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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RENESAS

PNP SILICON EPITAXIAL TRANSISTOR

2SA1836

PNP SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SA1836 is PNP silicon epitaxial transistor.

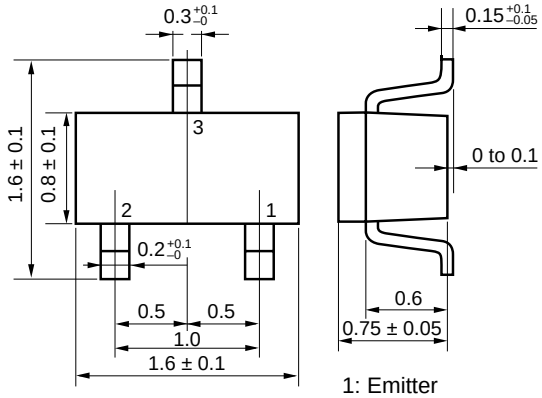
FEATURES

- High DC current gain: h_{FE2} = 200 TYP.
- High voltage: V_{CEO} = –50 V
- Can be automatically mounted

★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SA1836	SC-75 (USM)

★ PACKAGE DRAWING (Unit: mm)



1: Emitter
2: Base
3: Collector

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)	$I_{C(DC)}$	–100	mA
Collector Current (pulse) Note1	$I_{C(pulse)}$	–200	mA
Total Power Dissipation Note2	P_T	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	–55 to + 150	°C

Notes 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

2. When mounted on ceramic substrate of 3.0 cm^2 x 0.64 mm

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The mark ★ shows major revised points.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = –60 V, I_E = 0			–100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = –5.0 V, I_C = 0			–100	nA
DC Current Gain **Note**	h_{FE1}	V_{CE} = –6.0 V, I_C = –0.1 mA	50			–
	h_{FE2}	V_{CE} = –6.0 V, I_C = –1.0 mA	90	200	600	–
Base to Emitter Voltage **Note**	V_{BE}	V_{CE} = –6.0 V, I_C = –1.0 mA		–0.62		V
Collector Saturation Voltage **Note**	$V_{CE(sat)}$	I_C = –100 mA, I_B = –10 mA		–0.18	–0.30	V
Base Saturation Voltage **Note**	$V_{BE(sat)}$	I_C = –100 mA, I_B = –10 mA		–0.86	–1.00	V
Gain Bandwidth Product	f_T	V_{CE} = –6.0 V, I_E = 10 mA	50	180		MHz
Output Capacitance	C_{ob}	V_{CE} = –6.0 V, I_E = 0 mA, f = 1.0 MHz		4.5	6.0	pF

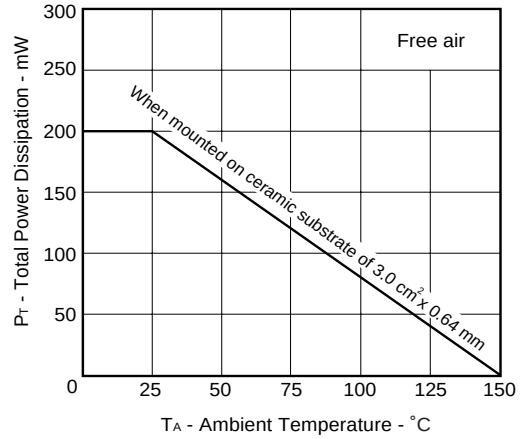
Note Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2%

h_{FE} CLASSFICATION

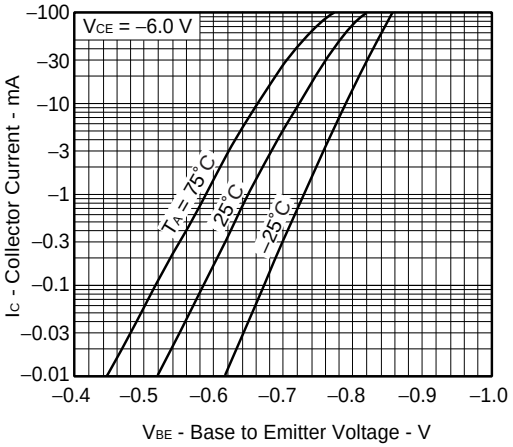
Marking	M4	M5	M6	M7
h_{FE2}	90 to 180	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS (T_A = 25°C)

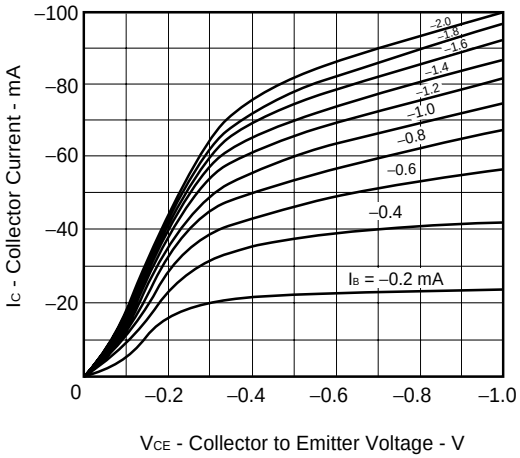
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



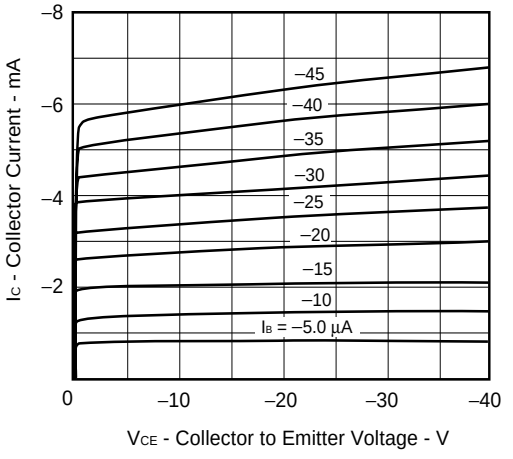
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



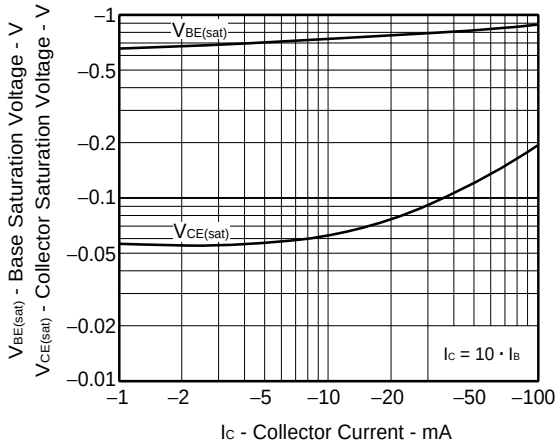
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



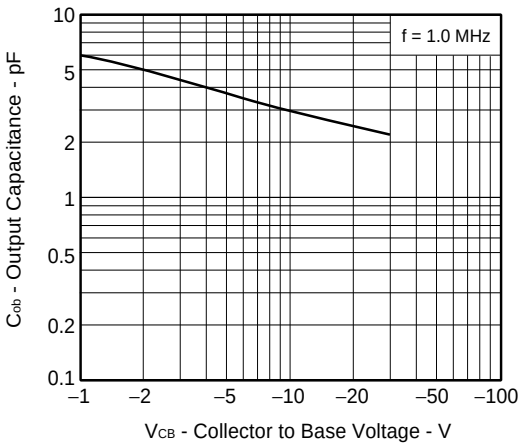
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



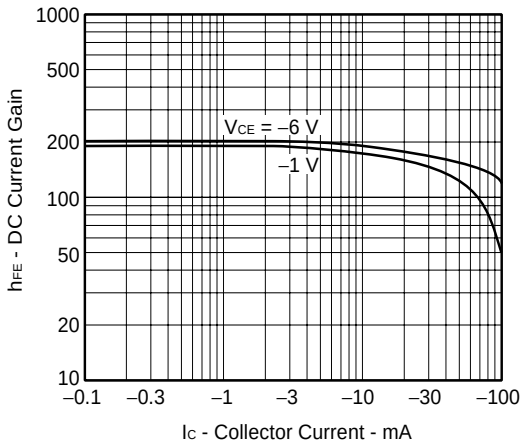
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



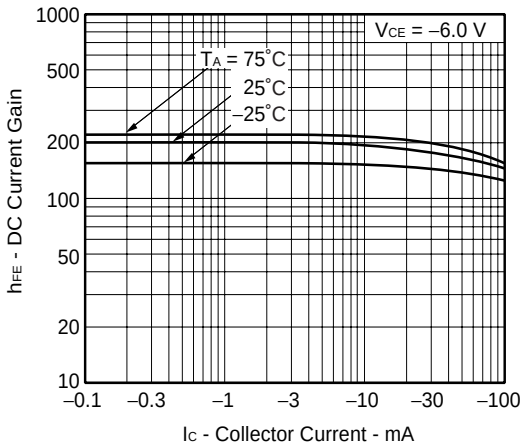
OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



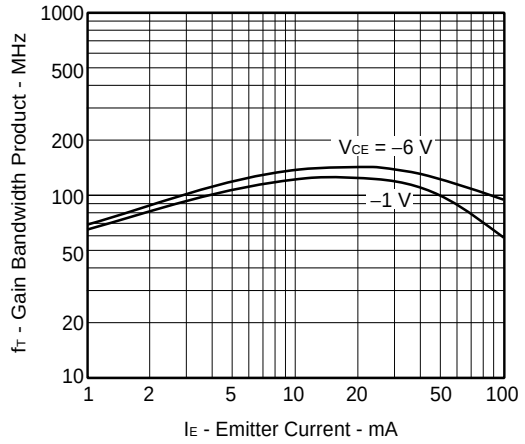
DC CURRENT GAIN vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



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