

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

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

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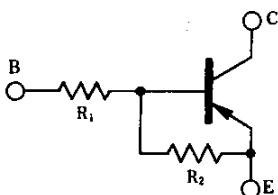
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on-chip resistor PNP silicon epitaxial transistor  
For mid-speed switching

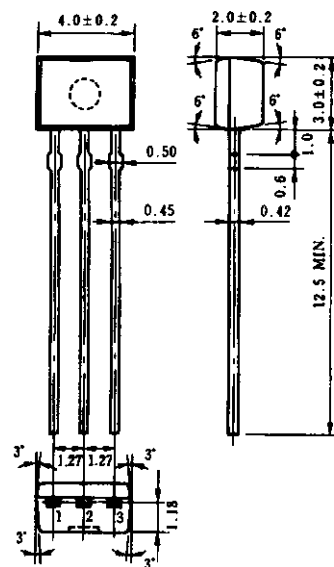
FEATURES

- On-chip bias resistor  
( $R_1 = 4.7\text{ k}\Omega$ ,  $R_2 = 4.7\text{ k}\Omega$ )

- Complementary transistor with BA1L3M



PACKAGE DRAWING (UNIT: mm)



Electrode Connection  
1. Emitter  
2. Collector  
3. Base

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

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CB0}$	-60	V
Collector to emitter voltage	$V_{CE0}$	-50	V
Emitter to base voltage	$V_{EB0}$	-10	V
Collector current (DC)	$I_{C(DC)}$	-100	mA
Collector current (Pulse)	$I_{C(pulse)}$ *	-200	mA
Total power dissipation	$P_T$	250	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*  $PW \leq 10\text{ ms}$ , duty cycle  $\leq 50\%$

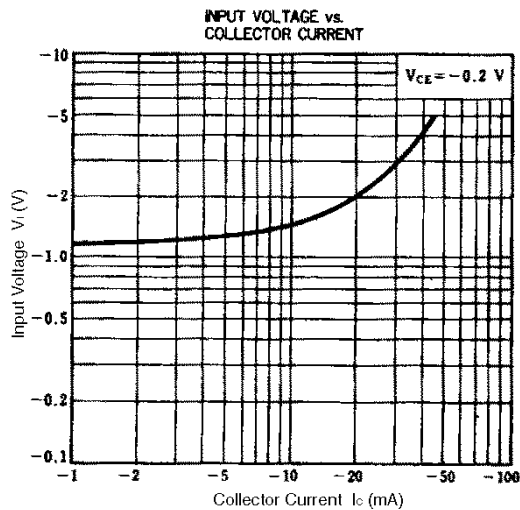
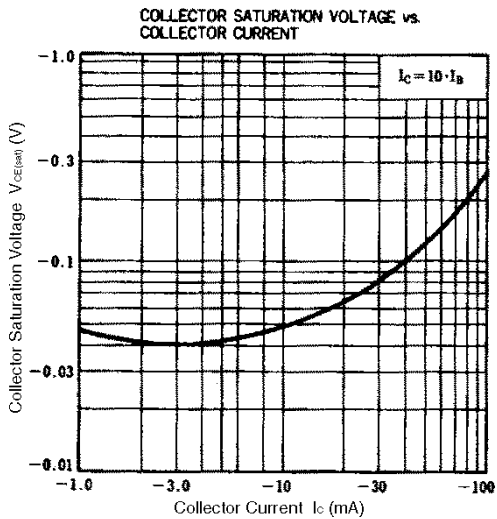
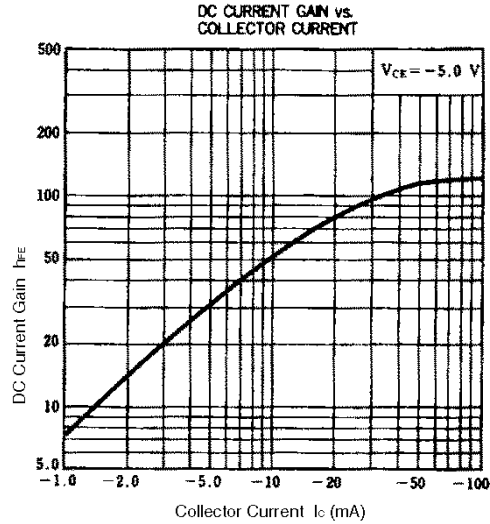
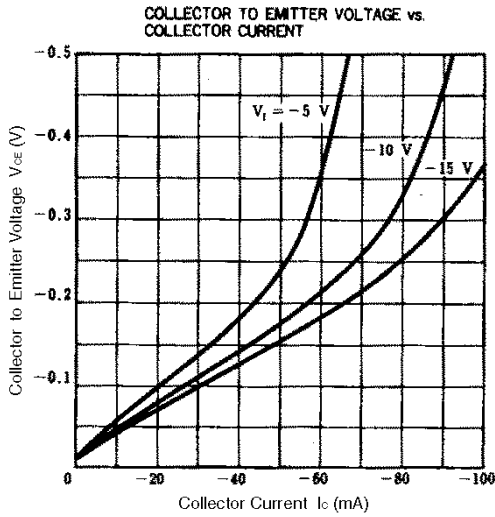
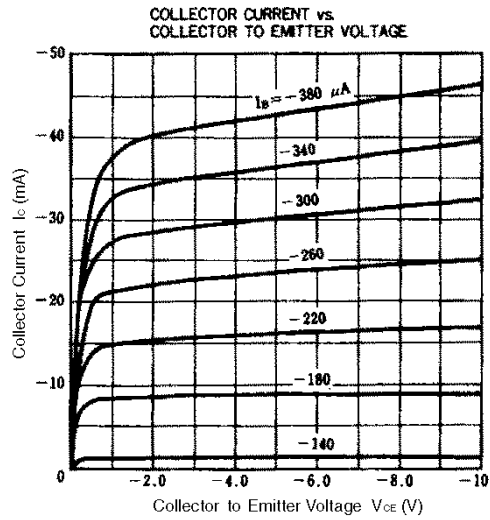
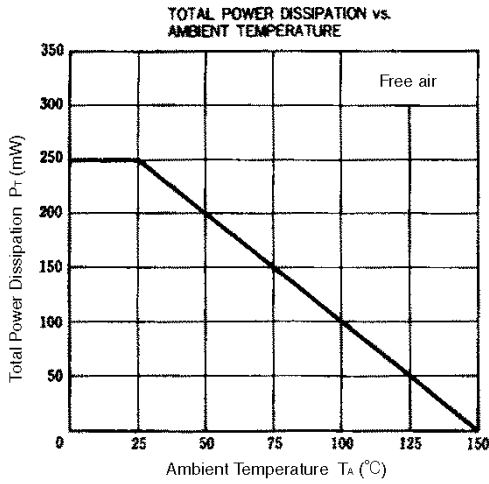
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

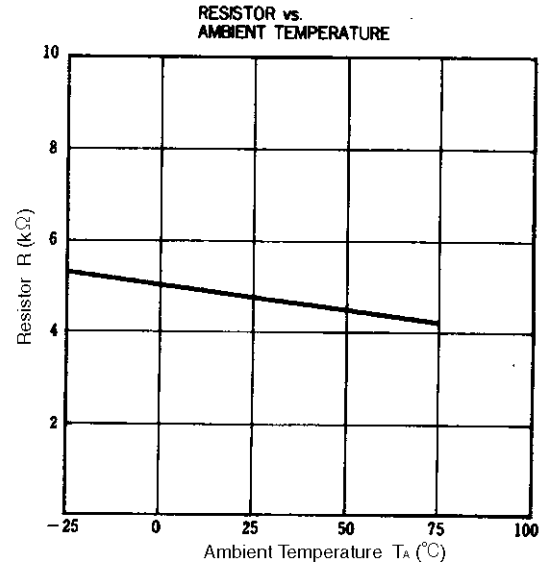
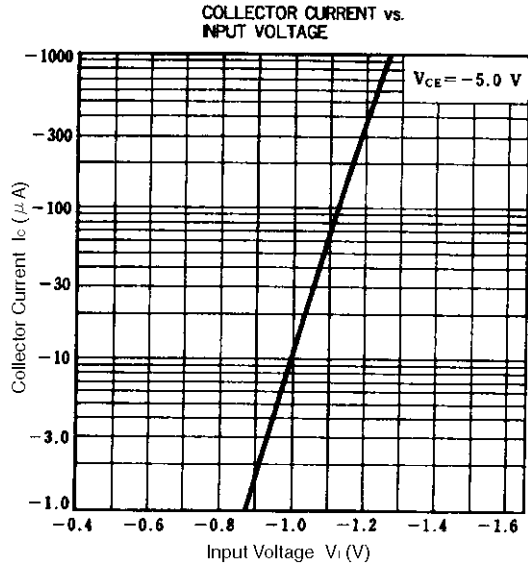
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -50\text{ V}$ , $I_E = 0$			-100	nA
DC current gain	$h_{FE1}$ **	$V_{CE} = -5.0\text{ V}$ , $I_C = -5.0\text{ mA}$	20	40	80	-
DC current gain	$h_{FE2}$ **	$V_{CE} = -5.0\text{ V}$ , $I_C = -50\text{ mA}$	70	110		-
Collector saturation voltage	$V_{CE(sat)}$ **	$I_C = -5.0\text{ mA}$ , $I_B = -0.25\text{ mA}$		-0.02	-0.3	V
Low level input voltage	$V_{IL}$ **	$V_{CE} = -5.0\text{ V}$ , $I_B = -100\text{ }\mu\text{A}$		-1.1	-0.8	V
High level input voltage	$V_{IH}$ **	$V_{CE} = -0.2\text{ V}$ , $I_C = -5.0\text{ mA}$	-30	-1.5		V
Input resistance	$R_1$		3.29	4.7	6.11	$\text{k}\Omega$
Resistance ratio	$R_2/R_2$		0.9	10	1.1	-
Turn-on time	$t_{on}$	$V_{CC} = -5\text{ V}$ , $R_L = 1\text{ k}\Omega$			0.5	$\mu\text{s}$
Storage time	$t_{stg}$	$V_i = -5\text{ V}$ , $PW = 2\text{ }\mu\text{s}$			3.0	$\mu\text{s}$
Turn-off time	$t_{off}$	duty cycle $\leq 2\%$			5.0	$\mu\text{s}$

\*\*  $PW \leq 350\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$

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