

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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Phase-out/Discontinued

μPA76HA

DESCRIPTION

The μPA76HA is designed for use in the top stage for differential amplifier of an EQ amp. and a stereo main amp..

FEATURES

- Excellent pair balance $\Delta V_{BE} : 5.0 \text{ mV MAX.}$
@ $V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$
- High h_{FE} $h_{FE} : 400 \text{ TYP.}$
@ $V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature $-55 \text{ to } +125 \text{ }^\circ\text{C}$

Junction Temperature $125 \text{ }^\circ\text{C Maximum}$

Maximum Power Dissipation ($T_a = 25 \text{ }^\circ\text{C}$)

Total Power Dissipation 300 mW/unit

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

V_{CBO} Collector to Base Voltage 60 V

V_{CEO} Collector to Emitter Voltage 60 V

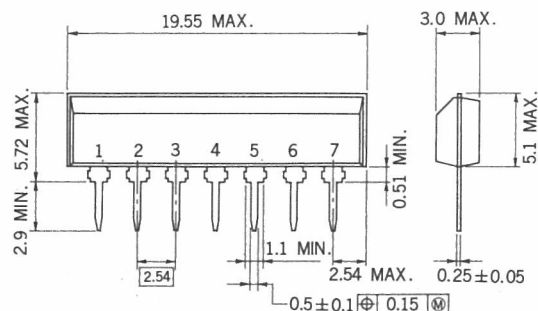
V_{EBO} Emitter to Base Voltage 5.0 V

I_C Collector Current 50 mA

I_B Base Current 10 mA

PACKAGE DIMENSIONS

in millimeters (inches)



1. Base 1
2. Collector 1
3. Emitter 1
4. Sub
5. Emitter 2
6. Collector 2
7. Base 2

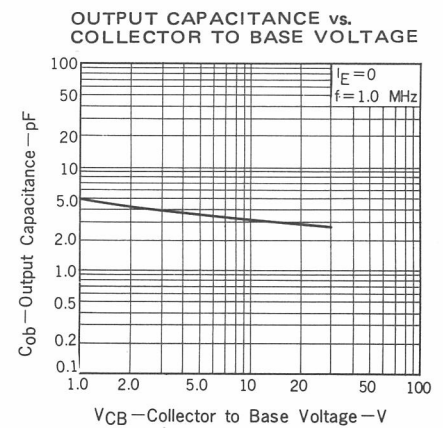
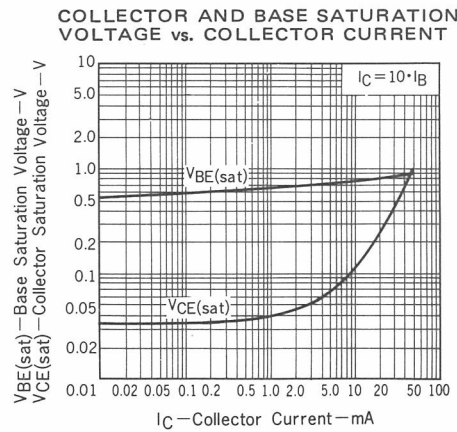
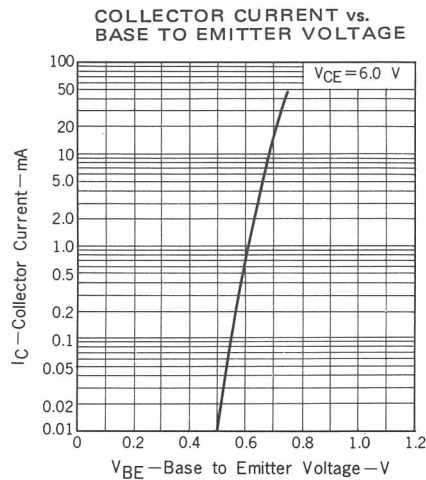
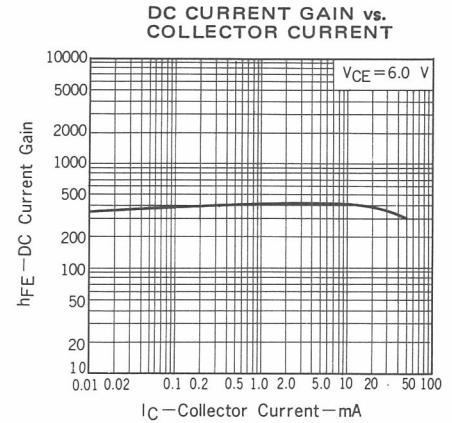
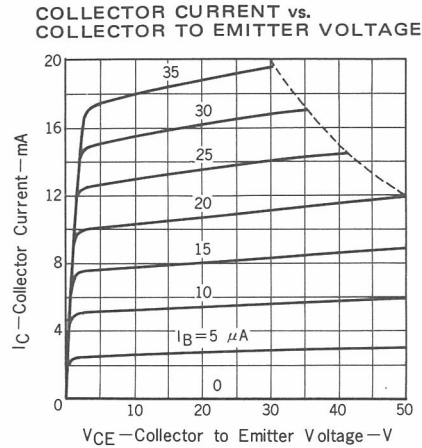
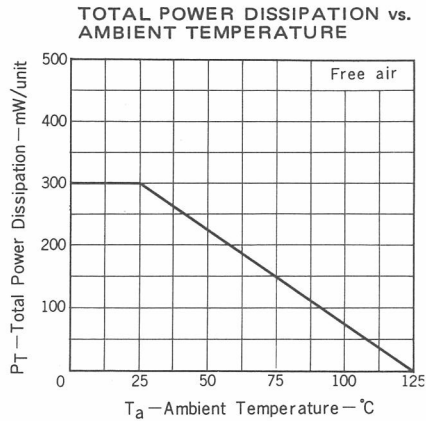
ELECTRICAL CHARACTERISTICS ($T_a = 25 \text{ }^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	150	350			$V_{CE} = 6.0 \text{ V}, I_C = 0.1 \text{ mA}$
h_{FE2}	DC Current Gain	200	400	800		$V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$
$h_{FE(S)}/h_{FE(L)}$	DC Current Gain Ratio	0.9		1.0		$V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$
ΔV_{BE}	Base to Emitter Voltage Difference		2.0	5.0	mV	$V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$ $\Delta V_{BE} = V_{BE1} - V_{BE2} $
NV	Noise Voltage			160	mV	See Test Circuit
C_{ob}	Output Capacitance		2.5		pF	$V_{CB} = 30 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$
I_{CBO}	Collector Cutoff Current			1.0	μA	$V_{CB} = 50 \text{ V}, I_E = 0$
I_{EBO}	Emitter Cutoff Current			1.0	μA	$V_{EB} = 4.0 \text{ V}, I_C = 0$
V_{BE}	Base to Emitter Voltage	0.55		0.65	V	$V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$
$V_{CE(sat)}$	Collector Saturation Voltage			0.3	V	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$

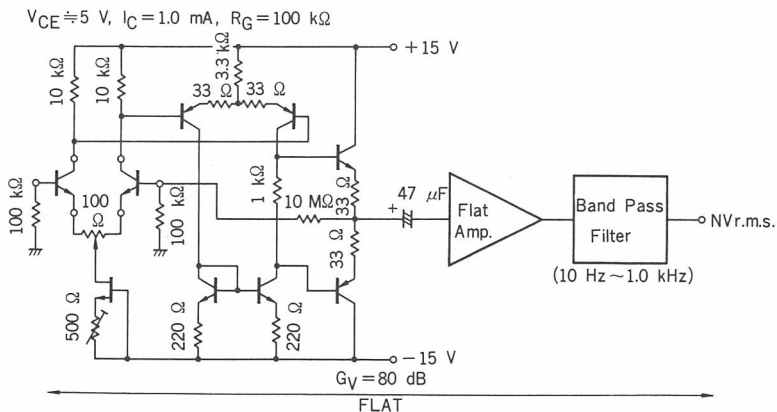
Classification of h_{FE2}

Rank	P	F	E
Range	200 — 400	300 — 600	400 — 800

Test Conditions : $V_{CE} = 6.0 \text{ V}, I_C = 1.0 \text{ mA}$

Phase-out/DiscontinuedTYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

NV TEST CIRCUIT



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