

To our customers,

Old Company Name in Catalogs and Other Documents

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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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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)

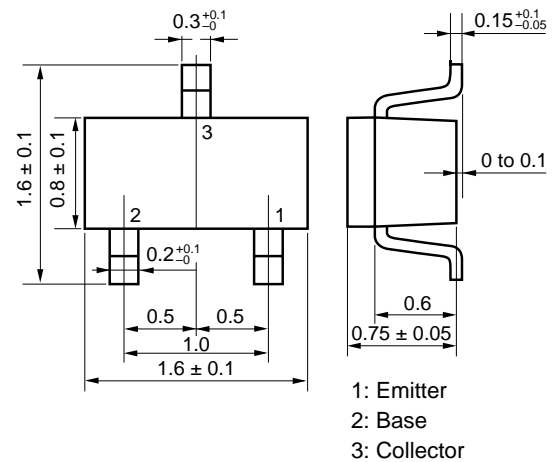
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

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

Notes 1. $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

2. When mounted on ceramic substrate of $3.0\text{ cm}^2 \times 0.64$ mm

★ PACKAGE DRAWING (Unit: mm)



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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

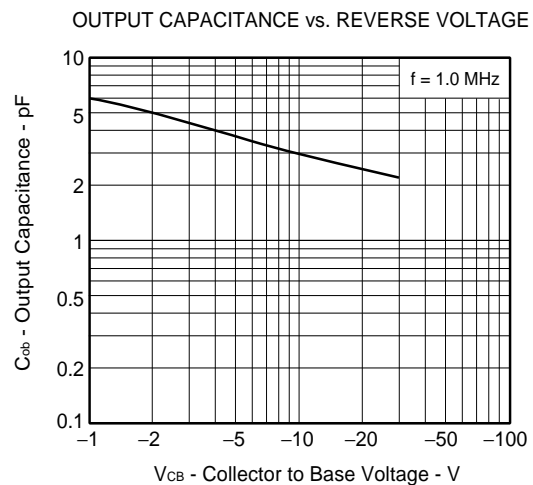
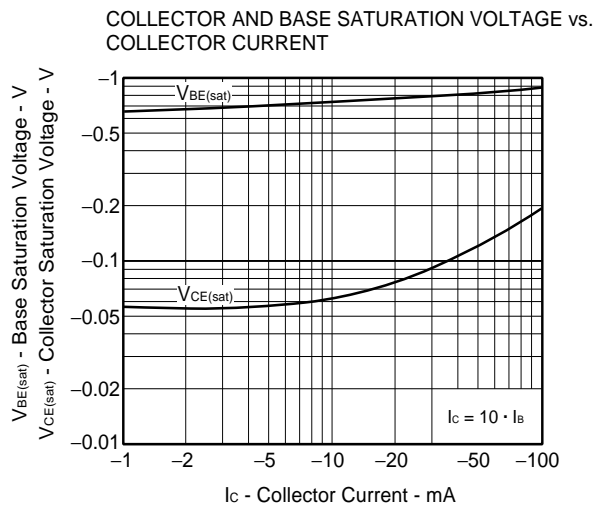
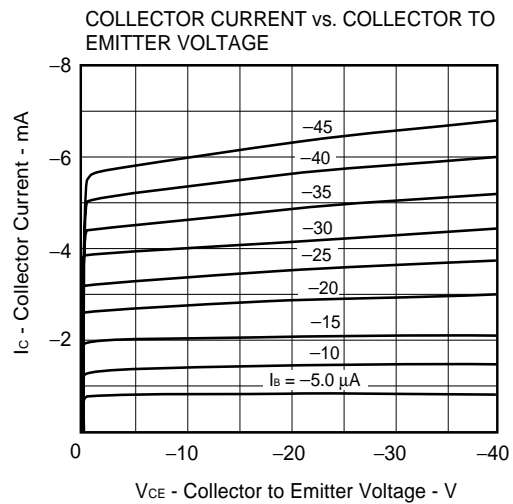
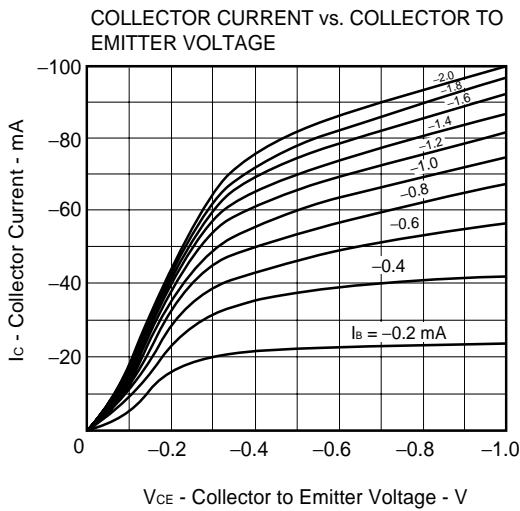
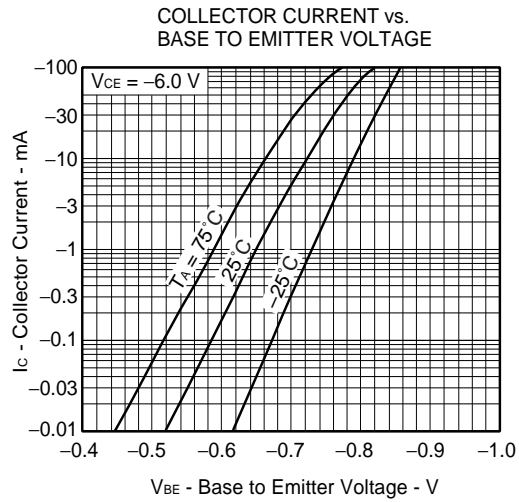
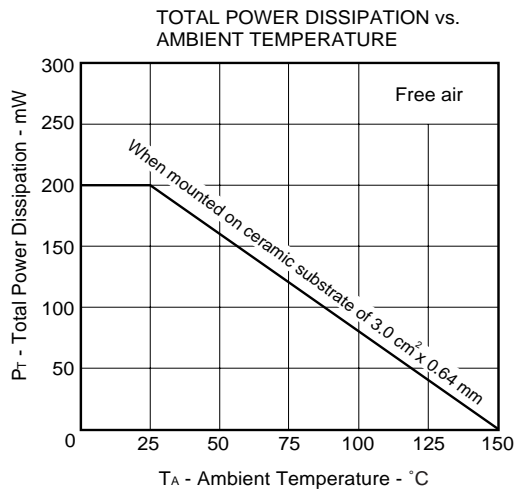
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CB} = -6.0 V, I _E = 0			-100	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = -5.0 V, I _C = 0			-100	nA
DC Current Gain ^{Note}	h _{FE1}	V _{CE} = -6.0 V, I _C = -0.1 mA	50			-
	h _{FE2}	V _{CE} = -6.0 V, 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%

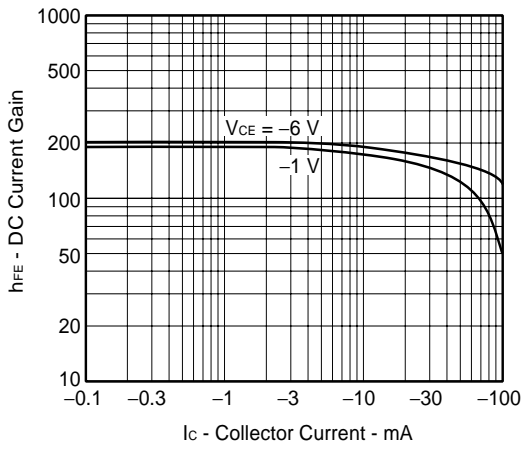
h_{FE} CLASSIFICATION

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

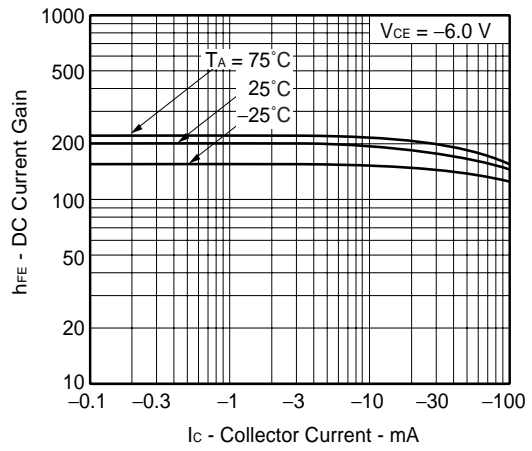
TYPICAL CHARACTERISTICS (T_A = 25°C)



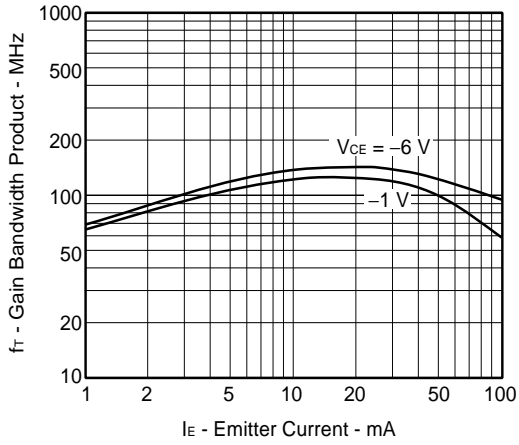
DC CURRENT GAIN vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



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