

**MH 8100****MH 0810****COMPLEMENTARY EPITAXIAL TRANSISTORS FOR 3-5W AF OUTPUT****MICRO ELECTRONICS**

The MH8100 (NPN), MH0810 (PNP) are complementary silicon planar epitaxial transistors designed for the output stages of 3-5 watt audio amplifiers. They are also suitable for switches up to 3A collector current.

CASE
TO-220B



BCE

ABSOLUTE MAXIMUM RATINGS:

For p-n-p devices, voltage and current values are negative.

Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}	35V
Collector-Emitter Voltage (Base Open)	V_{CEO}	30V
Emitter-Base Voltage	V_{EBQ}	5V
Collector Current	I_C	3A
Collector Peak Current ($t \leq 10\text{ms}$)	I_{CM}	5A
Total Power Dissipation ($T_C \leq 25^\circ\text{C}$)	P_{Tot}	12W
Junction Temperature	T_j	150°C
Storage Temperature Range	T_{stg}	-55 to $+150^\circ\text{C}$

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	LV_{CEO}	30			V	$I_C = 50\text{mA}$ $I_B = 0$
Collector Cutoff Current	I_{CES}			1	μA	$V_{CE} = 35\text{V}$ $V_{BE} = 0$
Emitter Cutoff Current	I_{EBO}			1	μA	$V_{EB} = 5\text{V}$ $I_C = 0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.8	V	$I_C = 2\text{A}$ $I_B = 0.2\text{A}$
Base-Emitter Voltage	V_{BE}			1	V	$I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$
D.C. Current Gain	$*H_{FE1}$	40		240		$I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$
	H_{FE2}	30				$I_C = 0.01\text{A}$ $V_{CE} = 2\text{V}$
Current Gain-Bandwidth Product	f_T	30	100		MHz	$I_C = 0.2\text{A}$ $V_{CE} = 4\text{V}$

* H_{FE1} is classified as follows.

Group A : 40-80

Group B : 70-140

Group C : 120-240

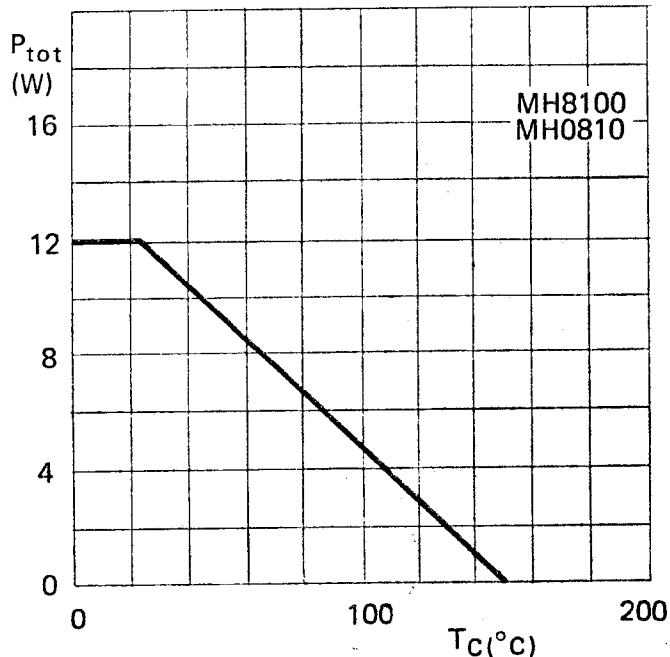
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KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"
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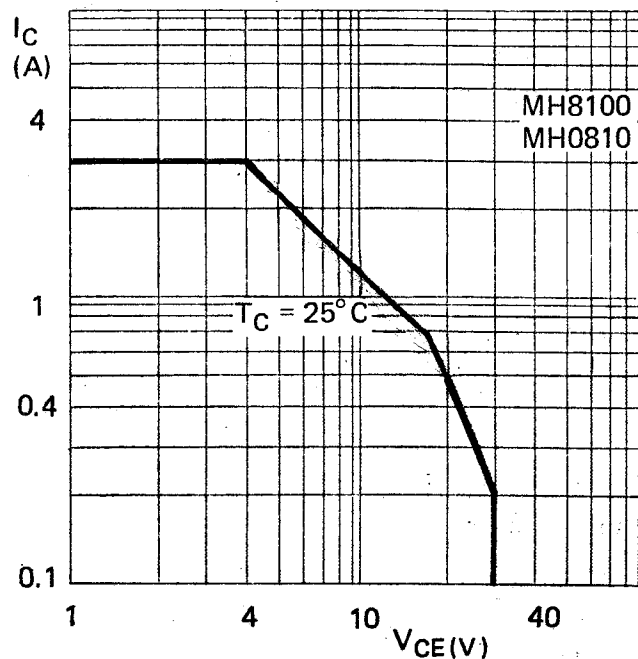
FAX: 3-410321

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED)

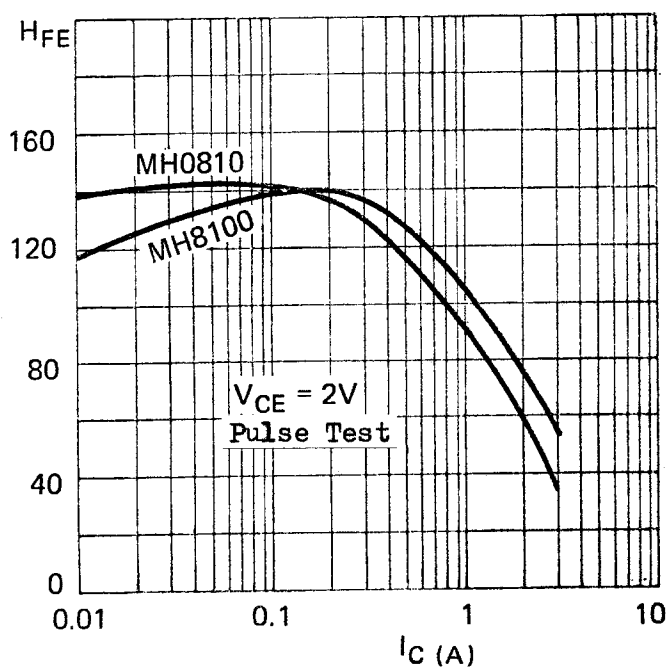
RATED POWER vs CASE TEMPERATURE



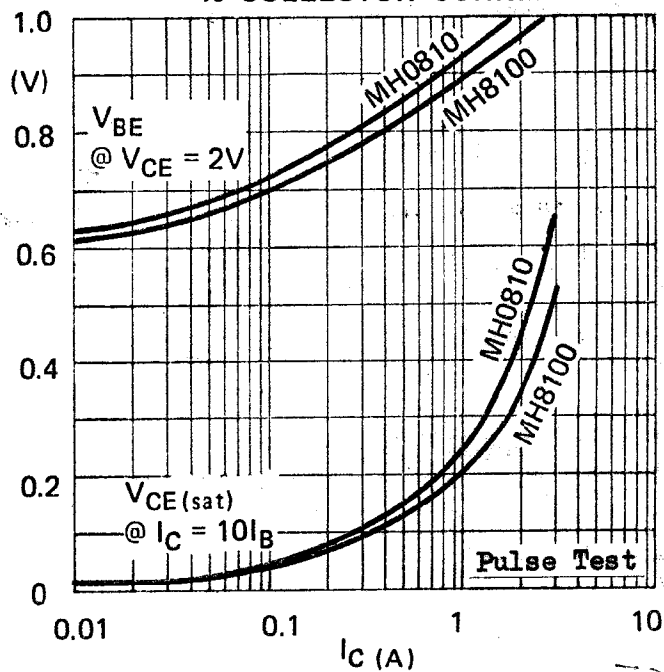
SAFE OPERATING AREA (D.C.)

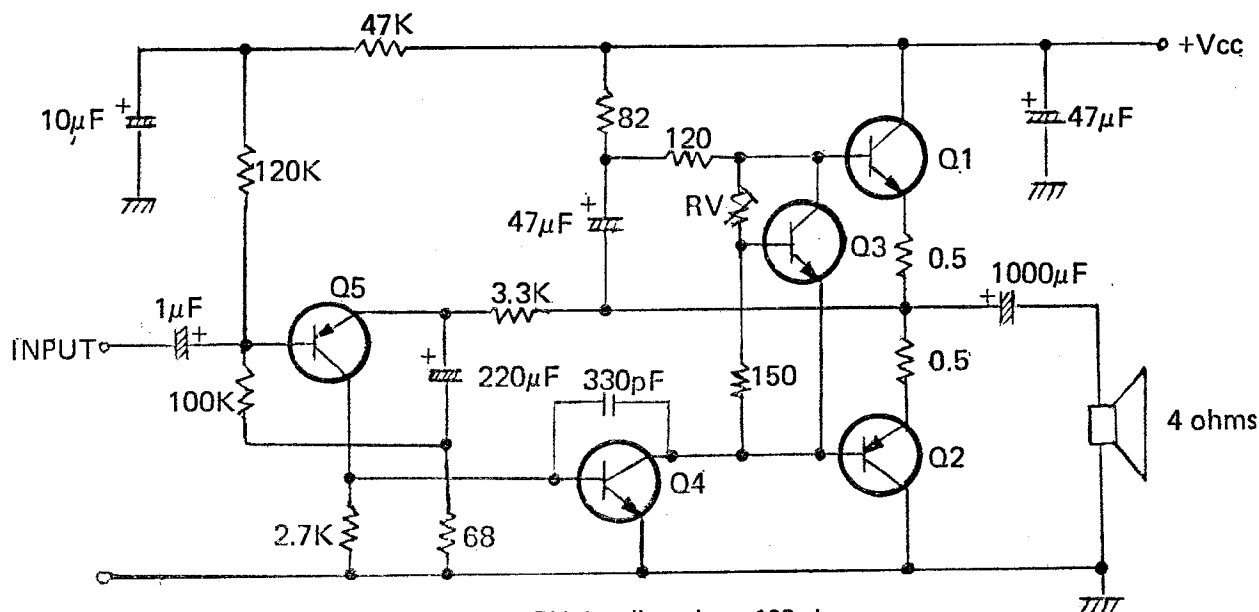


D.C. CURRENT GAIN vs COLLECTOR CURRENT



V_{BE} AND $V_{CE(sat)}$ vs COLLECTOR CURRENT



APPLICATION 1: 3W OTL AUDIO AMPLIFIER

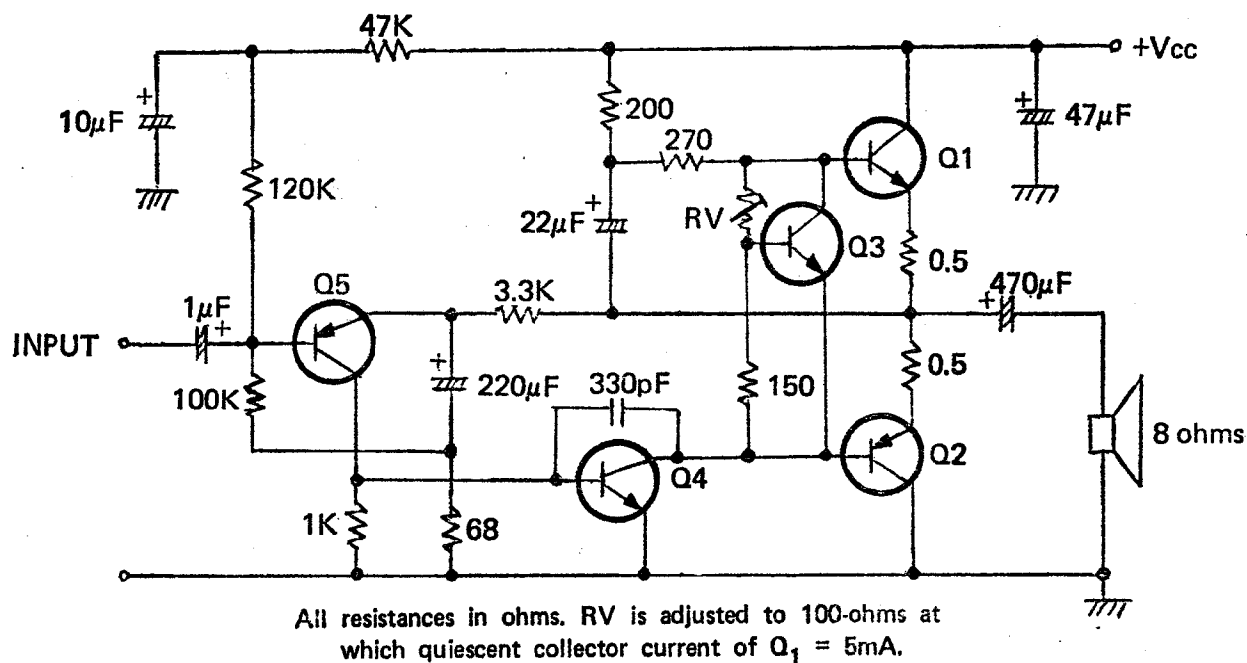
All resistances in ohms. RV is adjusted to 100-ohms at which quiescent collector current of $Q_1 = 5\text{mA}$.

TRANSISTORS

Q_1	:	MH8100, H_{FE} GROUP B to C, mounted on heat sink.
Q_2	:	MH0810, H_{FE} GROUP B to C, mounted on heat sink.
Q_3	:	BC238, H_{FE} GROUP B.
Q_4	:	BC338, any H_{FE} GROUP.
Q_5	:	BC308, H_{FE} GROUP B to C.

CIRCUIT PERFORMANCE

Supply Voltage	:	13.2V (16V @ no signal)
Max Undistorted Output	:	3W @ 1KHz
Input Sensitivity	:	84mV @ 3W output
Input Impedance	:	90K ohms @ 1KHz
Frequency Response	:	37Hz to 55KHz, -3dB
Total Harmonic Distortion	:	less than 1% @ 2W output, 1KHz
Current Drain	:	42mA @ no signal 440mA @ 3W output

APPLICATION 2: 5W OTL AUDIO AMPLIFIER**TRANSISTORS**

Q_1	:	MH8100, H_F GROUP B to C, mounted on heat sink.
Q_2	:	MH0810, H_{FE} GROUP B to C, mounted on heat sink.
Q_3	:	BC238, H_{FE} GROUP B.
Q_4	:	BC338, any H_{FE} GROUP.
Q_5	:	BC308, H_{FE} GROUP B to C.

CIRCUIT PERFORMANCE

Supply Voltage	:	22V (25V @ no signal)
Max Undistorted Output	:	5.5W @ 1KHz
Input Sensitivity	:	140mV @ 5W
Input Impedance	:	105K ohms @ 1KHz
Frequency Response	:	33Hz to 65KHz, -3dB
Total Harmonic Distortion	:	less than 2% @ 5W output, 1KHz
Current Drain	:	32mA @ no signal 390mA @ 5W output