

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>)

Send any inquiries to <http://www.renesas.com/inquiry>.

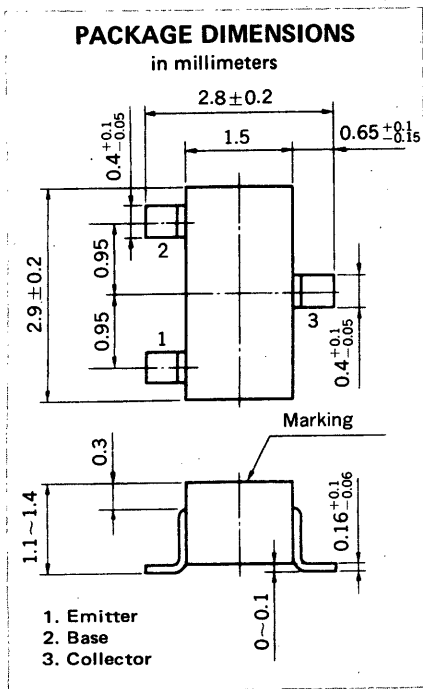
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AUDIO FREQUENCY HIGH GAIN AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR MINI MOLD



FEATURE

- High DC Current Gain: $h_{FE} = 600$ TYP. ($V_{CE} = 6.0$ V, $I_C = 1.0$ mA)

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ($T_a = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	120	V
Collector to Emitter Voltage	V_{CEO}	120	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	I_C	50	mA

Maximum Power Dissipation

Total Power Dissipation at 25°C Ambient Temperature	P_T	200	mW
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Maximum Temperatures

Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

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

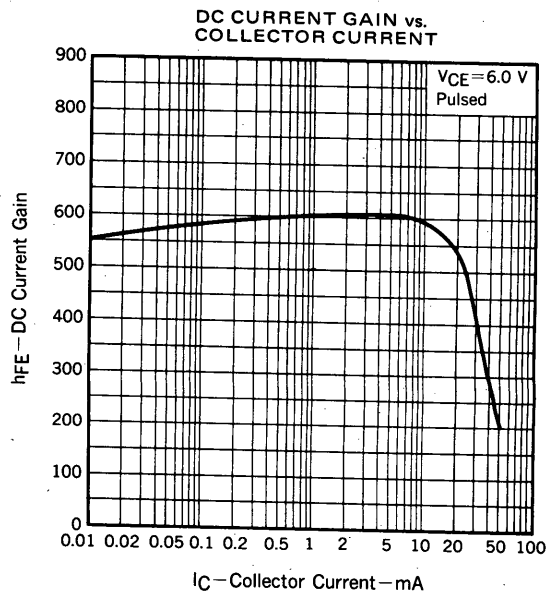
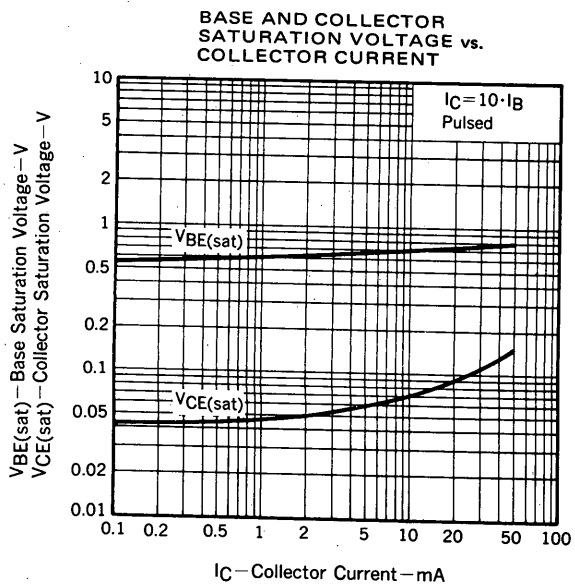
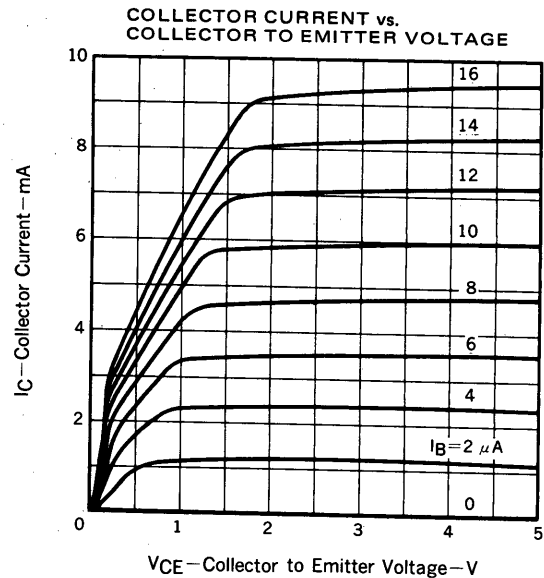
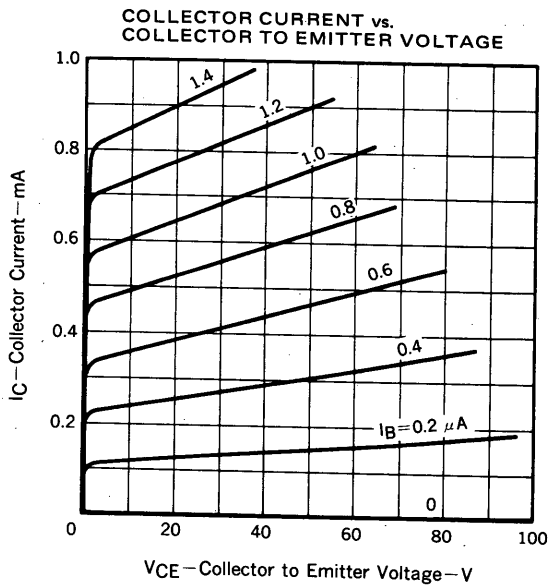
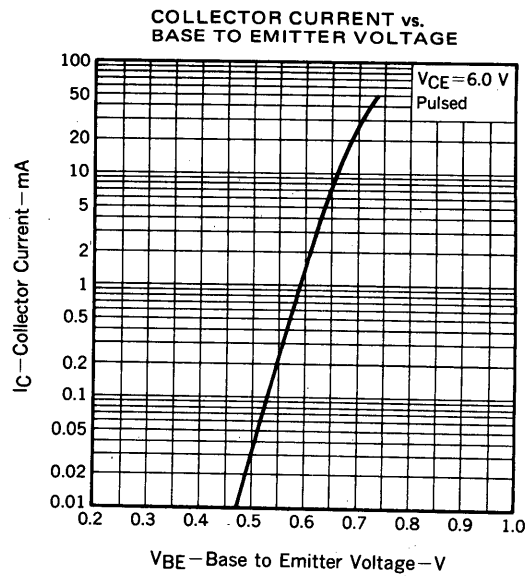
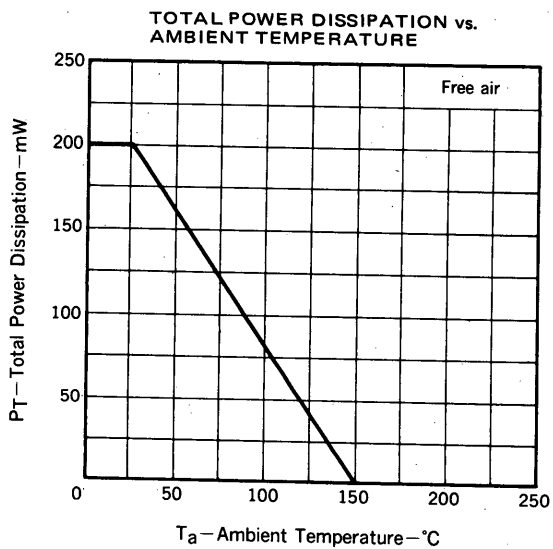
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.05	μA	$V_{CB} = 120$ V, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			0.05	μA	$V_{EB} = 5.0$ V, $I_C = 0$
DC Current Gain	h_{FE1}	100				$V_{CE} = 6.0$ V, $I_C = 0.1$ mA
DC Current Gain	h_{FE2}	135	500	900		$V_{CE} = 6.0$ V, $I_C = 1.0$ mA*
Collector Saturation Voltage	$V_{CE(sat)}$		0.07	0.30	V	$I_C = 10$ mA, $I_B = 1.0$ mA
Base to Emitter Voltage	V_{BE}	0.55	0.58	0.65	V	$V_{CE} = 6.0$ V, $I_C = 1.0$ mA
Gain Bandwidth Product	f_T	50	110		MHz	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA
Output Capacitance	C_{ob}		1.6	2.5	pF	$V_{CB} = 30$ V, $I_E = 0$, $f = 1.0$ MHz

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

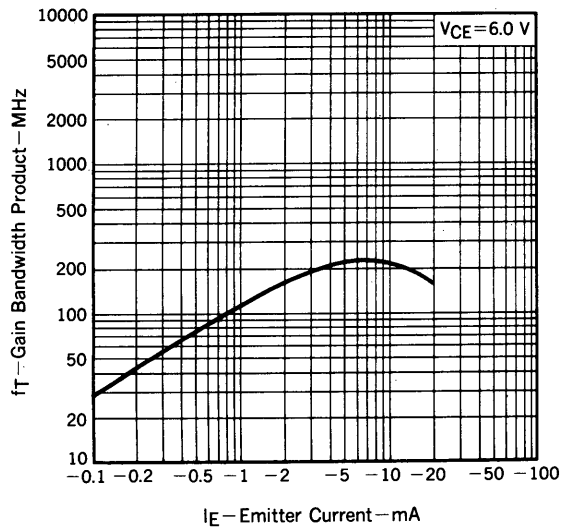
h_{FE} Classification

Marking	D15	D16	D17	D18
h_{FE2}	135 to 270	200 to 400	300 to 600	450 to 900

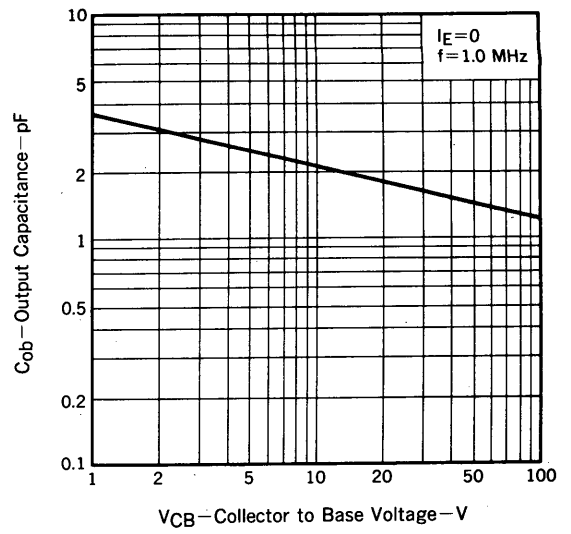
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



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