

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>)

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

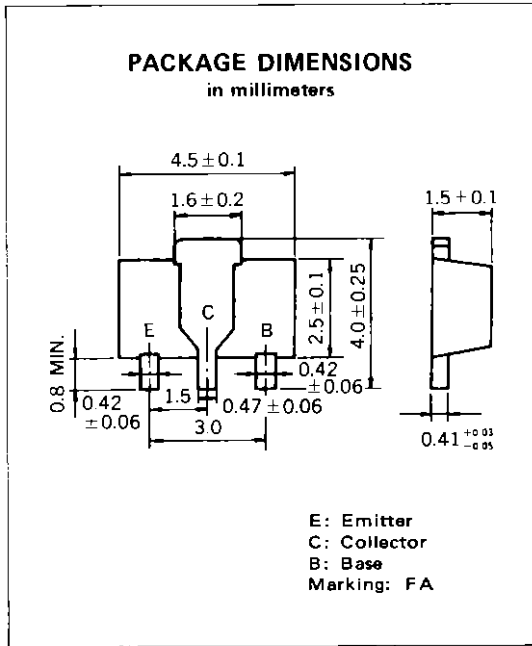
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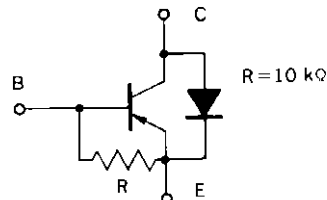
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MEDIUM SPEED SWITCHING
 RESISTOR AND DIODE BUILT-IN TYPE PNP TRANSISTOR
 POWER MINI MOLD



FEATURES

- Resistors and Diode Built-in Type



- Low Collector Saturation Voltage
 $V_{CE(sat)} < -0.40 \text{ V}$ ($I_C = -2.0 \text{ A}$, $I_B = -0.1 \text{ A}$)
- Complements to PNP type HC2A4A

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

Maximum Voltages and Currents

Collector to Base Voltage	V_{CBO}	-20	V
Collector to Emitter Voltage	V_{CEO}	-16	V
Emitter to Base Voltage	V_{EBO}	-6.0	V
Collector Current (DC)	I_C	±3.0	A
Collector Current (Pulse)*	I_C	±5.0	A

Maximum Power Dissipation

Total Power Dissipation at 25 °C Ambient Temperature**	P_T	2.0	W
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Maximum Temperature

Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

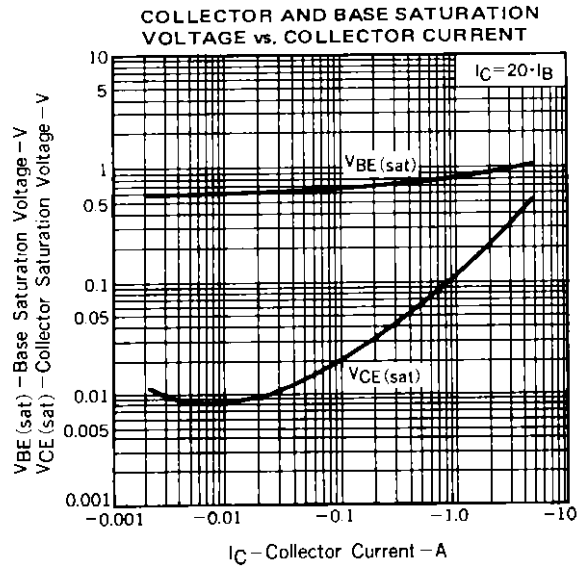
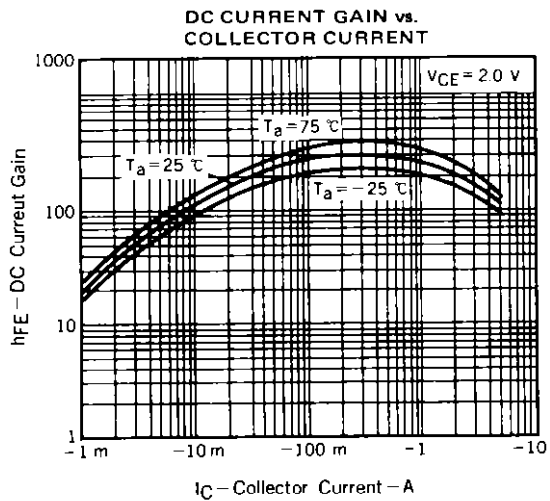
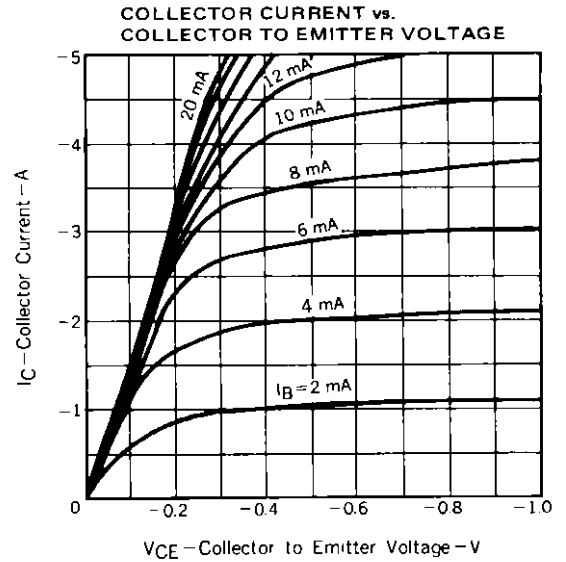
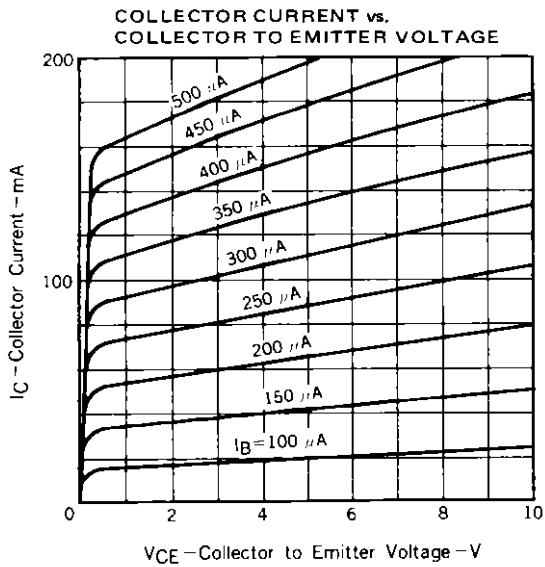
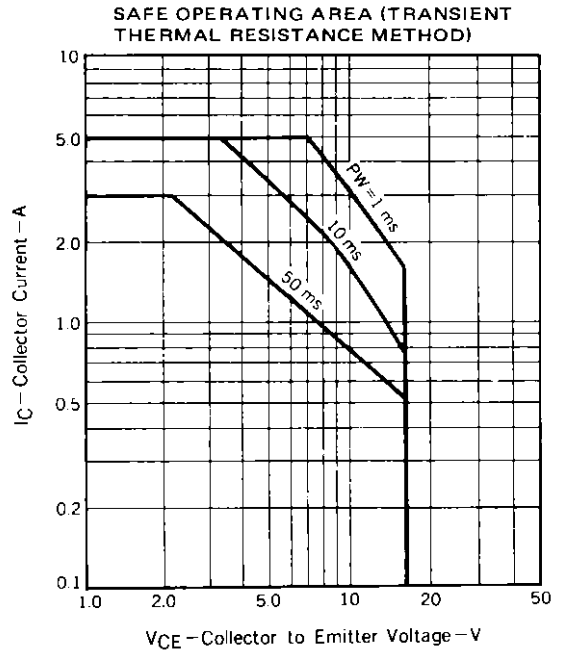
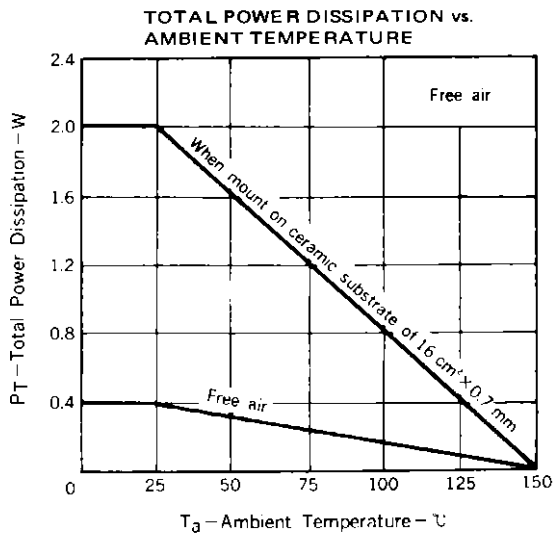
* $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50 \%$
 ** When mounted on ceramic substrate of $16 \text{ cm}^2 \times 0.7 \text{ mm}$

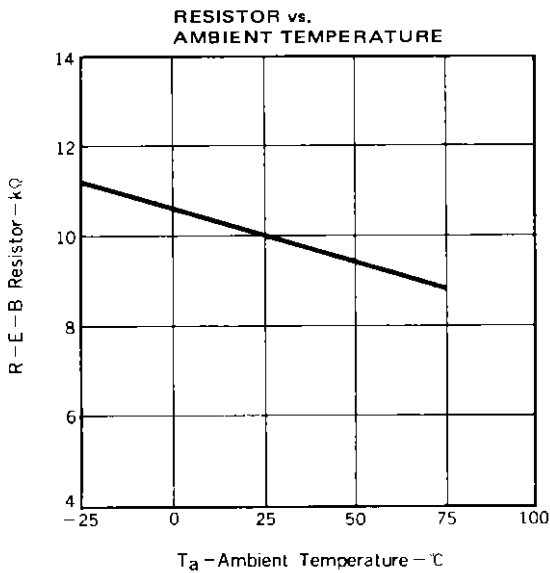
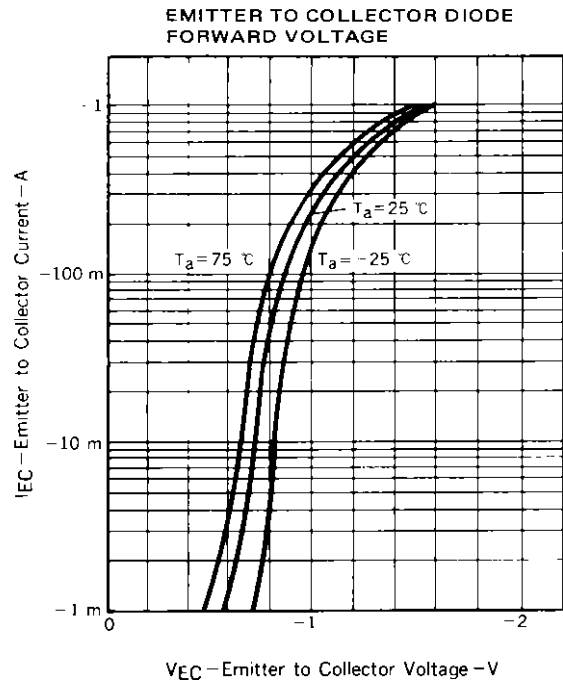
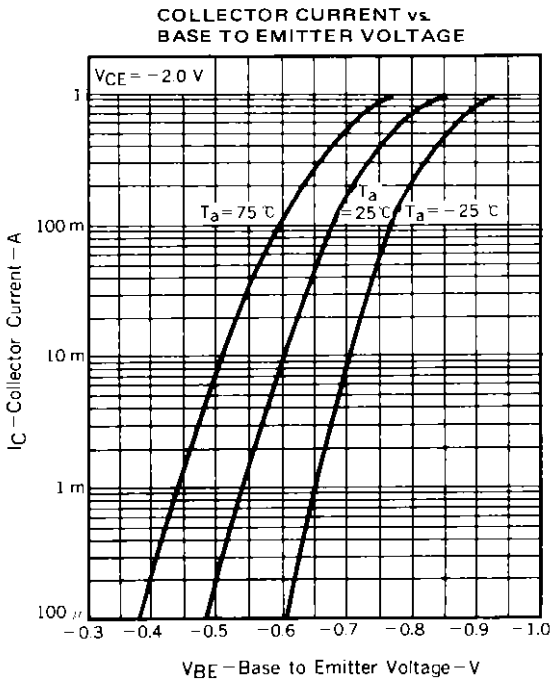
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -20 \text{ V}$, $I_E = 0$
DC Current Gain	h_{FE1}	135			-	$V_{CE} = -2.0 \text{ V}$, $I_C = -100 \text{ mA}^{***}$
DC Current Gain	h_{FE2}	90			-	$V_{CE} = -2.0 \text{ V}$, $I_C = -2.0 \text{ A}^{***}$
Collector Saturation Voltage	$V_{CE(sat)}$		-0.2	-0.4	V	$I_C = -2.0 \text{ A}$, $I_B = -0.1 \text{ A}$
Low-Level Input Voltage	V_{IL}			-0.3	V	$V_{CE} = -5.0 \text{ V}$, $I_C = -100 \mu\text{A}$
E - B Resistor	R	7.0	10.0	13.0	kΩ	
Gain Bandwidth Product	f_T		140		MHz	$V_{CE} = -10 \text{ V}$, $I_E = 50 \text{ mA}$

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

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





REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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