

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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(Note 2) “Renesas Electronics product(s)” means any product developed or manufactured by or for Renesas Electronics.

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

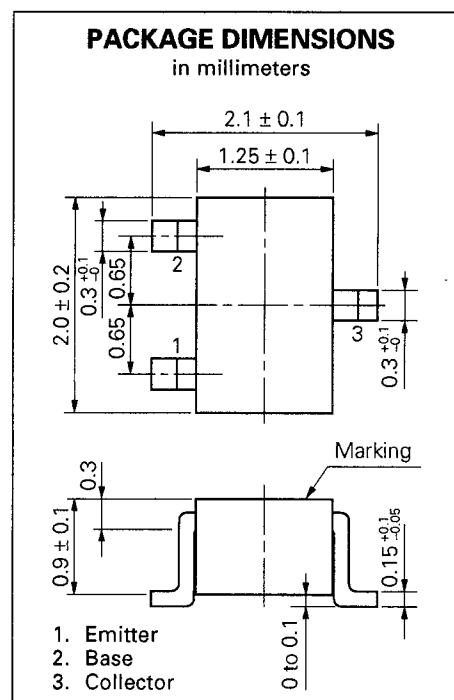
QUALITY GRADE

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)

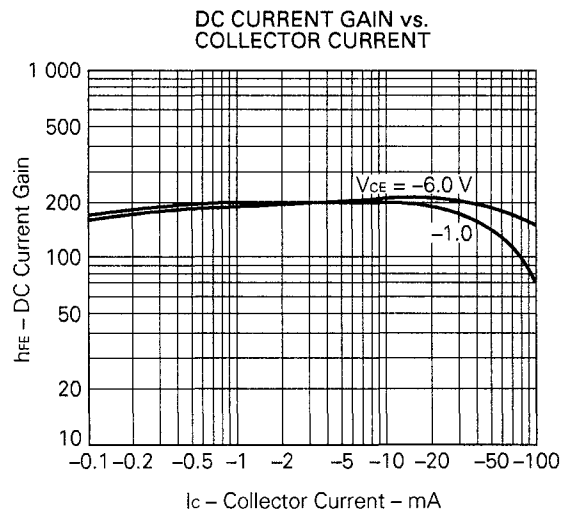
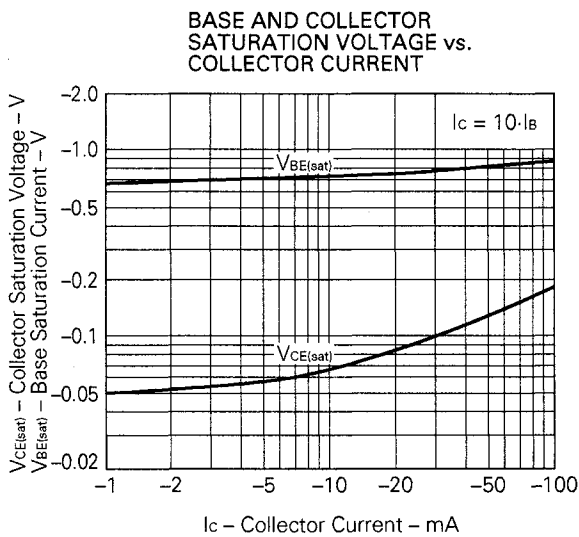
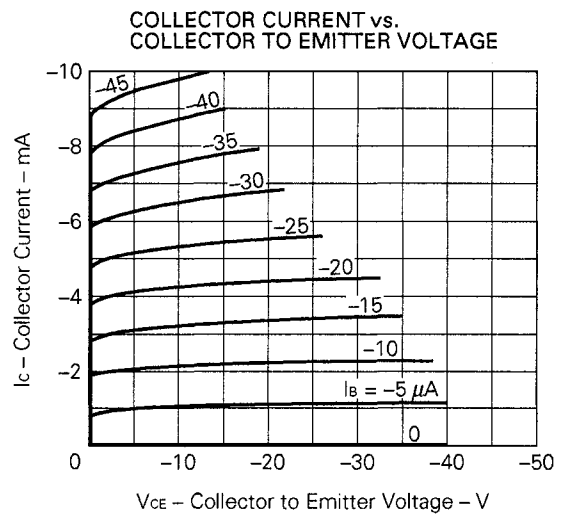
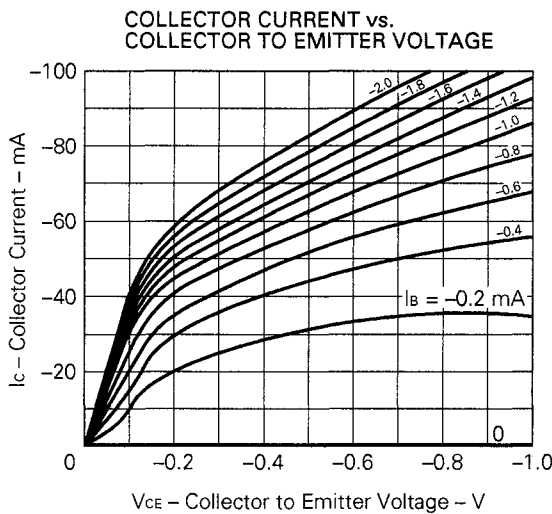
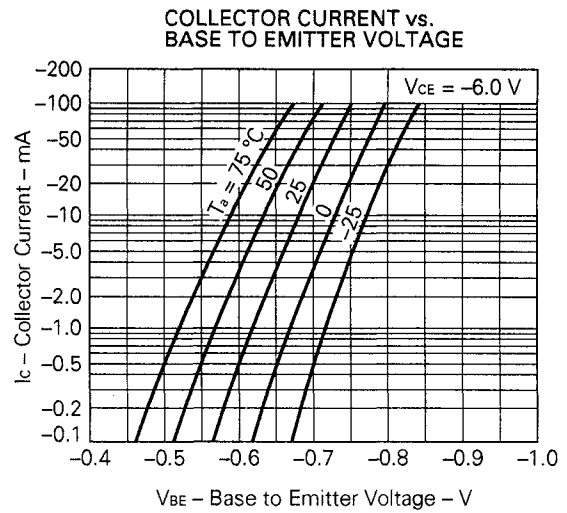
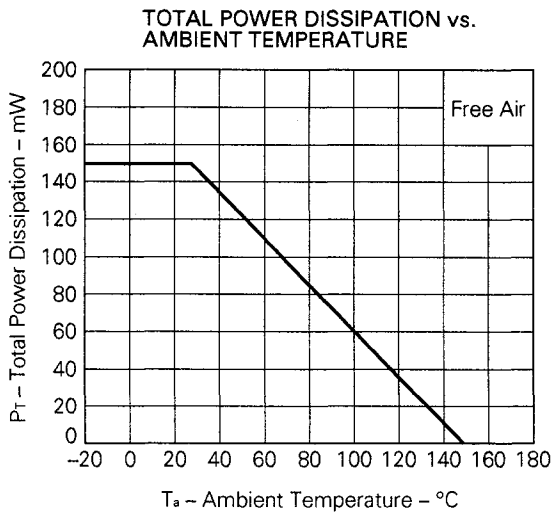
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-0.1	μ A	$V_{CB} = -60$ V, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			-0.1	μ A	$V_{EB} = -5.0$ V, $I_c = 0$
DC Current Gain	h_{FE}	90	200	600		$V_{CE} = -6.0$ V, $I_c = -1.0$ mA*
Collector Saturation Voltage	$V_{CE(sat)}$		-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

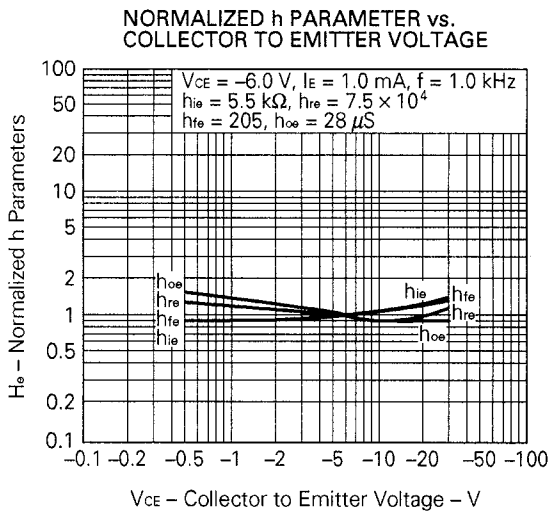
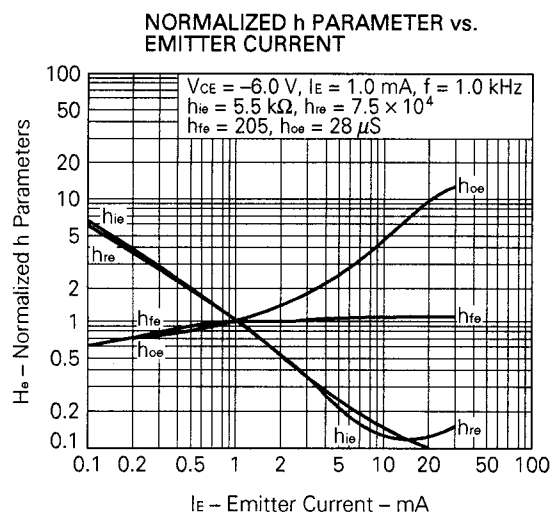
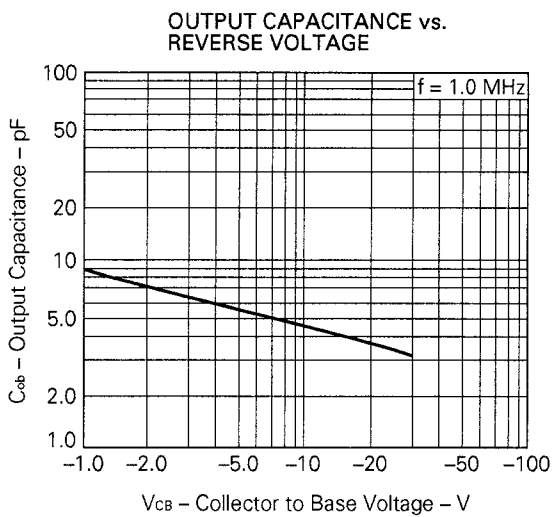
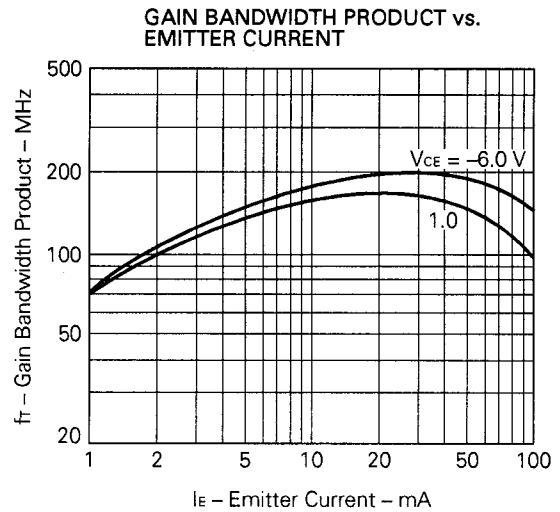
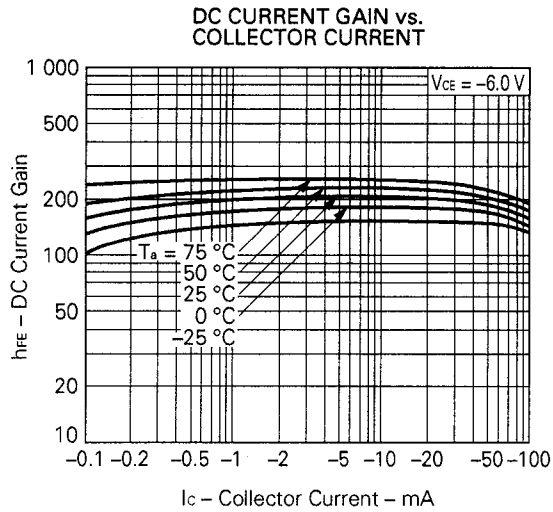
* Pulsed: $PW \leq 350$ μ s, Duty Cycle ≤ 2 %

h_{FE} Classification

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

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





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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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.