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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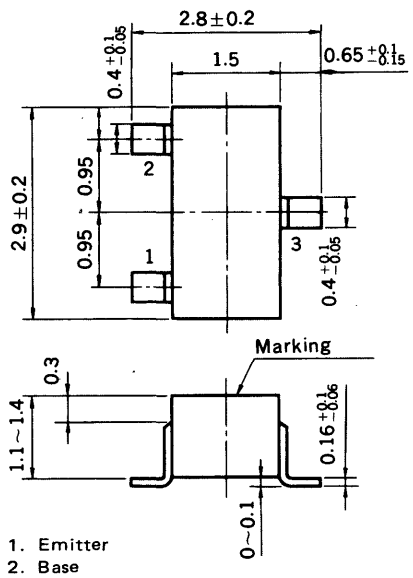
RENESAS

SILICON TRANSISTOR
2SC3734

HIGH FREQUENCY AMPLIFIER
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD

PACKAGE DIMENSIONS
in millimeters



1. Emitter
2. Base
3. Collector

FEATURES

- High Speed: $t_{stg} < 200$ ns
- Complementary to 2SA1461

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current (T_a = 25 °C)			
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current (DC)	I_C	200	mA
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature	P_T	200	mW
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	V_{CB} = 30 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			100	nA	V_{EB} = 3.0 V, I_C = 0
DC Current Gain	h_{FE1}*	75	200	300		V_{CE} = 1.0 V, I_C = 10 mA
DC Current Gain	h_{FE2}*	25	80			V_{CE} = 1.0 V, I_C = 100 mA
Collector Saturation Voltage	$V_{CE(sat)}$*		0.12	0.3	V	I_C = 50 mA, I_B = 5.0 mA
Base Saturation Voltage	$V_{BE(sat)}$*		0.80	0.95	V	I_C = 50 mA, I_B = 5.0 mA
Gain Bandwidth Product	f_T	300	510		MHz	V_{CE} = 20 V, I_E = −10 mA
Output Capacitance	C_{ob}		3.0	4.0	pF	V_{CB} = 5.0 V, I_E = 0, f = 1.0 MHz
Turn-on Time	t_{on}			70	ns	V_{CC} = 3.0 V I_C = 10 mA I_{B1} = −I_{B2} = 1.0 mA
Storage Time	t_{stg}		100	200	ns	
Turn-off Time	t_{off}			250	ns	

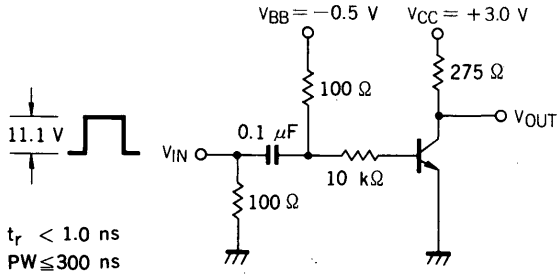
* Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

h_{FE} Classification

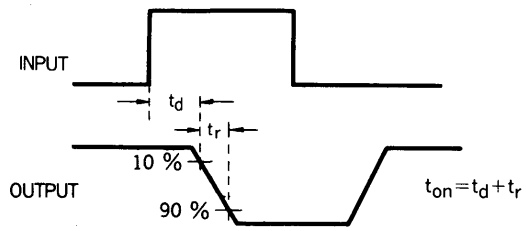
Marking	B22	B23	B24
h_{FE1}	75 to 150	100 to 200	150 to 300

NEC Corporation

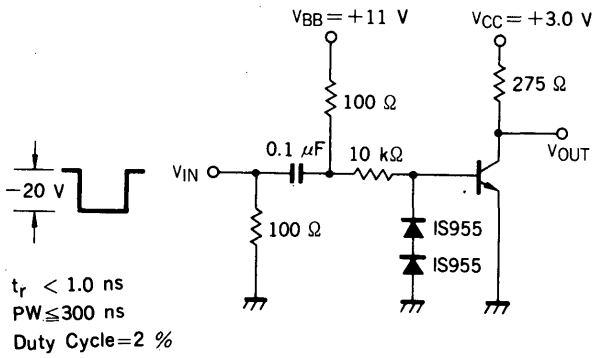
SWITCHING TIME TEST CIRCUIT



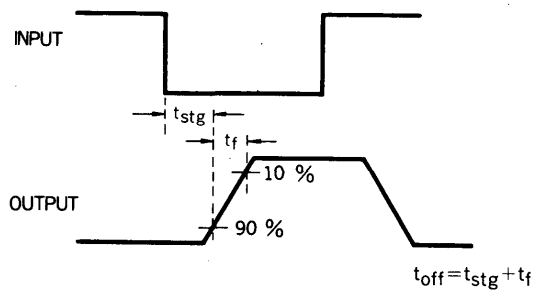
t_{on} SWITCHING



VOLTAGE WAVEFORMS



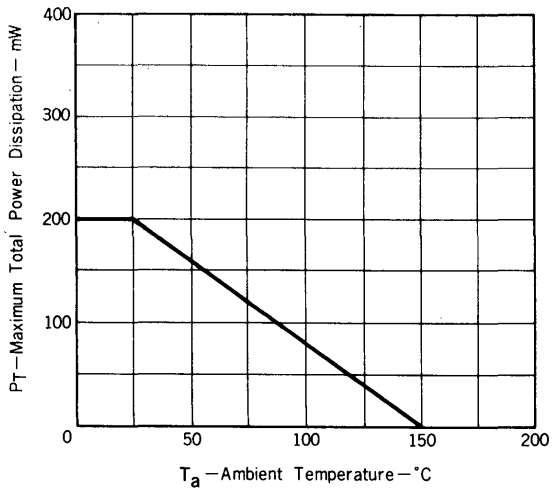
t_{off} SWITCHING



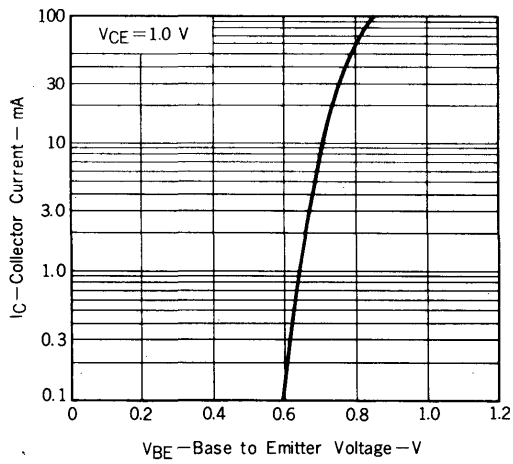
VOLTAGE WAVEFORMS

TYPICAL CHARACTERISTICS (T_a = 25 °C)

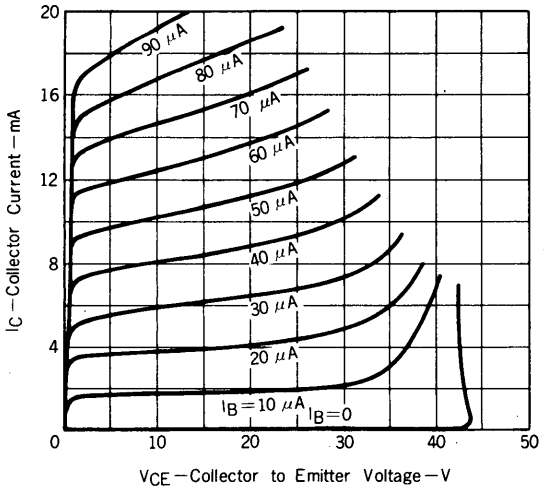
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



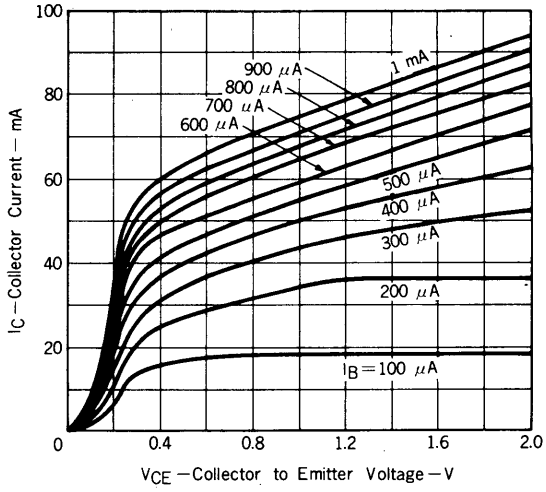
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



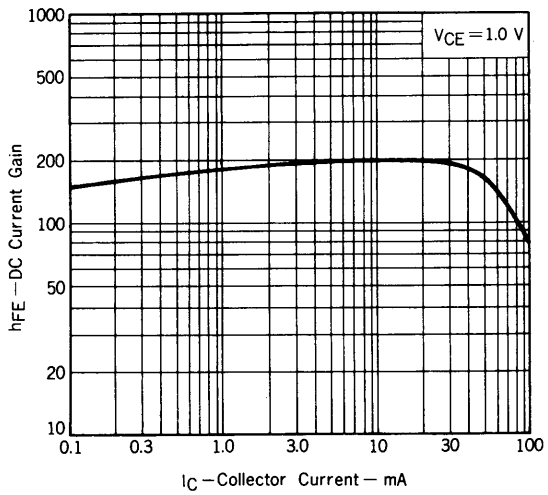
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



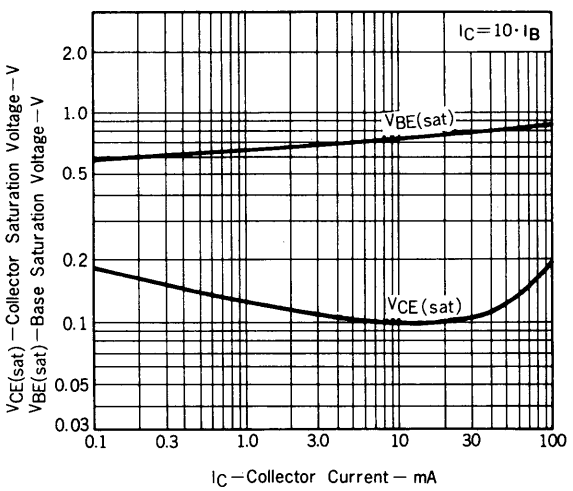
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



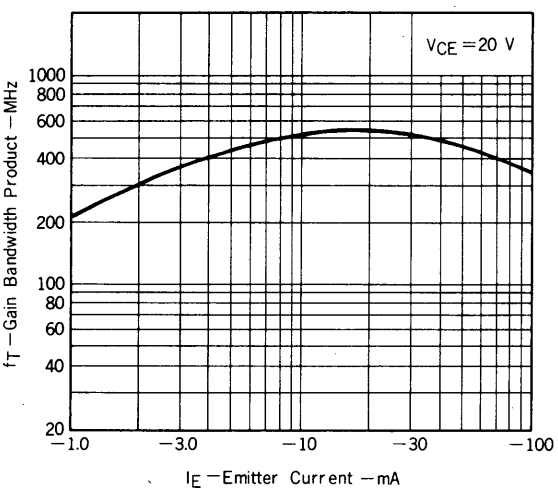
DC CURRENT GAIN vs.
COLLECTOR CURRENT



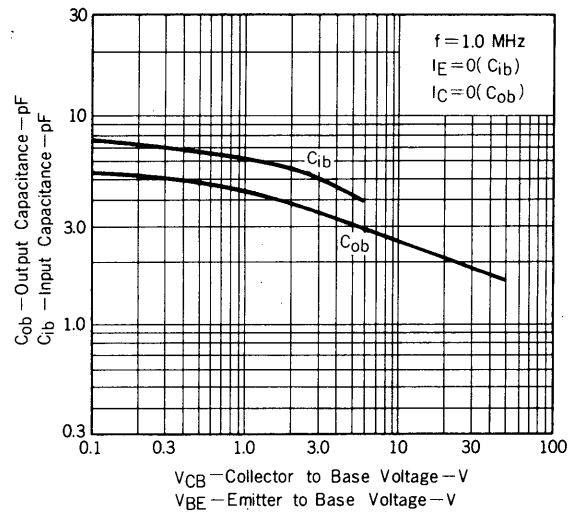
BASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT



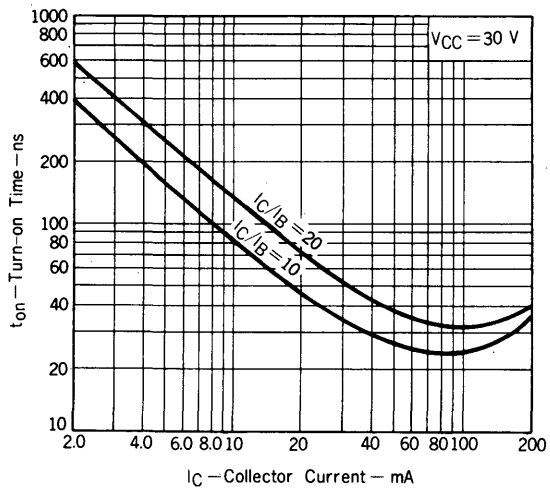
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



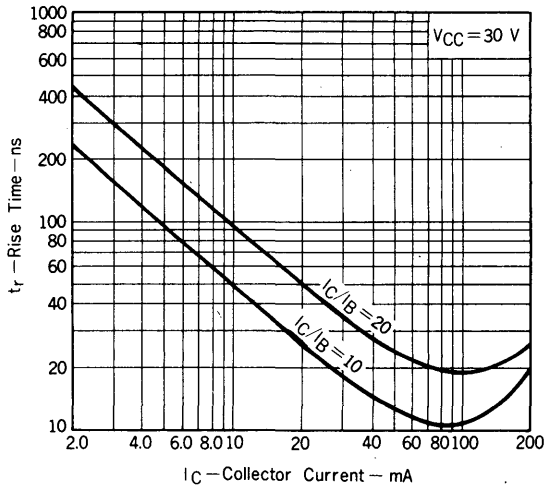
INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE



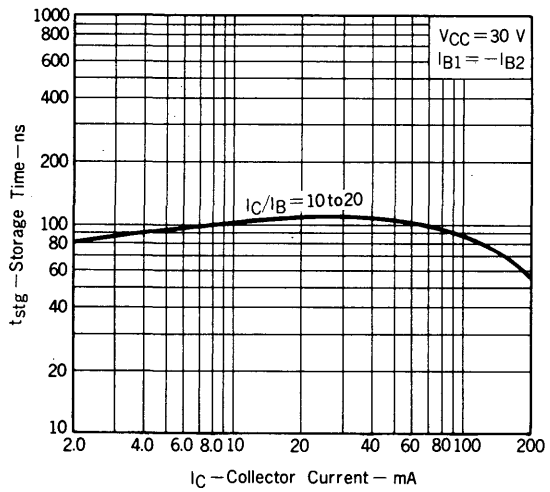
TURN-ON TIME vs. COLLECTOR CURRENT



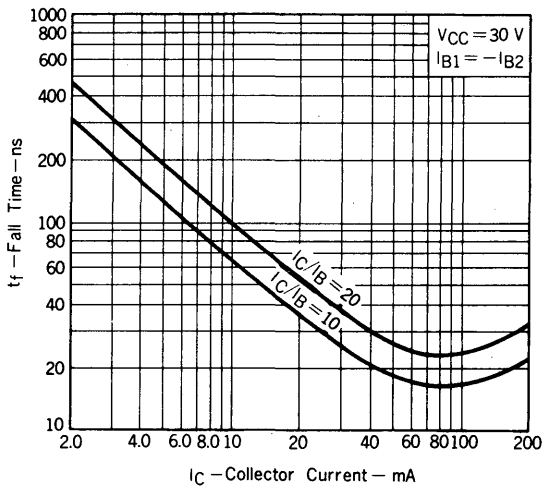
RISE TIME vs. COLLECTOR CURRENT



STORAGE TIME vs. COLLECTOR CURRENT



FALL TIME vs. COLLECTOR CURRENT



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