NEC
ELECTRON DEVICE

NPN SILICON TWIN TRANSISTOR

Phase-out/Discontinued

μPA74HA

DESCRIPTION

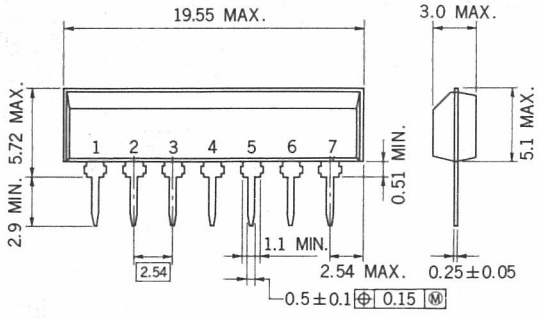
The μPA74HA is designed for use in the top stage for differential amplifier of an EQ amp. and a stereo main amp.

FEATURES

- Excellent pair balance — ΔV_{BE} : 5.0 mV MAX.
  @ V_{CE} = 6.0 V, I_C = 1.0 mA
- High h_{FE} — h_{FE} : 400 TYP.
  @ V_{CE} = 6.0 V, I_C = 1.0 mA
- High breakdown voltage — V_{CEO} : 80 V MIN.

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

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

- Storage Temperature . . . . . −55 to +125 °C
- Junction Temperature . . . . . 125 °C Maximum

Maximum Power Dissipation (T_a = 25 °C)

- Total Power Dissipation . . . . . 300 mW/unit

Maximum Voltages and Currents (T_a = 25 °C)

- V_{CBO} Collector to Base Voltage . . . . . 80 V
- V_{CEO} Collector to Emitter Voltage . . . . . 80 V
- V_{EBO} Emitter to Base Voltage . . . . . 5.0 V
- I_C Collector Current . . . . . 50 mA
- I_B Base Current . . . . . 10 mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	150	350			V_{CE}=6.0 V, I_C=0.1 mA
h_{FE2}	DC Current Gain	200	400	800		V_{CE}=6.0 V, I_C=1.0 mA
$h_{FE(S)}/h_{FE(L)}$	DC Current Gain Ratio	0.9		1.0		V_{CE}=6.0 V, I_C=1.0 mA
ΔV_{BE}	Base to Emitter Voltage Difference		2.0	5.0	mV	V_{CE}=6.0 V, I_C=1.0 mA $\Delta V_{BE} = \lvert V_{BE1} - V_{BE2} \rvert$
NV	Noise Voltage			80	mV	See Test Circuit
C_{ob}	Output Capacitance		2.5		pF	V_{CB}=30 V, I_E=0, f=1.0 MHz
I_{CBO}	Collector Cutoff Current			1.0	μA	V_{CB}=70 V, I_E=0
I_{EBO}	Emitter Cutoff Current			1.0	μA	V_{EB}=4.0 V, I_C=0
V_{BE}	Base to Emitter Voltage	0.55		0.65	V	V_{CE}=6.0 V, I_C=1.0 mA
$V_{CE(sat)}$	Collector Saturation Voltage			0.3	V	I_C=10 mA, I_B=1.0 mA

Classification of h_{FE2}

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

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

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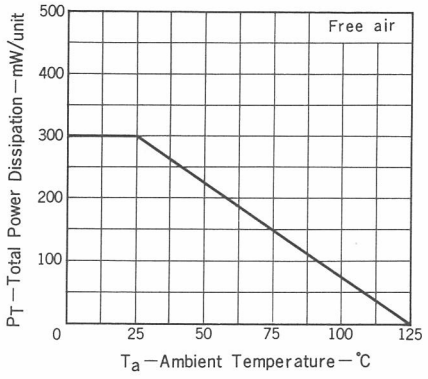
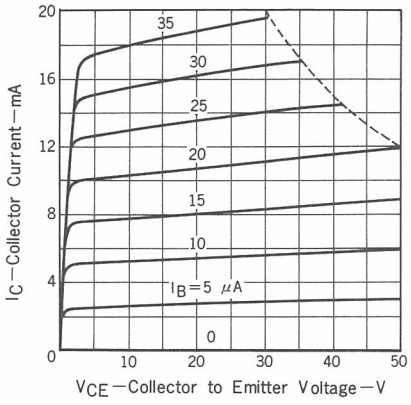
TYPICAL CHARACTERISTICS (T_a = 25 °C)

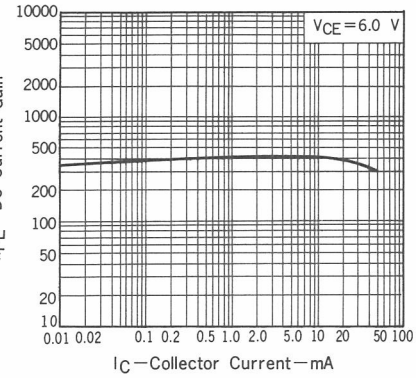
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



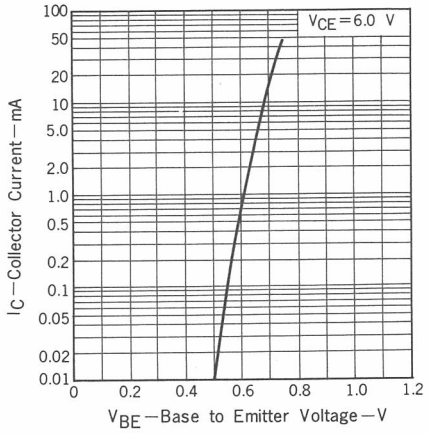
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



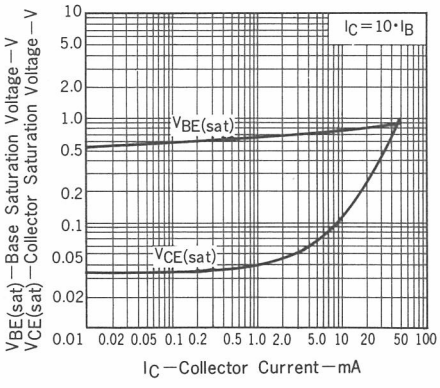
DC CURRENT GAIN vs. COLLECTOR CURRENT



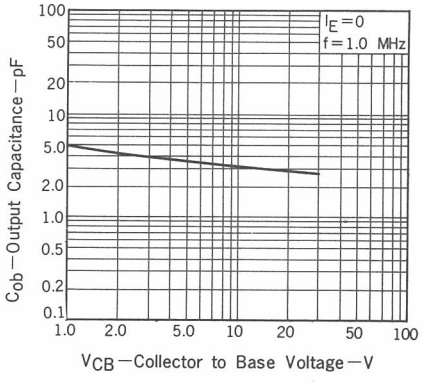
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



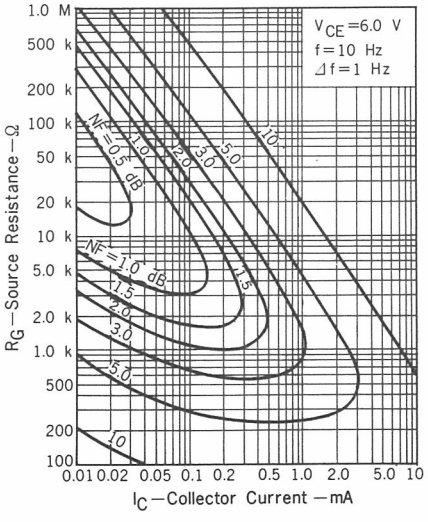
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



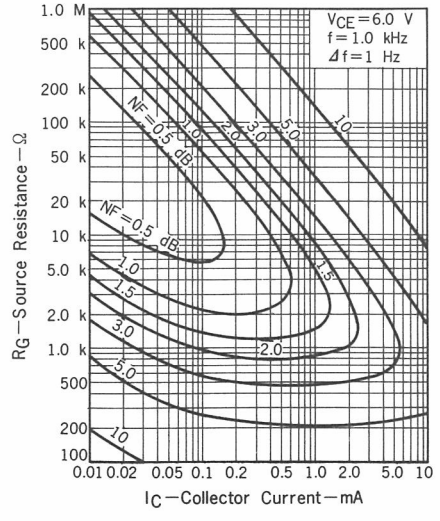
OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



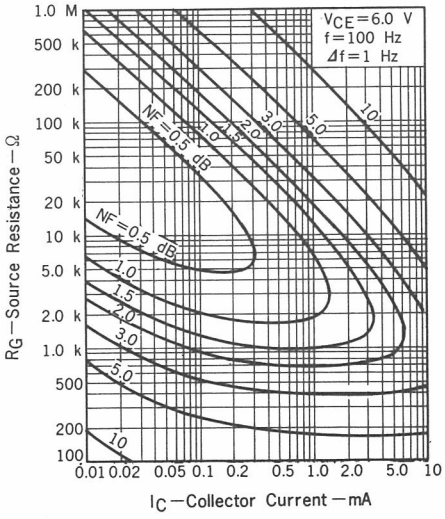
NF MAP 1



NF MAP 2



NF MAP 3



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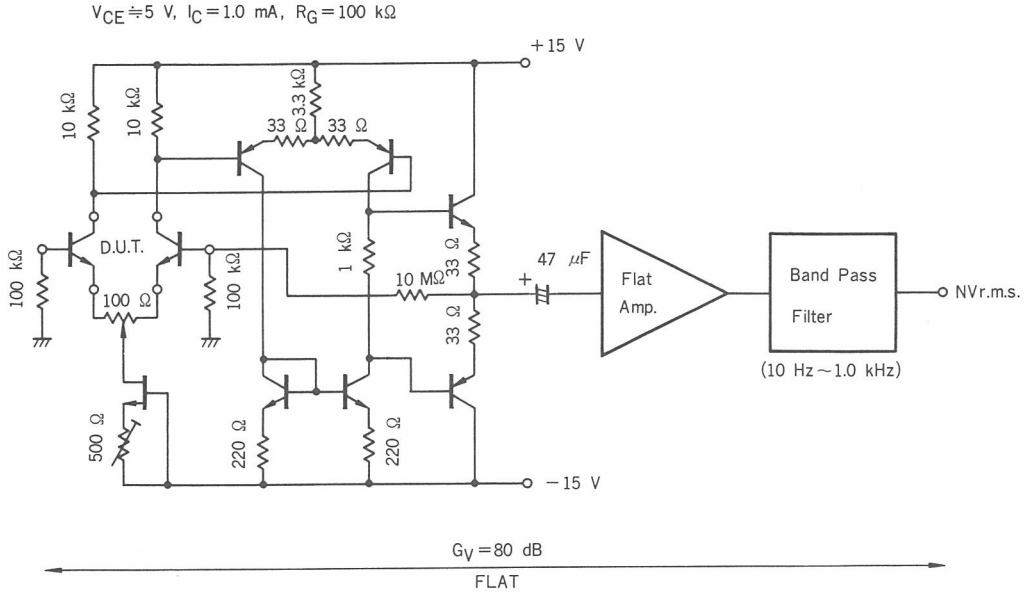
NV TEST CIRCUIT



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