

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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NPN SILICON EPITAXIAL TRANSISTOR

MINI MOLD

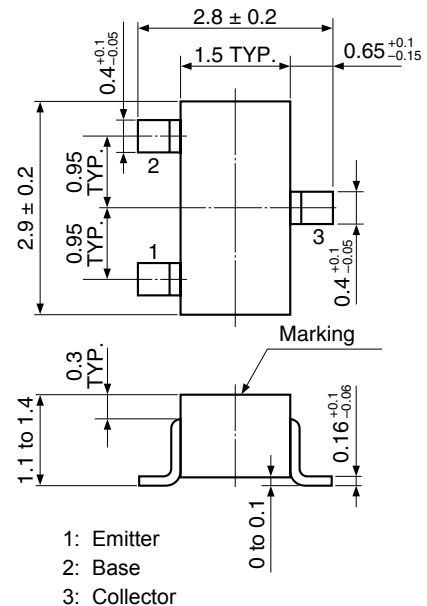
FEATURES

- 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 ($T_A = 25^\circ\text{C}$)

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

<R> PACKAGE DRAWING (Unit: mm)



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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cut-off Current	I_{CBO}			0.1	μA	$V_{CB} = 60$ V, $I_E = 0$ A
Emitter Cut-off Current	I_{EBO}			0.1	μA	$V_{EB} = 5.0$ V, $I_C = 0$ A
DC Current Gain	h_{FE}	90	200	600		$V_{CE} = 6.0$ V, $I_C = 1.0$ mA ^{Note}
Collector Saturation Voltage	$V_{CE(sat)}$		0.15	0.3	V	$I_C = 100$ mA, $I_B = 10$ mA ^{Note}
Base to Saturation Voltage	$V_{BE(sat)}$		0.86	1.0	V	$I_C = 100$ mA, $I_B = 10$ mA ^{Note}
Base to Emitter voltage	V_{BE}	0.55	0.62	0.65	V	$V_{CE} = 6.0$ V, $I_C = 1.0$ mA ^{Note}
Gain Bandwidth Product	f_T		250		MHz	$V_{CE} = 6.0$ V, $I_E = -10$ mA
Output Capacitance	C_{ob}		3.0		pF	$V_{CB} = 6.0$ V, $I_E = 0$ A, $f = 1.0$ MHz

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

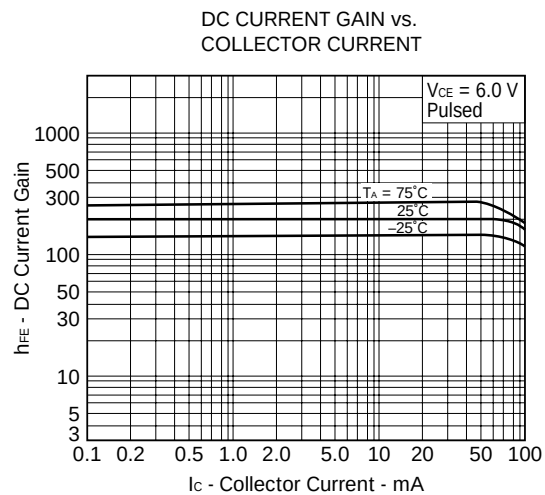
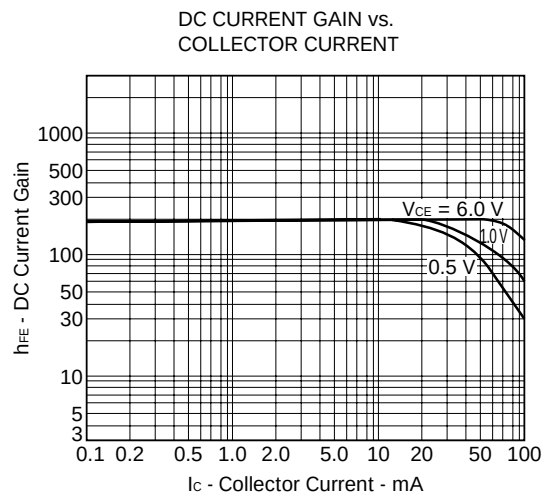
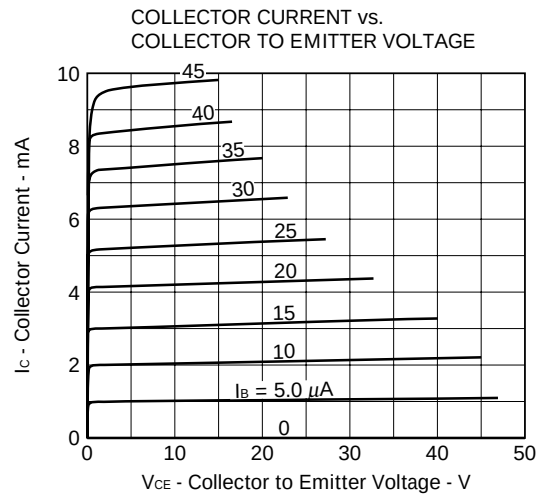
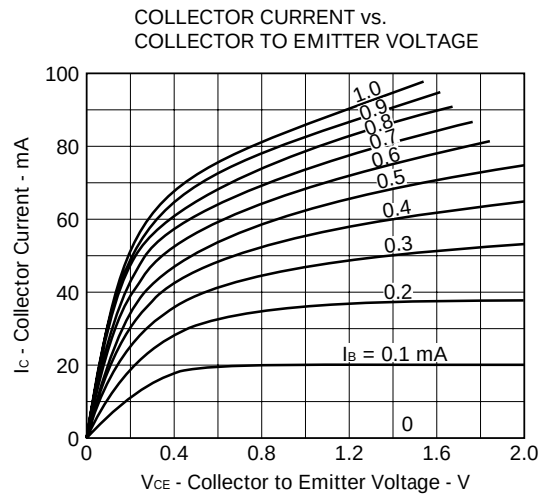
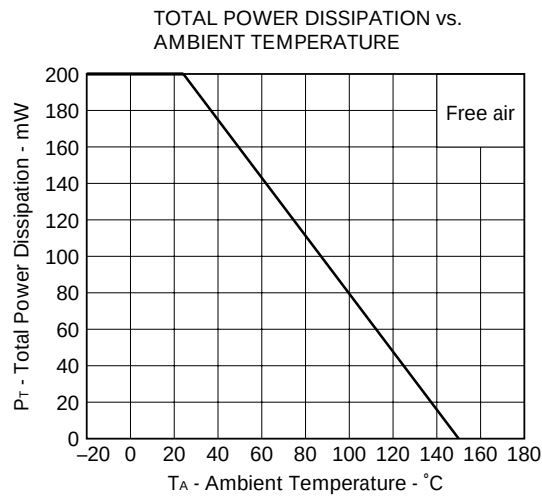
h_{FE} CLASSIFICATION

Marking	L4	L5	L6	L7
h_{FE}	90 to 180	135 to 270	200 to 400	300 to 600

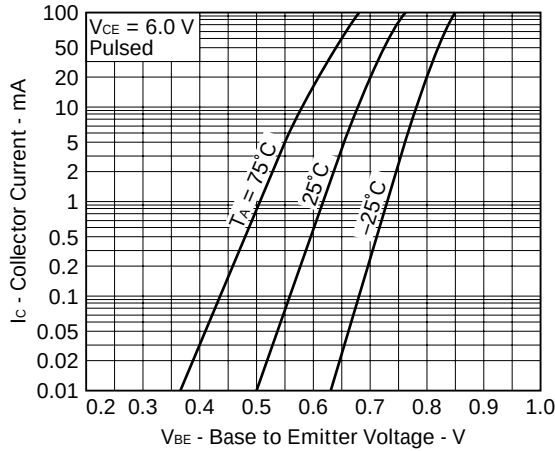
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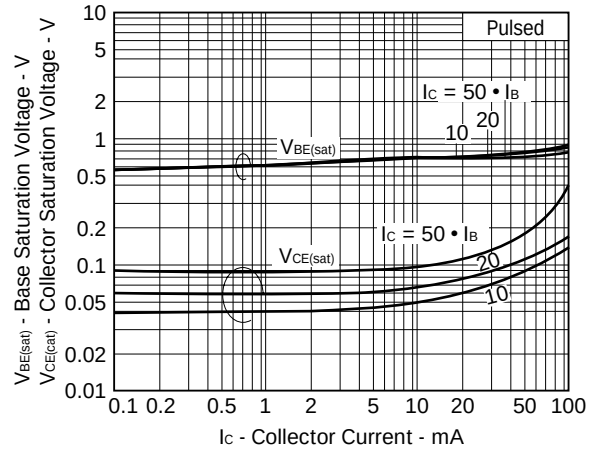
<R> TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



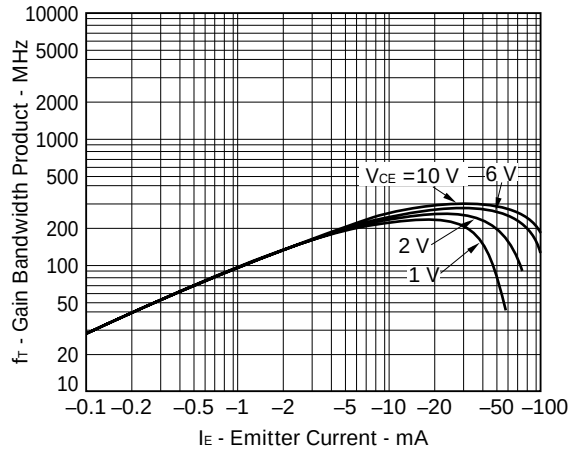
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



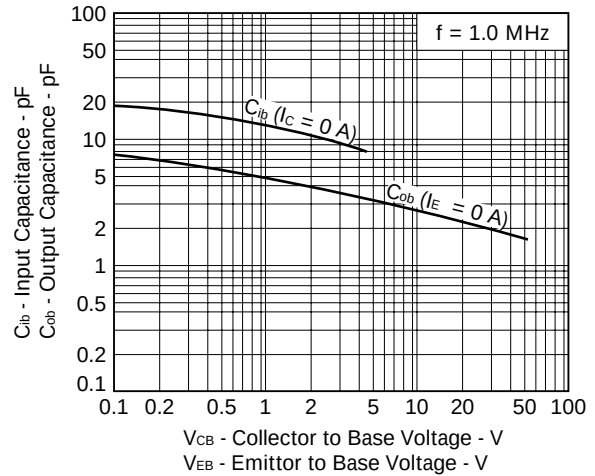
COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



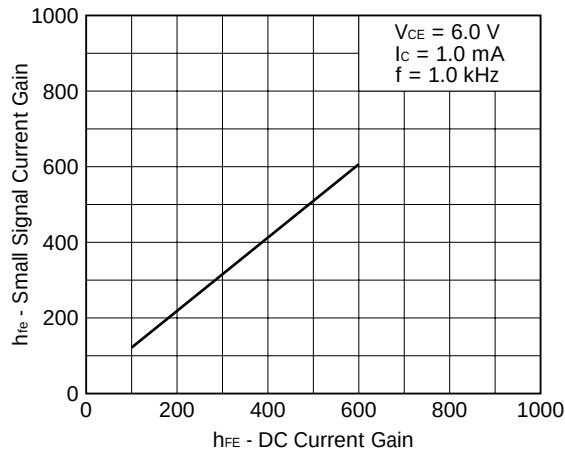
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



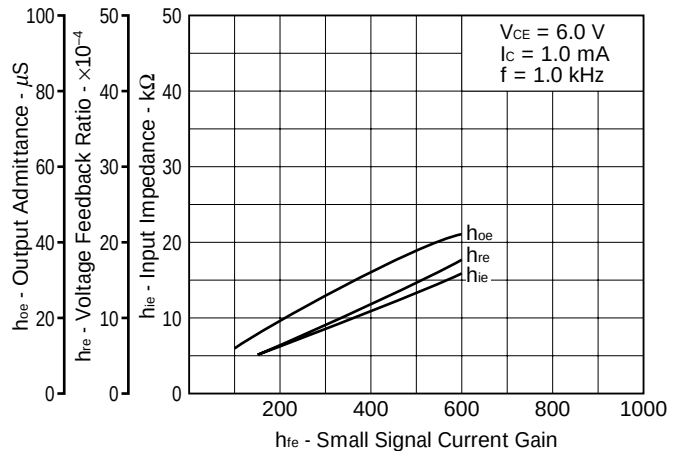
INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE

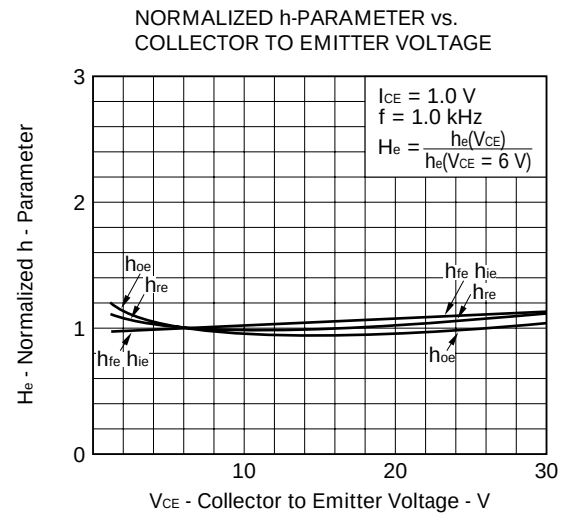
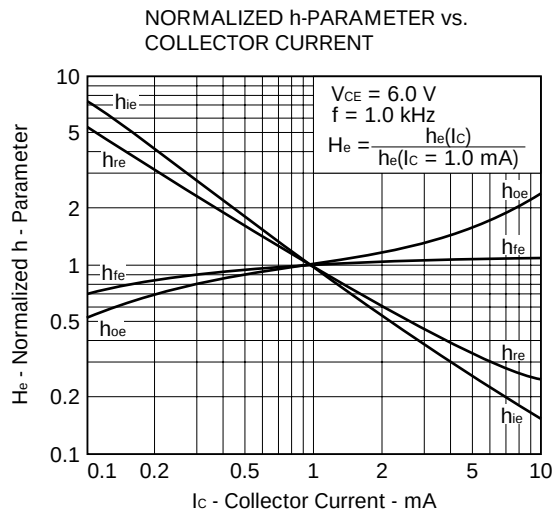


SMALL SIGNAL CURRENT GAIN vs.
DC CURRENT GAIN



INPUT IMPEDANCE VOLTAGE FEEDBACK
RATIO AND OUTPUT ADMITTANCE vs.
SMALL SIGNAL CURRENT GAIN





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