_B = -10$ mA
Base to Emitter Voltage	$V_{BE}$	-0.58	-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:  $PW \leq 350$   $\mu$ s, Duty Cycle  $\leq 2$  %

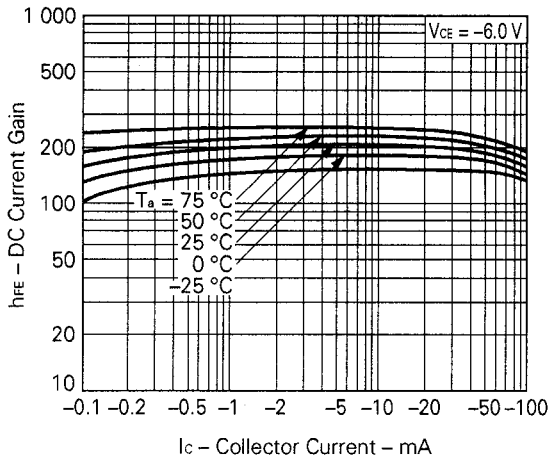
$h_{FE}$  Classification

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

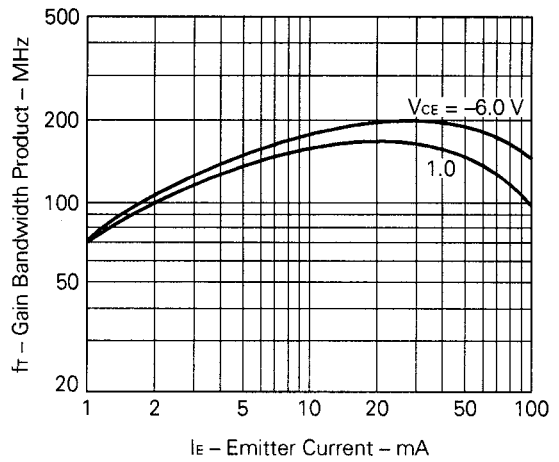
TYPICAL CHARACTERISTICS ( $T_a = 25\text{ }^\circ\text{C}$ )



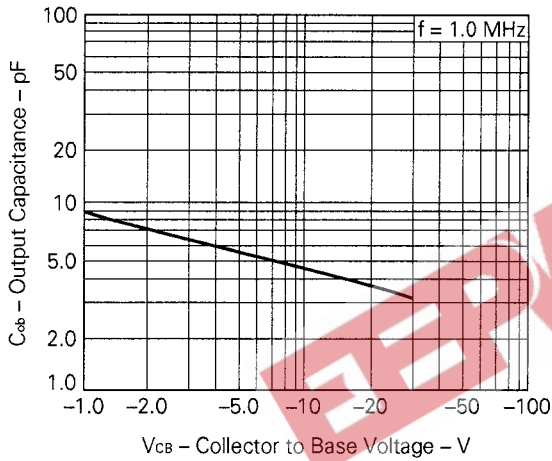
DC CURRENT GAIN vs. COLLECTOR CURRENT



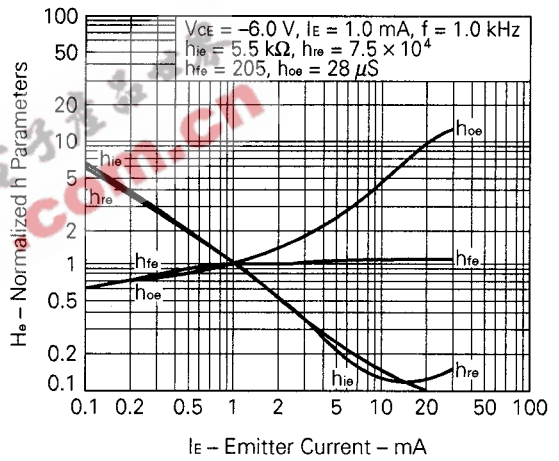
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



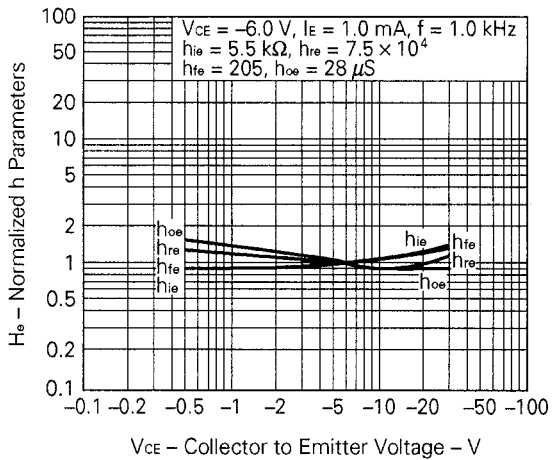
OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



NORMALIZED h PARAMETER vs. EMITTER CURRENT

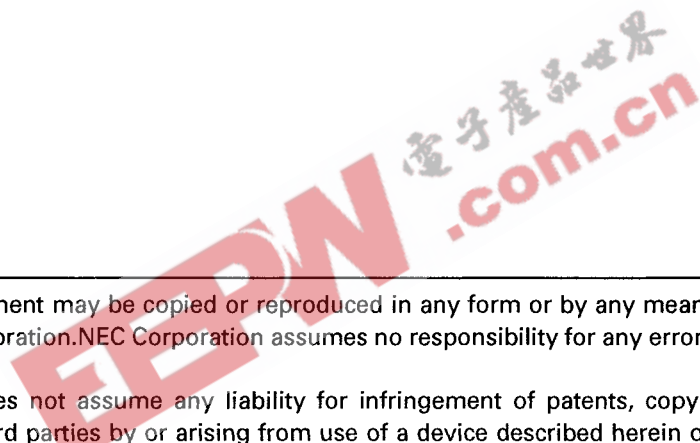


NORMALIZED h PARAMETER vs. COLLECTOR TO EMITTER VOLTAGE



REFERENCE APPLICATION NOTE

ASSEMBLY MANUAL FOR SEMICONDUCTOR DEVICES	IEI-1207
QUALITY CONTROL OF NEC SEMICONDUCTOR DEVICES	TEI-1202
QUALITY CONTROL GUIDE OF SEMICONDUCTOR DEVICES	MEI-1202



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The devices listed in this document are not suitable for use in aerospace equipment, submarine cables, nuclear reactor control systems and life support systems. If customers intend to use NEC devices for above applications or they intend to use "Standard" quality grade NEC devices for applications not intended by NEC, please contact our sales people in advance.

Application examples recommended by NEC Corporation.

Standard: Computer, Office equipment, Communication equipment, Test and Measurement equipment, Machine tools, Industrial robots, Audio and Visual equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Traffic control systems, Antidisaster systems, Anticrime systems, etc.