

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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Phase-out/Discontinued

**HIGH SPEED SWITCHING
NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD**

DESCRIPTION

The 2SC3736 is designed for power amplifier and high speed switching applications.

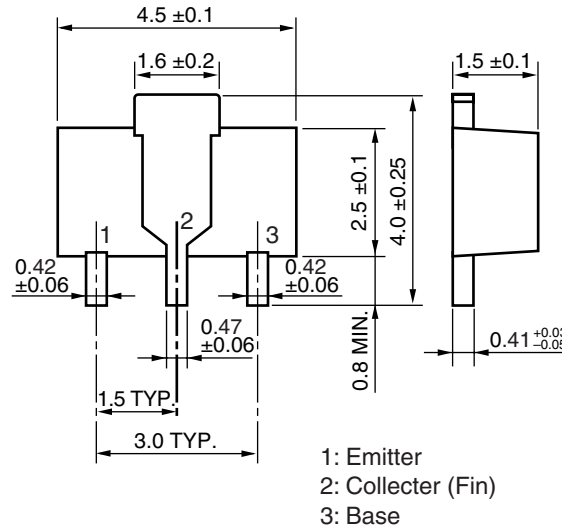
FEATURES

- High speed, high voltage switching
- Low collector saturation voltage
- Complementary to the 2SA1460 PNP transistor.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Collector to Base Voltage	V _{CBO}	80	V
Collector to Emitter Voltage	V _{CEO}	45	V
Emitter to Base Voltage	V _{EBO}	5.0	V
Collector Current (DC)	I _{C(DC)}	1.0	A
Collector Current (pulse) ^{Note1}	I _{C(pulse)}	2.0	A
Total Power Dissipation ^{Note2}	P _T	2.0	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

★ **PACKAGE DRAWING (Unit: mm)**



Notes 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

2. Mounted on ceramic substrate of 16 cm² x 0.7 mm

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

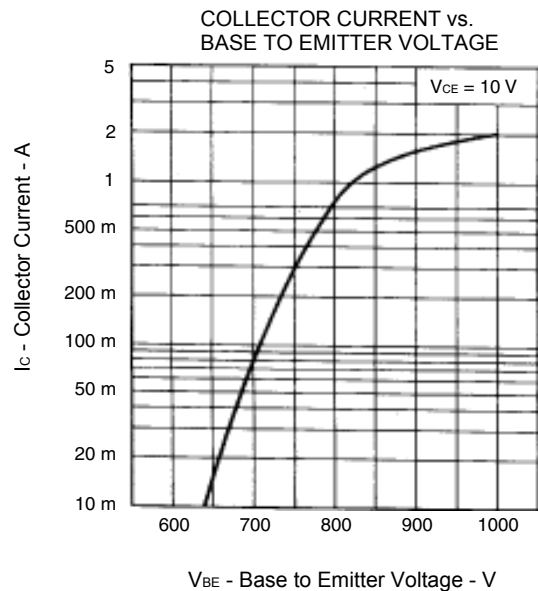
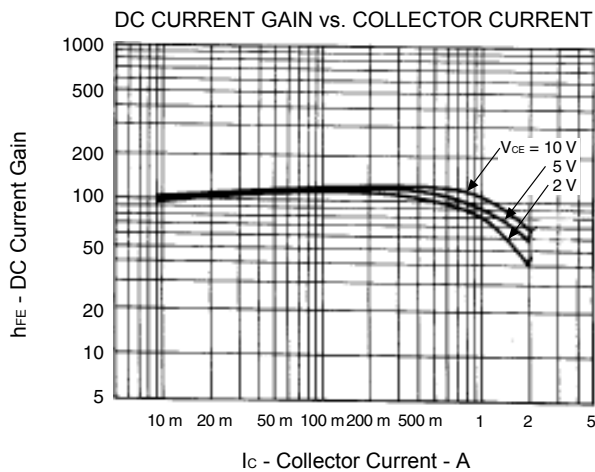
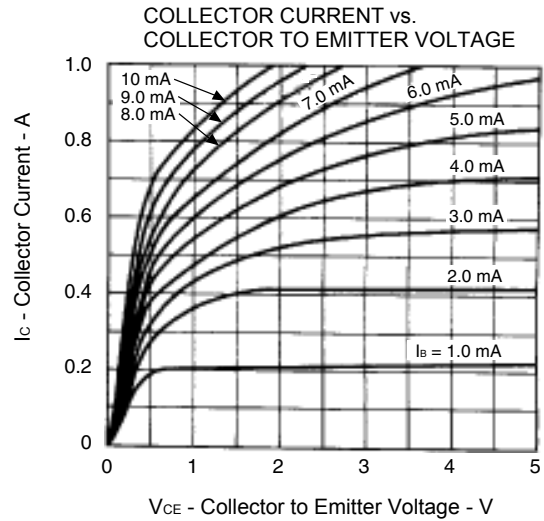
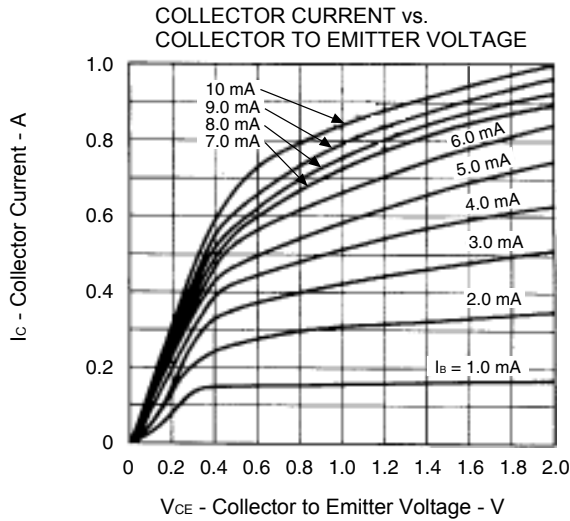
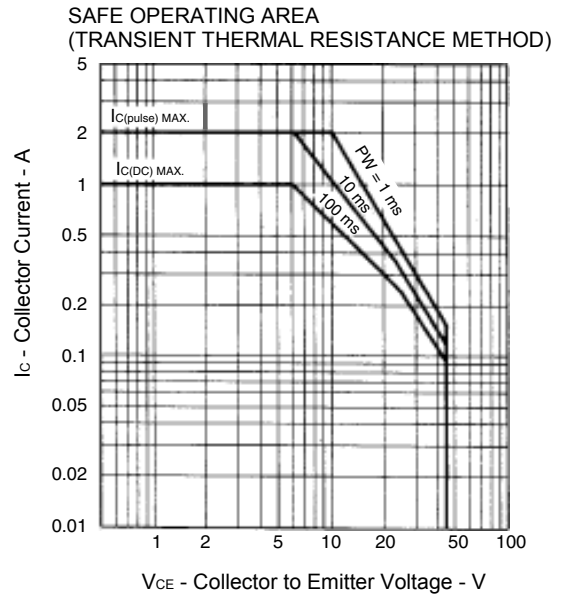
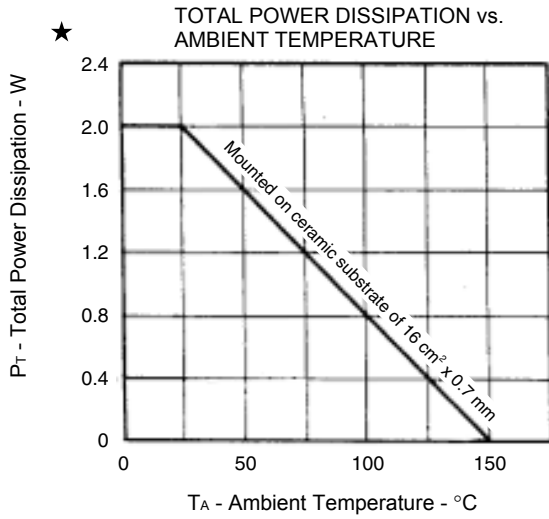
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CES}	V _{CE} = 45 V, R _{BE} = 0 Ω			0.5	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 4.0 V, I _C = 0 A			0.5	μA
★ DC Current Gain ^{Note}	h _{FE1}	V _{CE} = 10 V, I _C = 50 mA	60		200	
	h _{FE2}	V _{CE} = 10 V, I _C = 500 mA	60			
Collector Saturation Voltage ^{Note}	V _{CE(sat)}	I _C = 500 mA, I _B = 50 mA		0.17	0.4	V
Base Saturation Voltage ^{Note}	V _{BE(sat)}			0.90	1.2	V
Gain Bandwidth Product	f _T	V _{CE} = 10 V, I _E = -100 mA	300	380		MHz
Output Capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1.0 MHz		6.7	10	pF
Turn-on Time	t _{on}	I _C = 500 mA, I _{B1} = -I _{B2} ≐ 50 mA		20	40	ns
Storage Time	t _{stg}			55	80	ns
Turn-off Time	t _{off}			72	100	ns

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

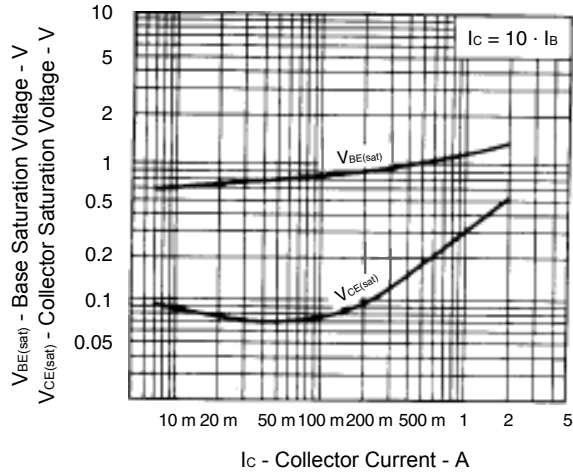
h_{FE} CLASSIFICATION

MARKING	OL	OK
h _{FE1}	60 to 120	100 to 200

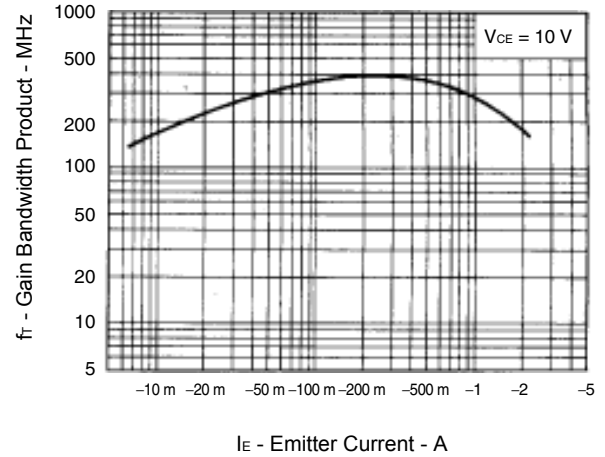
TYPICAL CHARACTERISTICS (T_A = 25°C)



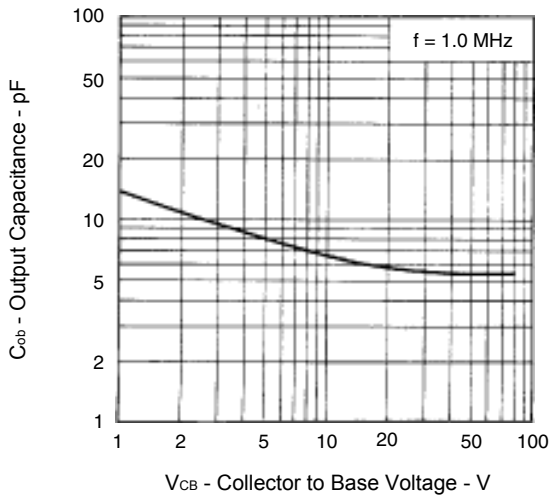
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



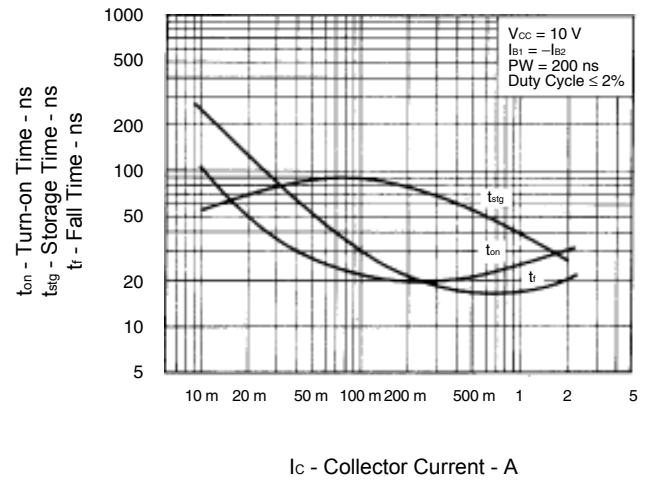
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



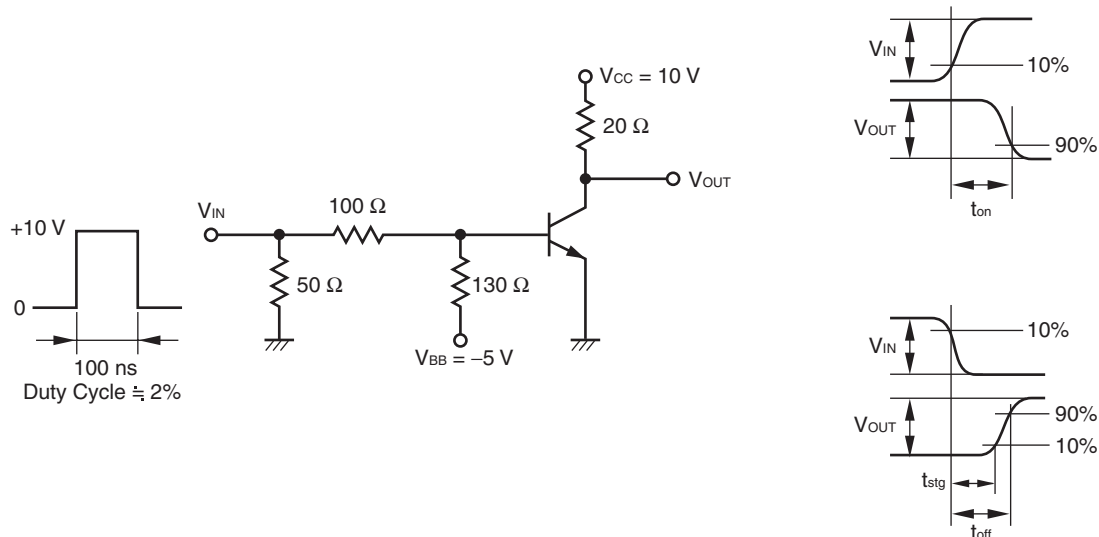
OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



SWITCHING TIME TEST CIRCUIT



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