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_{EBO}	5V
Collector Current	I_C	3A
Collector Peak Current (t ≤ 10mS)	I_{CM}	5A
Total Power Dissipation ($T_C \leq 25^\circ C$)	P_{tot}	12W
Junction Temperature	T_j	150°C
Storage Temperature Range	T_{stg}	–55 to +150°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

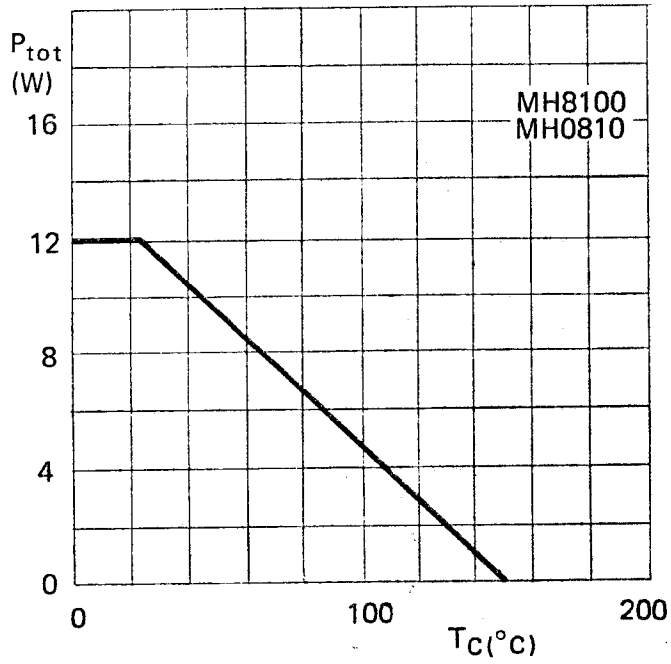
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	LV_{CEO}	30			V	I_C =50mA I_B =0
Collector Cutoff Current	I_{CES}			1	μA	V_{CE} =35V V_{BE} =0
Emitter Cutoff Current	I_{EBO}			1	μA	V_{EB} =5V I_C =0
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.8	V	I_C =2A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

*$H_{FE\,1}$ is classified as follows. Group A : 40–80 Group B : 70–140
Group C : 120–240

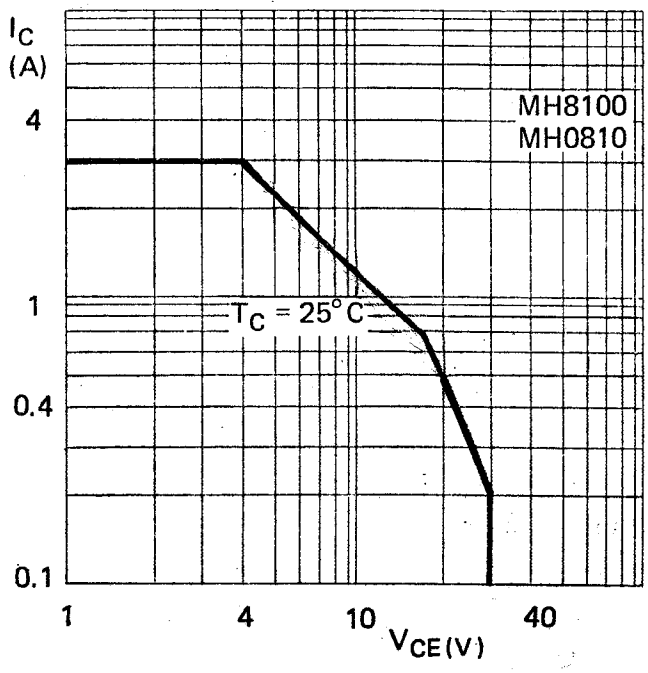
MICRO ELECTRONICS LTD. 98 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX69477 CABLE ADDRESS "MICROTRON"
TELEPHONE:- 3-430181-6 ~~3-893363~~, ~~3-892423~~
FAX: 3-410321

TYPICAL CHARACTERISTICS (T_A=25°C UNLESS OTHERWISE SPECIFIED)

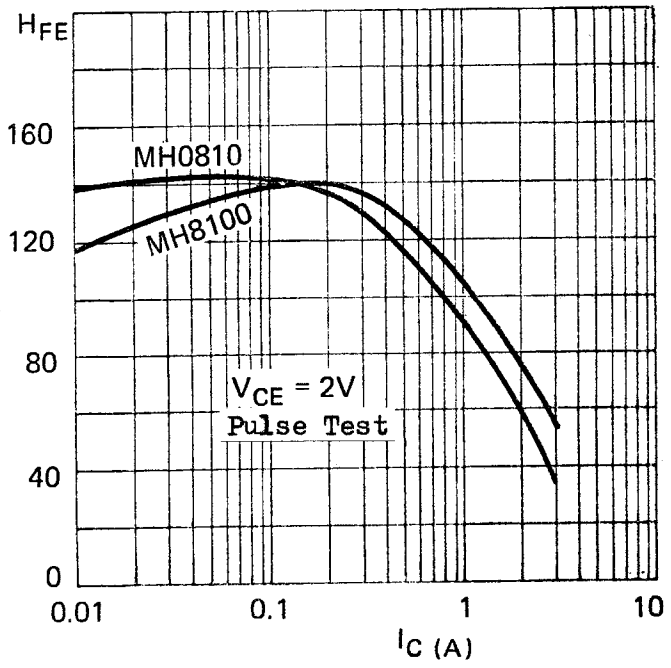
RATED POWER vs CASE TEMPERATURE



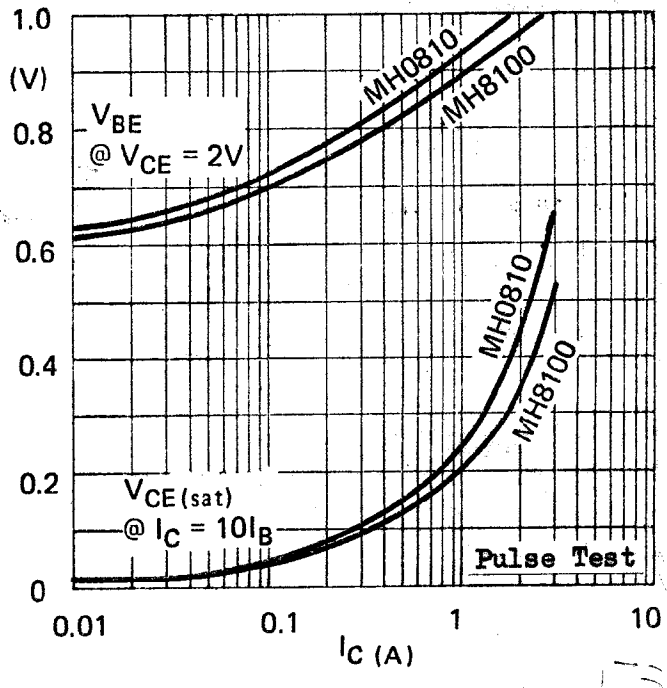
SAFE OPERATING AREA (D.C.)



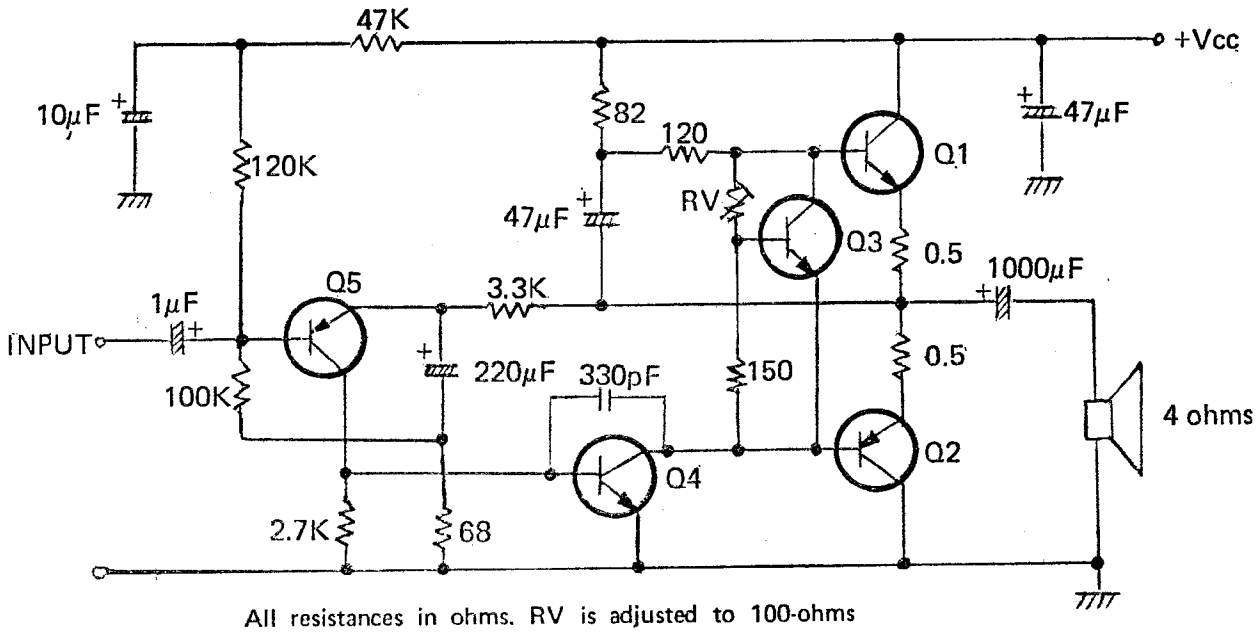
D.C. CURRENT GAIN vs COLLECTOR CURRENT



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 = 5mA.

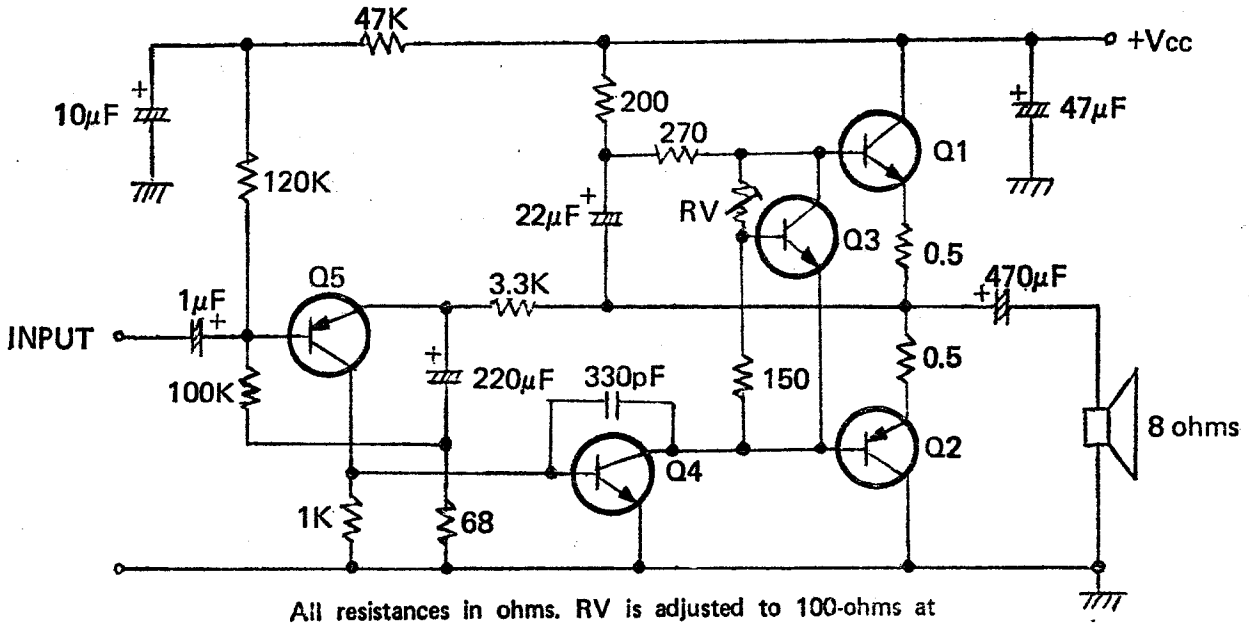
TRANSISTORS

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



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

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