

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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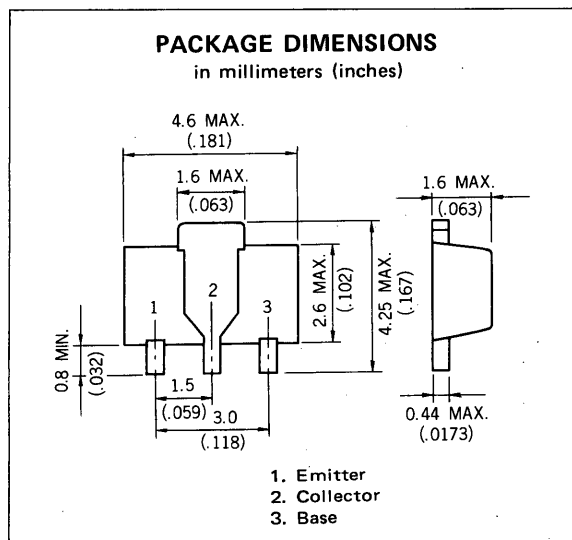
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PNP SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

DESCRIPTION

The 2SB800 is designed for audio frequency power amplifier application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package : SOT-89
- High Collector to Emitter Voltage : $V_{CE0} > -80$ V
- Complements to NPN type 2SD1001

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

Maximum Voltages and Currents

Collector to Base Voltage	V_{CBO}	-80	V
Collector to Emitter Voltage	V_{CEO}	-80	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current (DC)	I_C	-300	mA
Collector Current (Pulse)*	I_C	-500	mA

Maximum Power Dissipation

Total Power Dissipation at 25°C Ambient Temperature**	P_T	2.0	W
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Maximum Temperatures

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

*PW \leq 10 ms, duty cycle \leq 50 %

**When mounted on ceramic substrate of $16\text{ cm}^2 \times 0.7\text{ mm}$

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -80\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			-100	nA	$V_{EB} = -5.0\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}	90	200	400		$V_{CE} = -1.0\text{ V}, I_C = -50\text{ mA}$ ***
DC Current Gain	h_{FE2}	30	80			$V_{CE} = -2.0\text{ V}, I_C = -300\text{ mA}$ ***
Collector Saturation Voltage	$V_{CE(sat)}$		-0.3	-0.60	V	$I_C = -300\text{ mA}, I_B = -30\text{ mA}$ ***
Base Saturation Voltage	$V_{BE(sat)}$		-0.9	-1.2	V	$I_C = -300\text{ mA}, I_B = -30\text{ mA}$ ***
Base to Emitter Voltage	V_{BE}	-600	-660	-700	mV	$V_{CE} = -6.0\text{ V}, I_C = -10\text{ mA}$ ***
Gain Bandwidth Product	f_T		100		MHz	$V_{CE} = -6.0\text{ V}, I_E = 10\text{ mA}$
Output Capacitance	C_{ob}		13		pF	$V_{CB} = -6.0\text{ V}, I_E = 0, f = 1.0\text{ MHz}$

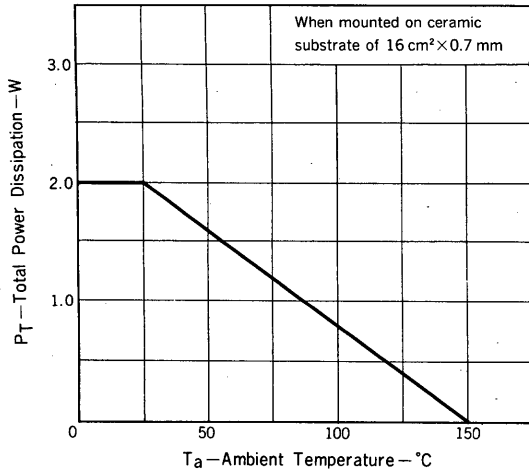
***Pulsed: PW \leq 350 μs , duty cycle \leq 2 %

h_{FE} Classification

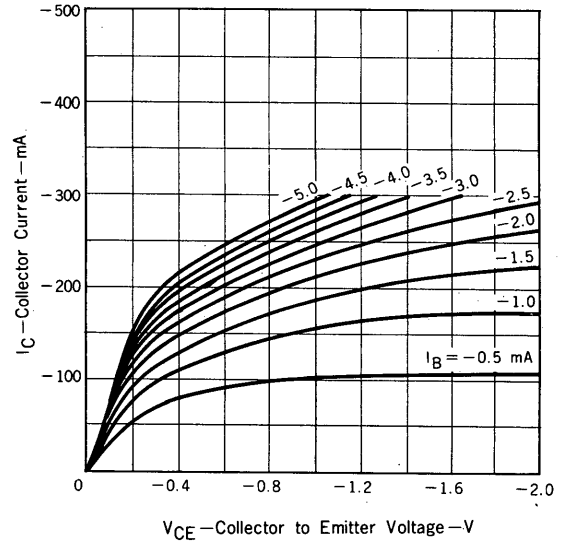
MARKING	FM	FL	FK
h_{FE1}	90 - 180	135 - 270	200 - 400

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

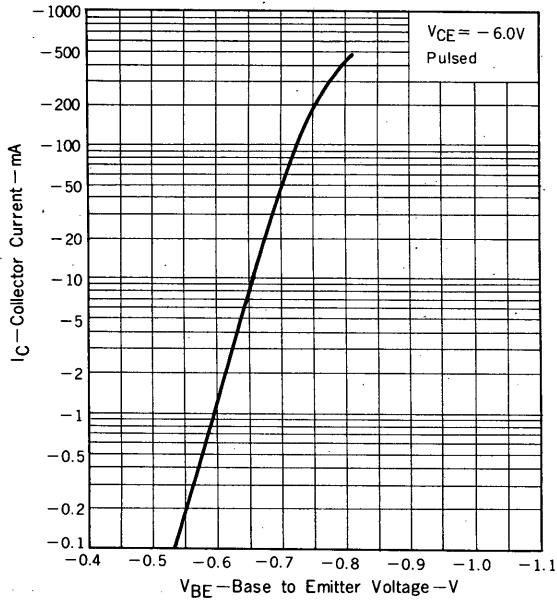
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



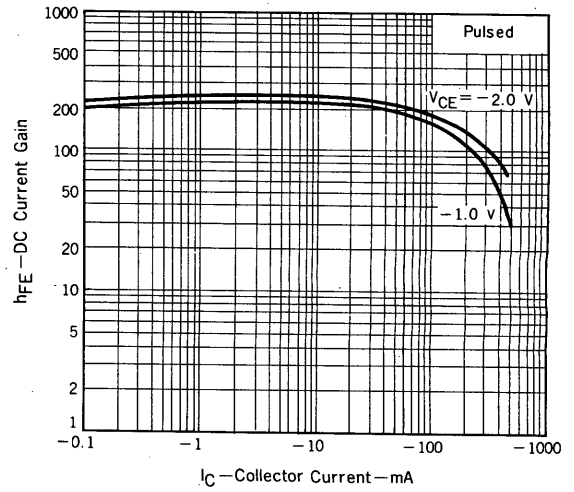
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



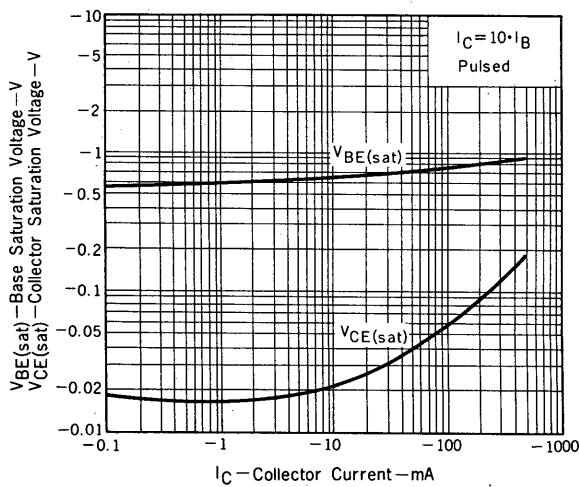
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



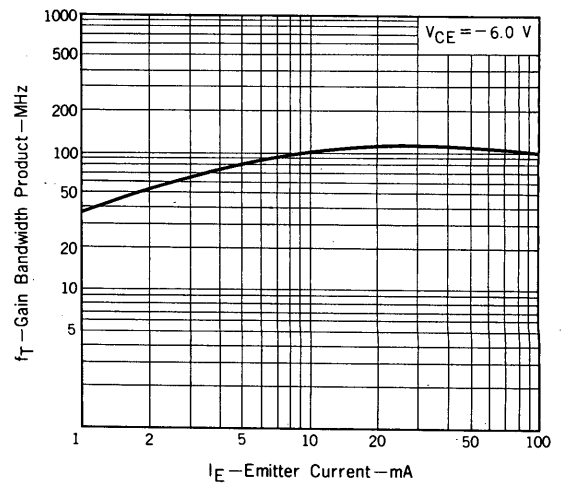
DC CURRENT GAIN vs. COLLECTOR CURRENT



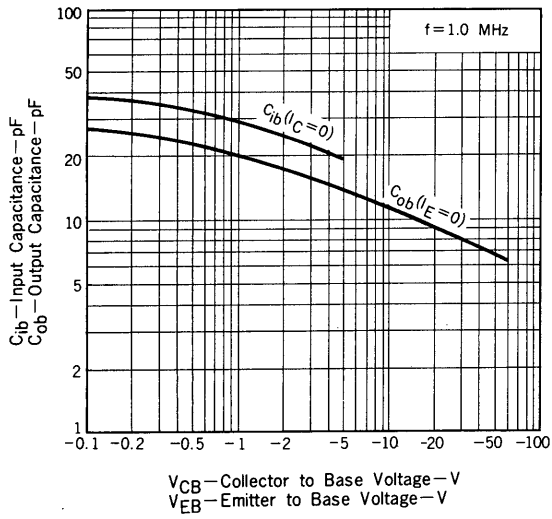
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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