

MITSUBISHI RF POWER MODULE M67710H

150~175MHz, 9.6V 5W FM PORTABLE RADIO

DESCRIPTION

M67710H is a thick film RF power module specifically designed for 150 ~ 175MHz, 5W FM portable sets.

FEATURES

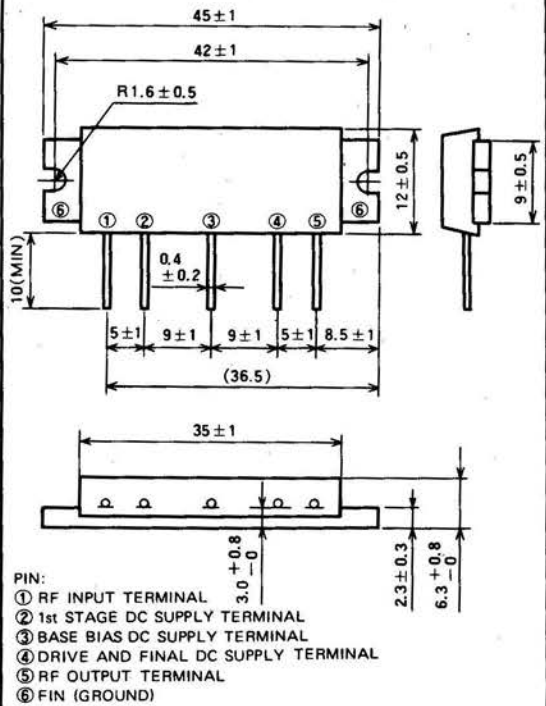
- High gain, High output power
 $G_p \geq 21\text{dB}$ $P_o \geq 7\text{W}$, @ $V_{CC} = 9.6\text{V}$, $P_{in} = 50\text{mW}$
- High total efficiency
 $\eta_T = 45\%$ TYP, 40% MIN @ $V_{CC} = 9.6\text{V}$, $P_{in} = 50\text{mW}$
- Small package: 45 x 12 x 6.3mm

APPLICATION

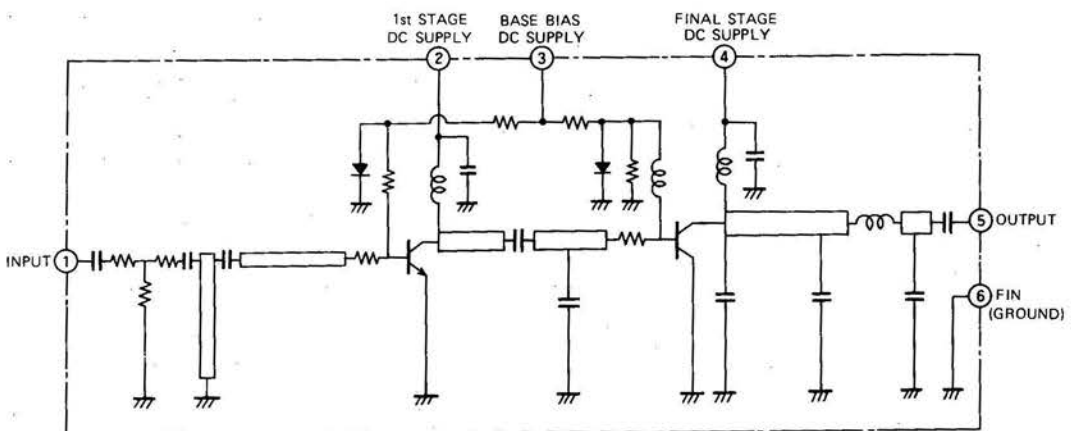
Output stage of 5W output VHF band portable radio sets.
 (especially 9.6V battery sets)

OUTLINE DRAWING

Dimensions in mm



EQUIVALENT CIRCUIT



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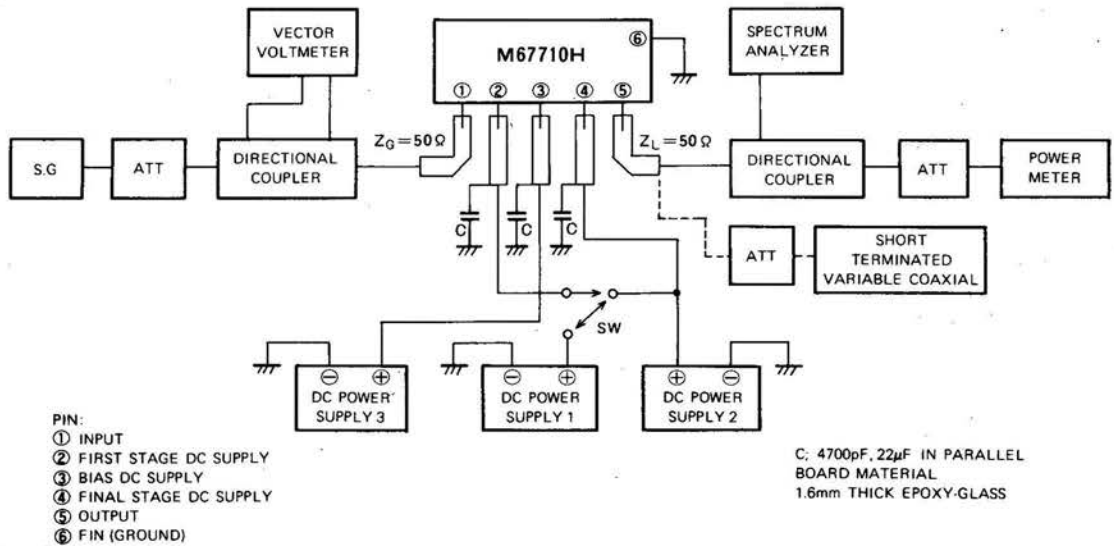
ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		16	V
V_{BB}	DC bias voltage		6	V
I_{CC}	Total current		4	A
$P_{in(max)}$	Input power	$Z_G = Z_L = 50\ \Omega$	80	mW
$P_o(max)$	Output power	$Z_G = Z_L = 50\ \Omega$	10	W
T_{OP}	Operation case temperature		-30 ~ -110	$^\circ\text{C}$
T_{stg}	Storage temperature		-40 ~ -110	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
P_o	Output power	$V_{CC} = 9.6\text{V}, V_{BB} = 5\text{V}, f = 150 \sim 175\text{MHz}$ $P_{in} = 50\text{mW}, Z_G = Z_L = 50\ \Omega$	7	8		W
η_T	Total efficiency		40	45		%
—	2nd harmonic				-20	dB
—	3rd harmonic				-30	dB
ρ_{in}	Input VSWR			1.5	2.5	—
ρ_{out}	Output VSWR		1.5		—	
—	Load VSWR tolerance	$V_{CC1} = V_{CC2} = 13\text{V}, V_{BB} = 5\text{V}, f = 150 \sim 175\text{MHz}$ $P_o = 7\text{W}, \rho_L \geq 20$ (All phase), $Z_G = 50\ \Omega$	20 : 1			—

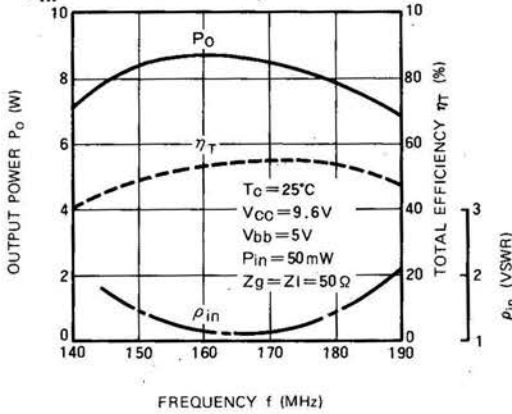
TEST BLOCK DIAGRAM



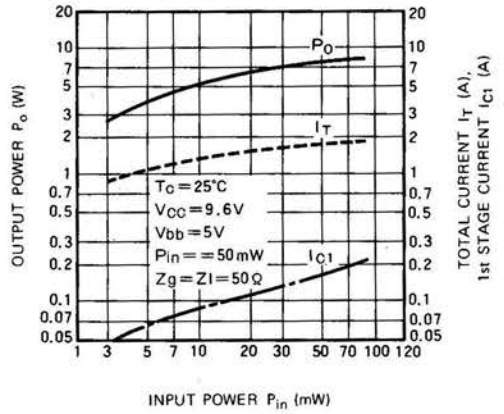
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TYPICAL PERFORMANCE DATA

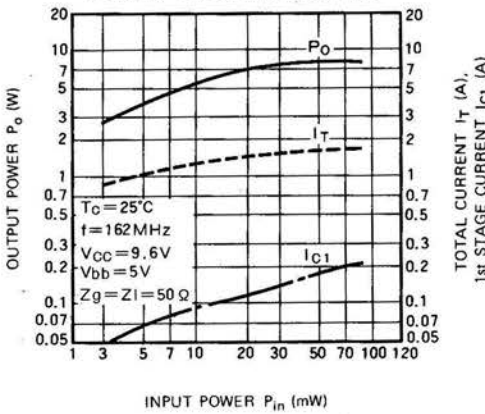
OUTPUT POWER, TOTAL EFFICIENCY, ρ_{in} VS. FREQUENCY CHARACTERISTICS



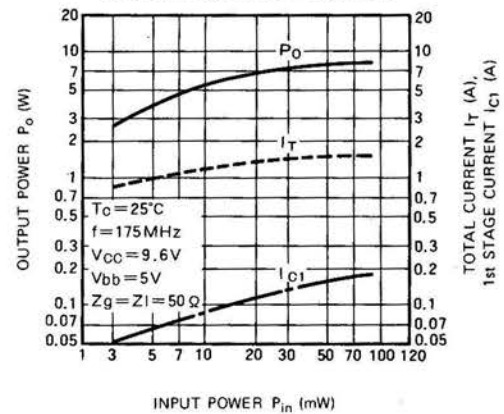
OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. INPUT POWER CHARACTERISTICS



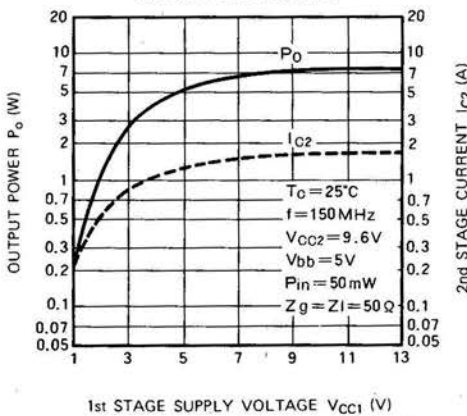
OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. INPUT POWER CHARACTERISTICS



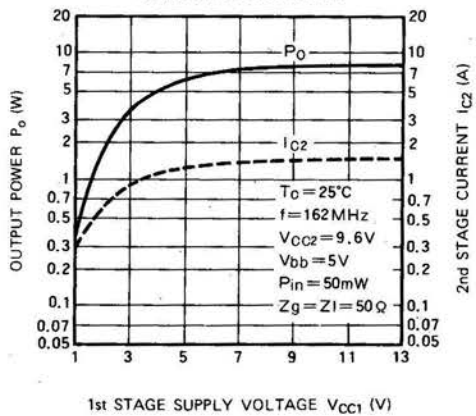
OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. INPUT POWER CHARACTERISTICS



OUTPUT POWER, 2nd STAGE CURRENT VS. 1st STAGE SUPPLY VOLTAGE CHARACTERISTICS

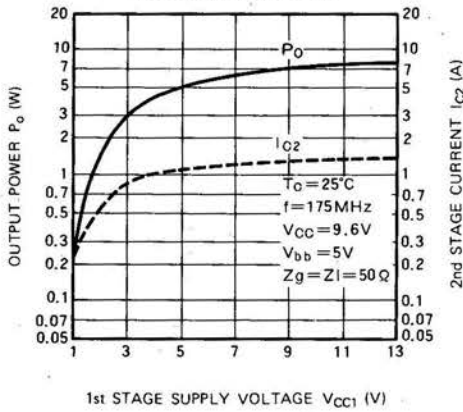


OUTPUT POWER, 2nd STAGE CURRENT VS. 1st STAGE SUPPLY VOLTAGE CHARACTERISTICS



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OUTPUT POWER, 2nd STAGE CURRENT VS. 1st STAGE SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. SUPPLY VOLTAGE CHARACTERISTICS

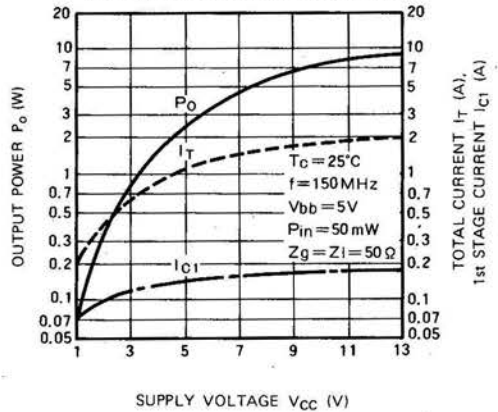
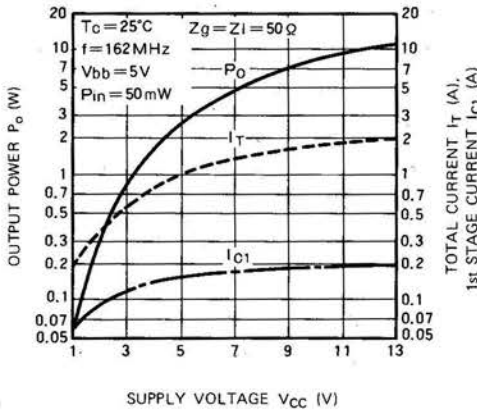
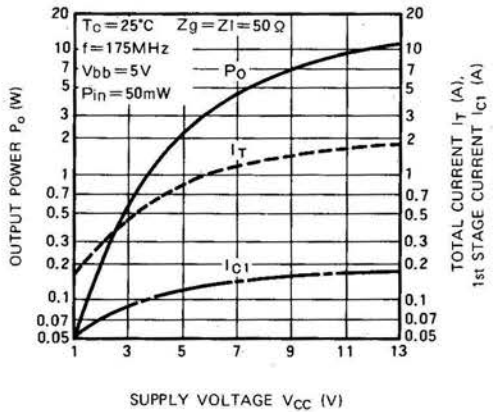


Fig. 9 OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT, 1st STAGE CURRENT VS. SUPPLY VOLTAGE CHARACTERISTICS



2nd, 3rd HARMONIC VS. FREQUENCY CHARACTERISTICS

