

To our customers,

Old Company Name in Catalogs and Other Documents

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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>.

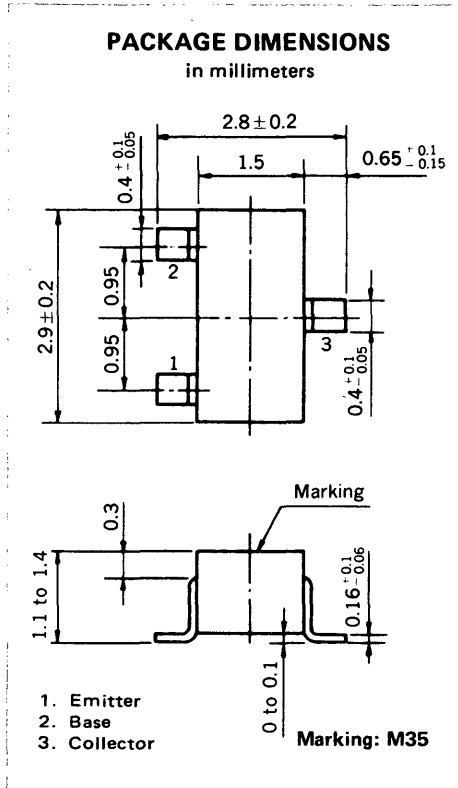
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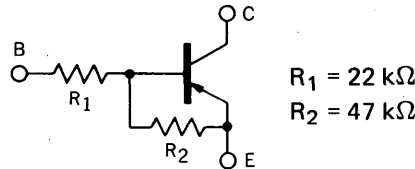
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MEDIUM SPEED SWITCHING
RESISTOR BUILT-IN TYPE PNP TRANSISTOR
MINI MOLD



FEATURES

- Resistors Built-in TYPE



- Complementary to FA1F4N

ABSOLUTE MAXIMUM RATINGS

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

Collector to Base Voltage	V_{CBO}	-60	V
Collector to Emitter Voltage	V_{CEO}	-50	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-100	mA
Collector Current (Pulse)	I_C	-200	mA

Maximum Power Dissipation

Total Power Dissipation at 25°C Ambient Temperature	P_T	200	mW
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Maximum Temperatures

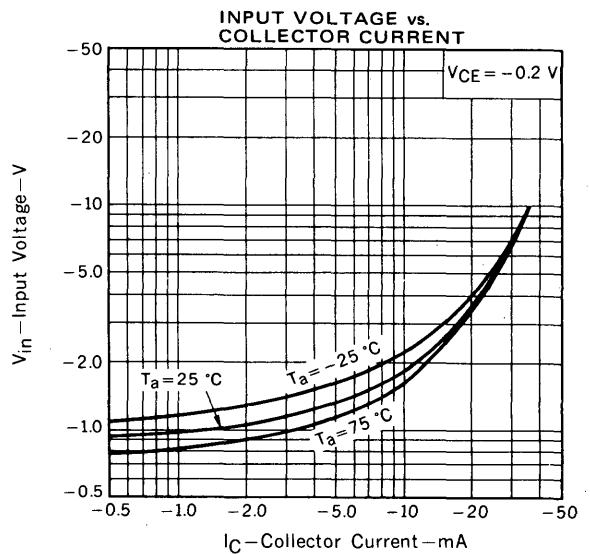
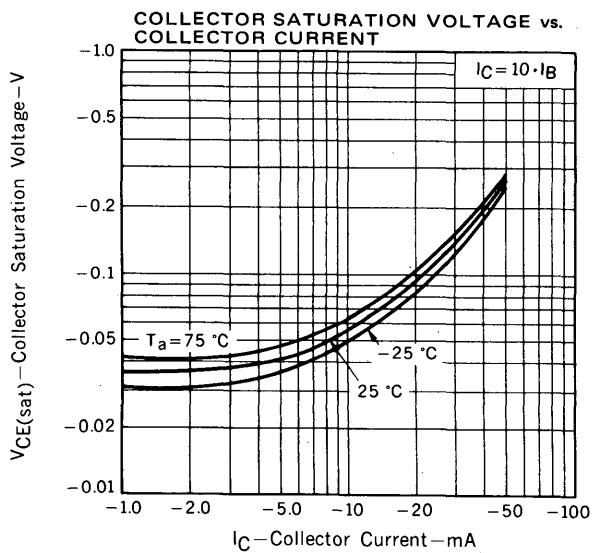
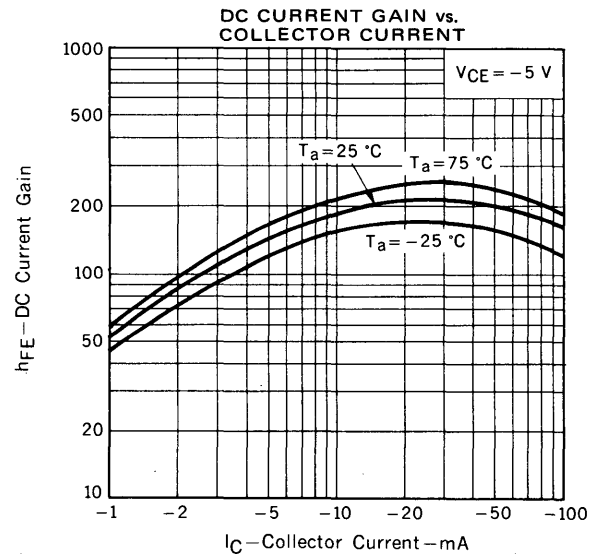
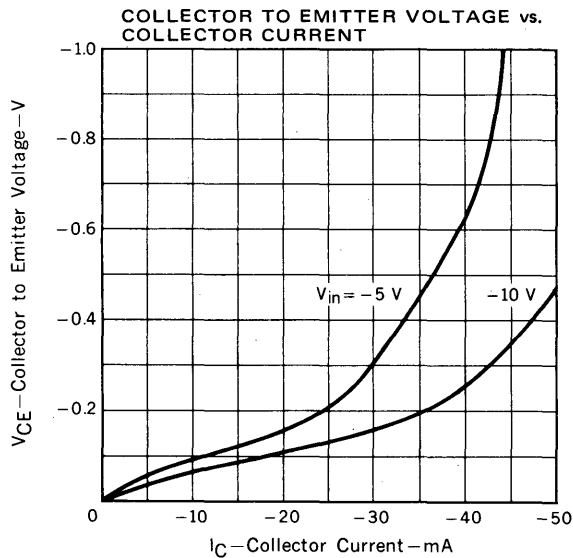
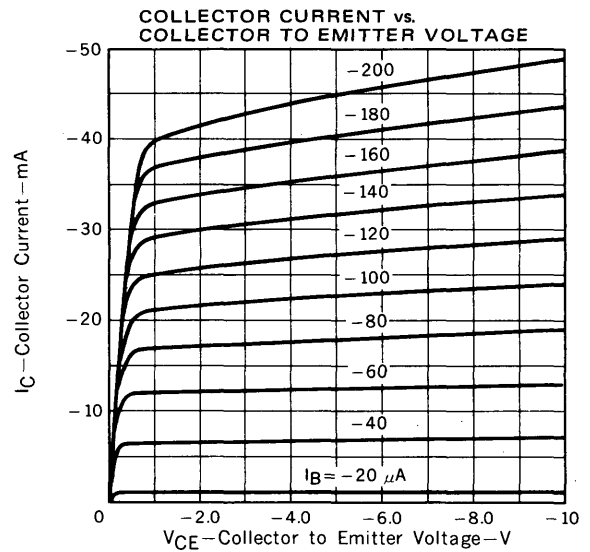
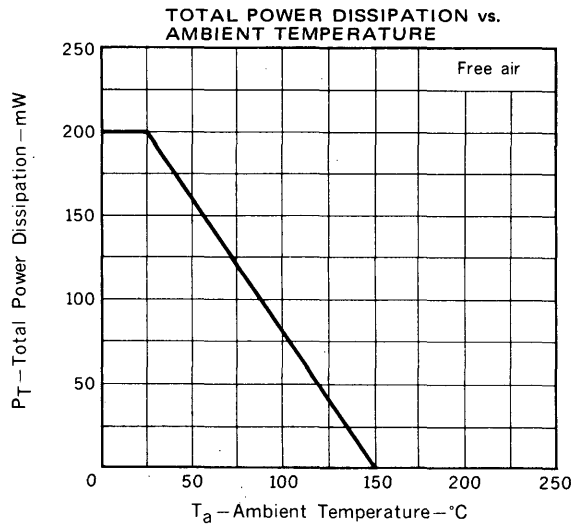
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

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

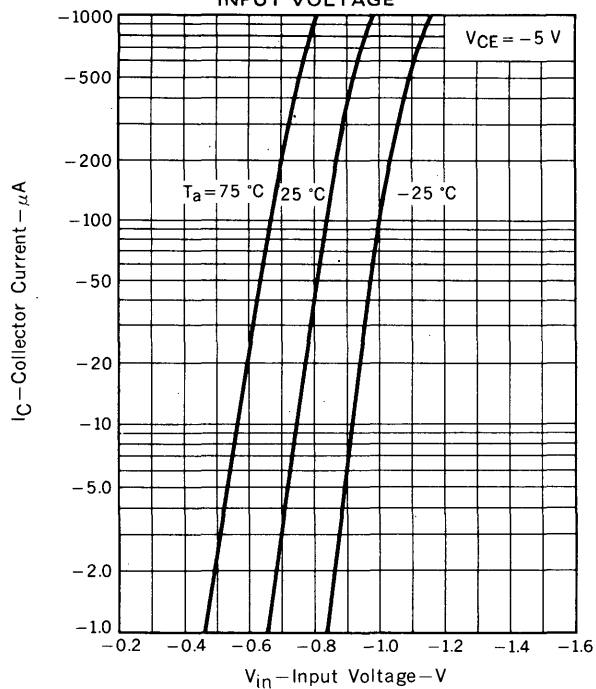
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -50 \text{ V}, I_E = 0$
DC Current Gain	h_{FE1}^*	85	150	340		$V_{CE} = -5.0 \text{ V}, I_C = -5.0 \text{ mA}$
DC Current Gain	h_{FE2}^*	95	200			$V_{CE} = -5.0 \text{ V}, I_C = -50 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		-0.04	-0.2	V	$I_C = -5.0 \text{ mA}, I_B = -0.25 \text{ mA}$
Low-Level Input Voltage	V_{IL}^*		-0.85	-0.6	V	$V_{CE} = -5.0 \text{ V}, I_C = -100 \mu\text{A}$
High-Level Input Voltage	V_{IH}^*	-3.0	-1.3		V	$V_{CE} = -0.2 \text{ V}, I_C = -5.0 \text{ mA}$
Input Resistor	R_1	15.4	22.0	28.6	$\text{k}\Omega$	
E-B Resistor	R_2	32.9	47.0	61.1	$\text{k}\Omega$	
Turn-on Time	t_{on}		0.2	0.3	μs	$V_{CC} = -5 \text{ V}, V_{in} = -5 \text{ V}$ $R_L = 1 \text{ k}\Omega$ $PW = 2 \mu\text{s}, \text{Duty Cycle} \leq 2 \%$
Storage Time	t_{stg}		1.5	5.0	μs	
Turn-off Time	t_{off}		2.0	6.0	μs	

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

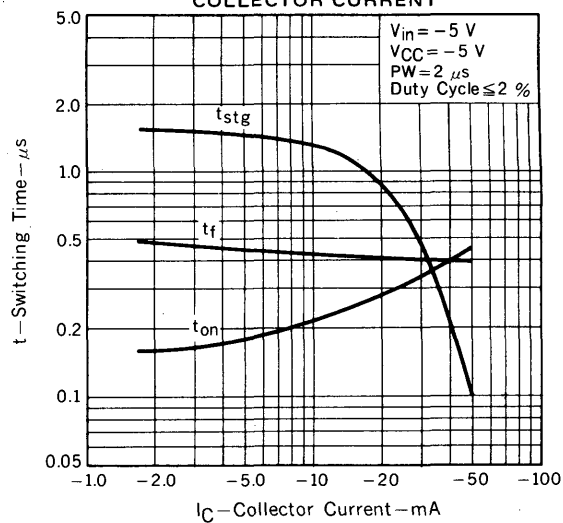
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



COLLECTOR CURRENT vs. INPUT VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



RESISTOR vs. AMBIENT TEMPERATURE

