

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 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 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

Send any inquiries to <http://www.renesas.com/inquiry>.

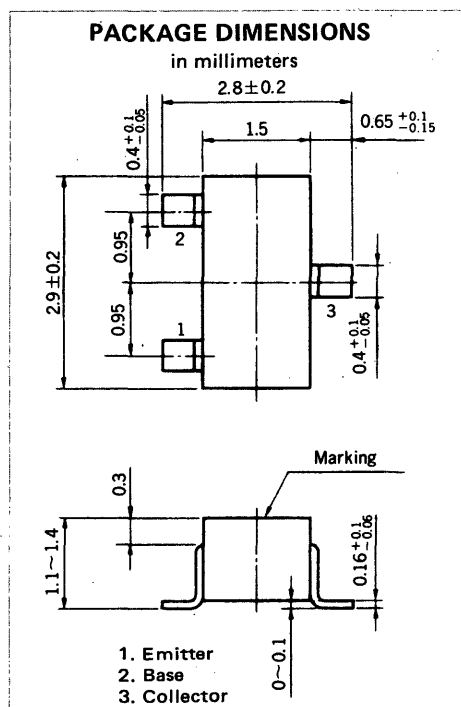
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## HIGH SPEED SWITCHING PNP SILICON EPITAXIAL TRANSISTOR MINI MOLD



### FEATURES

- High Speed Switching :  $t_{on} = 9.0$  ns TYP.  
 $t_{off} = 19.0$  ns TYP.
- High  $f_T$  :  $f_T = 1\ 800$  MHz TYP.
- Low  $C_{ob}$  :  $C_{ob} = 2.0$  pF TYP.
- Complementary to 2SC3735

### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CBO}$	-15	V
Collector to Emitter Voltage	$V_{CEO}$	-15	V
Emitter to Base Voltage	$V_{EBO}$	-4.5	V
Collector Current (DC)	$I_C$	-50	mA

Maximum Power Dissipation

Total power Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_T$	200	mW
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Maximum Temperatures

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

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

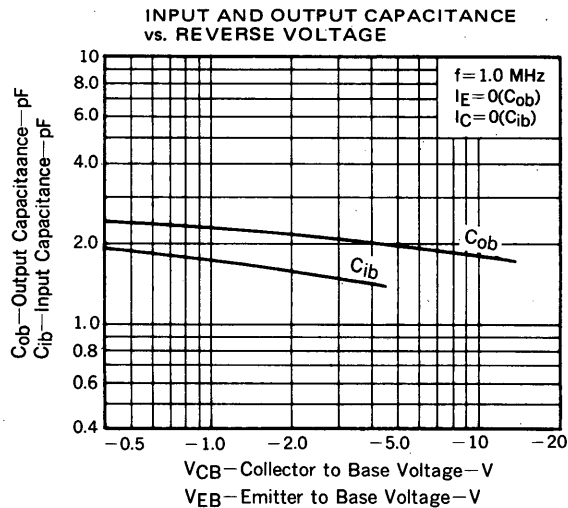
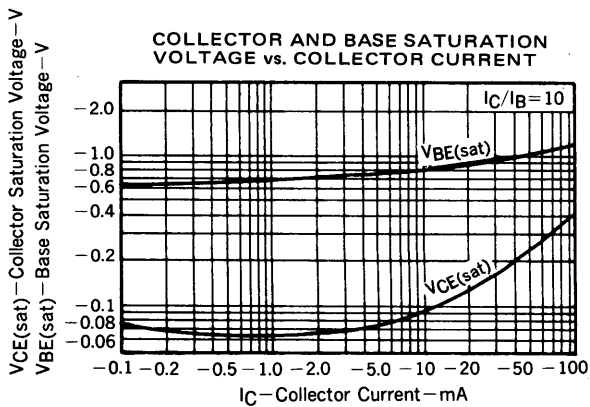
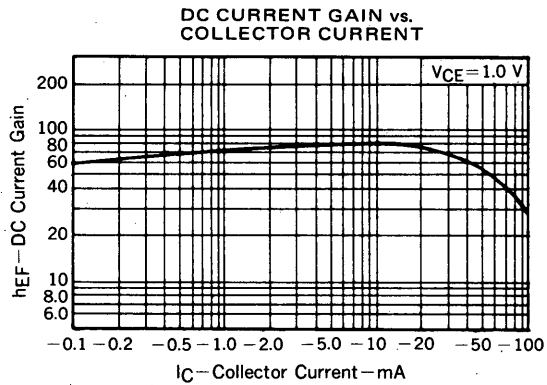
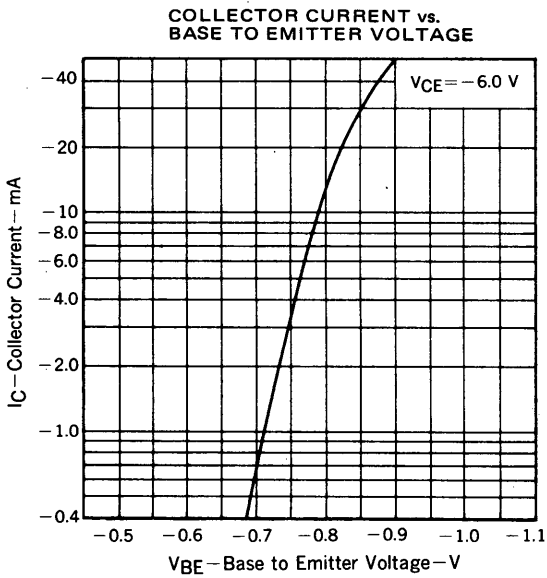
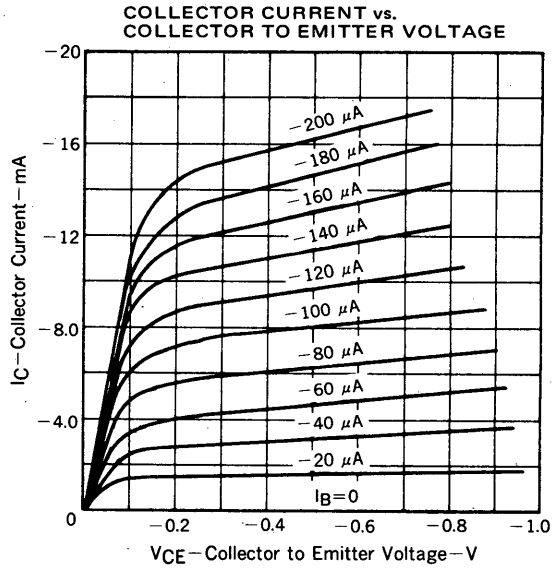
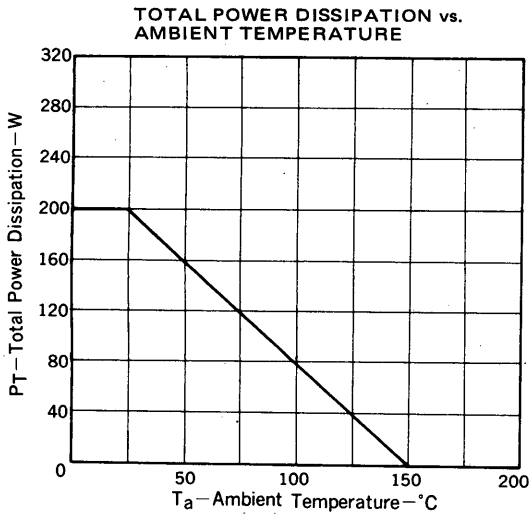
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			-100	nA	$V_{CB} = -8.0$ V, $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -3.0$ V, $I_C = 0$
DC Current Gain	$h_{FE1}$ *	30	70			$V_{CE} = -1.0$ V, $I_C = -1.0$ mA
DC Current Gain	$h_{FE2}$ *	50	80	150		$V_{CE} = -1.0$ V, $I_C = -10$ mA
Collector Saturation Voltage	$V_{CE(sat)}$ *		-0.09	-0.20	V	$I_C = -10$ mA, $I_B = -1.0$ mA
Base Saturation Voltage	$V_{BE(sat)}$ *		-0.80	-0.95	V	$I_C = -10$ mA, $I_B = -1.0$ mA
Gain Bandwidth Product	$f_T$	800	1800		MHz	$V_{CE} = -10$ V, $I_E = 10$ mA
Output Capacitance	$C_{ob}$		2.0	3.0	pF	$V_{CB} = -5.0$ V, $I_E = 0$ , $f = 1.0$ MHz
Turn-on Time	$t_{on}$		9.0	20	ns	$I_C = -10$ mA $I_{B1} = -I_{B2} = -1.0$ mA
Storage Time	$t_{stg}$		16	40	ns	
Turn-off Time	$t_{off}$		19	40	ns	

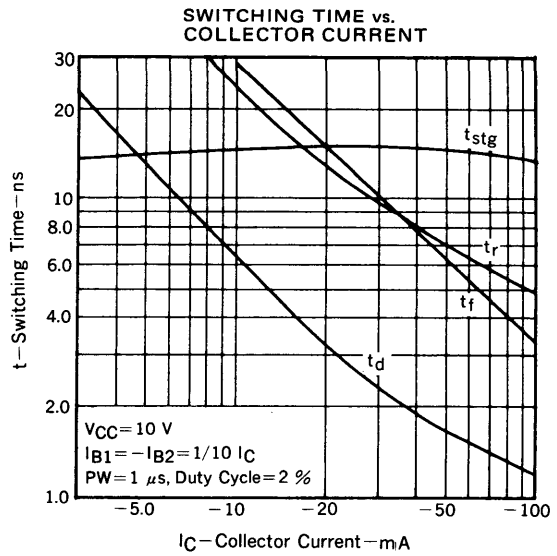
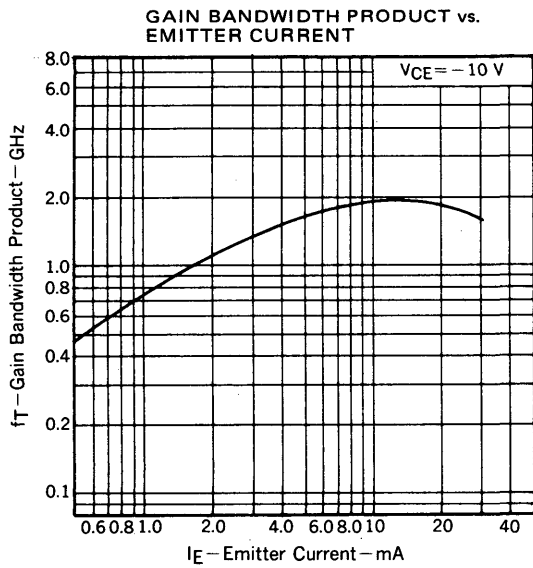
\* Pulsed:  $PW \leq 350$   $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

### $h_{FE2}$ Classification

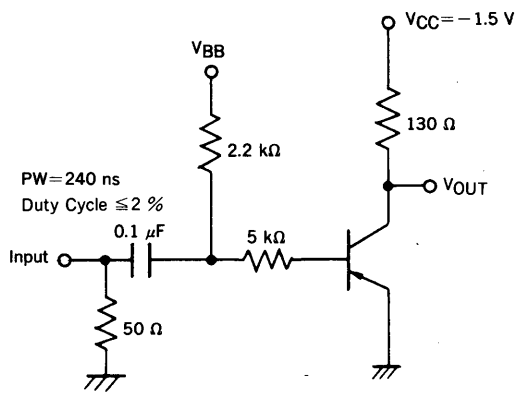
Making	Y33	Y34
$h_{FE2}$	50 to 100	75 to 150

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

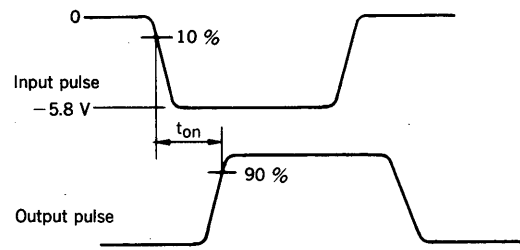




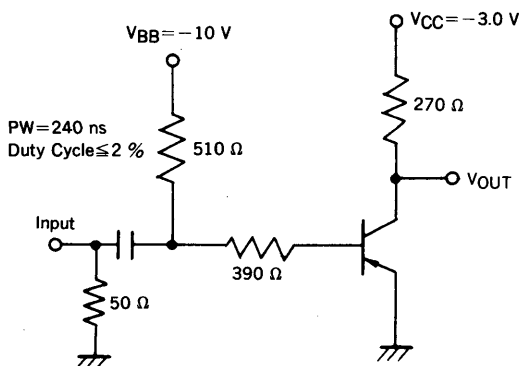
**SWITCHING TIME TEST CIRCUIT**



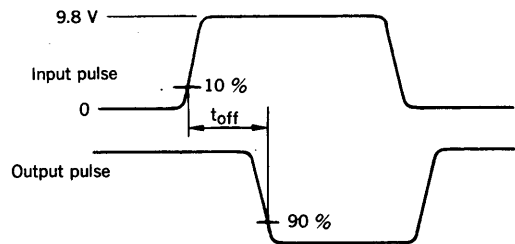
$t_{on}, t_{off}$  Switching



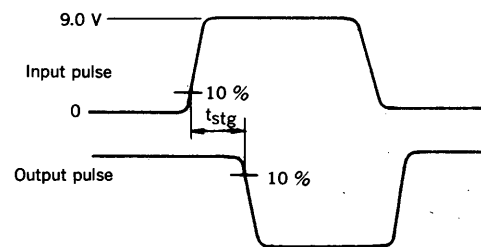
$t_{on}$  Voltage Waveforms ( $V_{BB} = \text{GROUND}$ )



$t_{stg}$  Switching



$t_{off}$  Voltage Waveforms ( $V_{BB} = -8.0\text{ V}$ )



$t_{stg}$  Voltage Waveforms

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