



Island Labs

MITSUBISHI RF POWER MODULE M67705L

400~430MHz 5W FM PORTABLE RADIO

DESCRIPTION

M67705L is a thick film RF power module specifically designed for 400 ~ 430MHz, 5W FM portable sets.

FEATURES

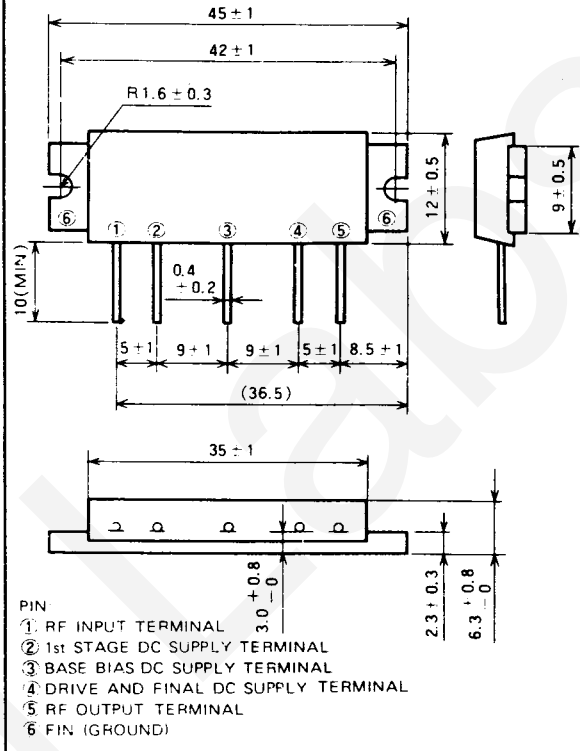
- Wide band: 30MHz, $f = 400 \sim 430\text{MHz}$
- High total efficiency
 $\eta_T \geq 40\% \text{ MIN}$
- High gain, High output
 $G_p \geq 25\text{dB}$, $P_o \geq 7\text{W}$, $@V_{CC} = 9.6\text{V}$, $P_{in} = 20\text{mW}$
- Small package: 45 x 12 x 6.3mm

APPLICATION

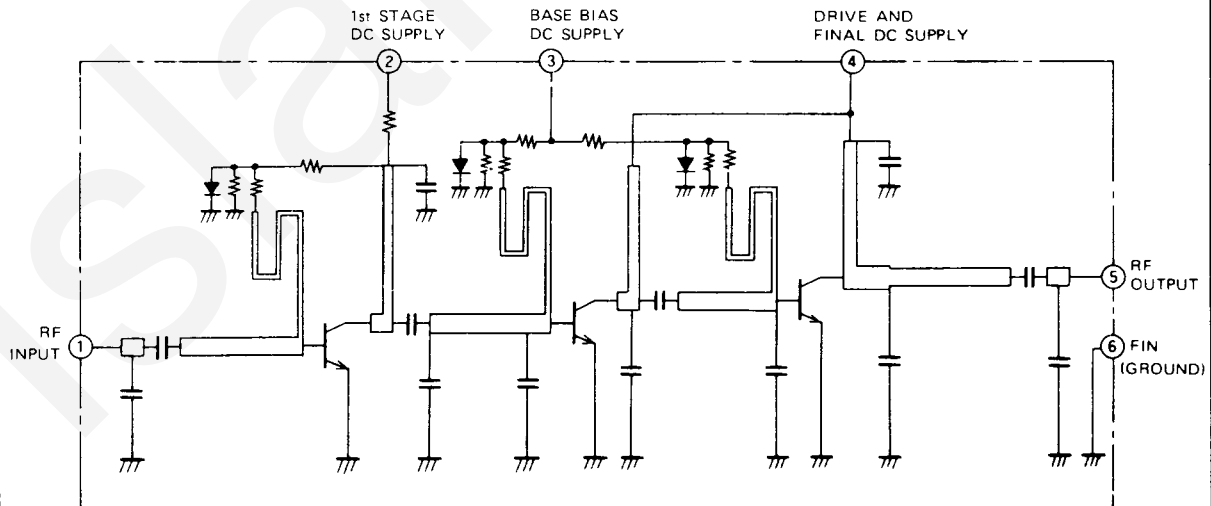
Output stage of 5W output UHF band portable radio sets.

OUTLINE DRAWING

Dimensions in mm



EQUIVALENT CIRCUIT



MITSUBISHI RF POWER MODULE
M67705L

400~430MHz 5W FM PORTABLE RADIO

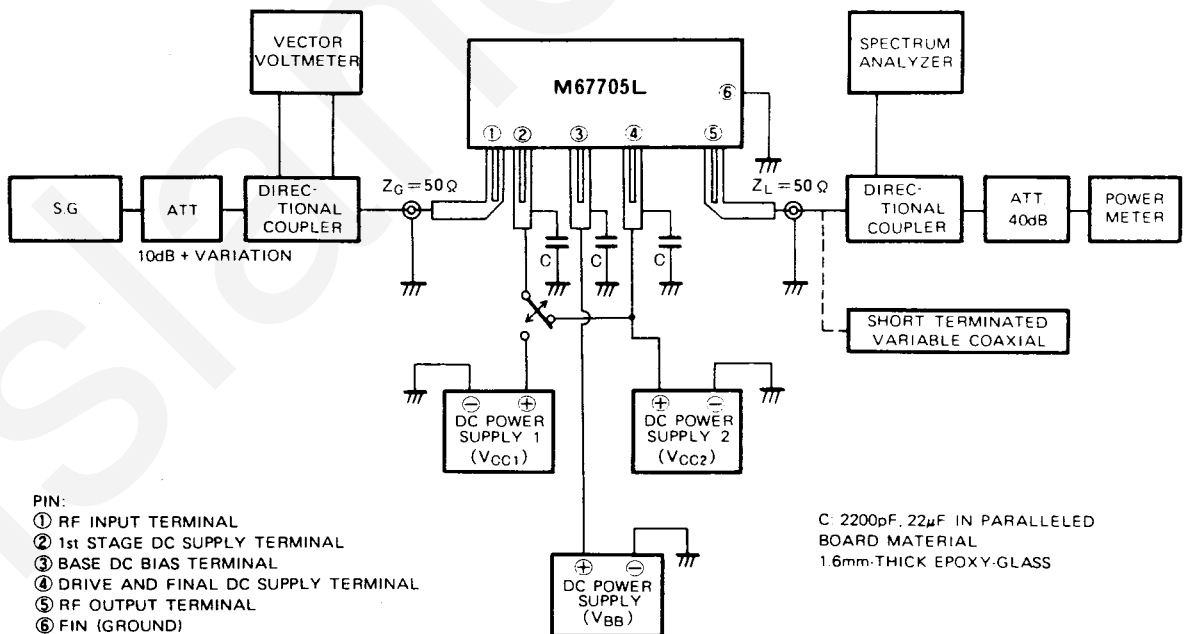
ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	DC Supply voltage		13	V
V_{BB}	Base DC bias voltage		6	V
I_{CC}	Total current		4	A
$P_{in(max)}$	Input power	$Z_G = Z_L = 50\ \Omega$	40	mW
$P_o(max)$	Output power	$Z_G = Z_L = 50\ \Omega$	10	W
$T_c(OP)$	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)

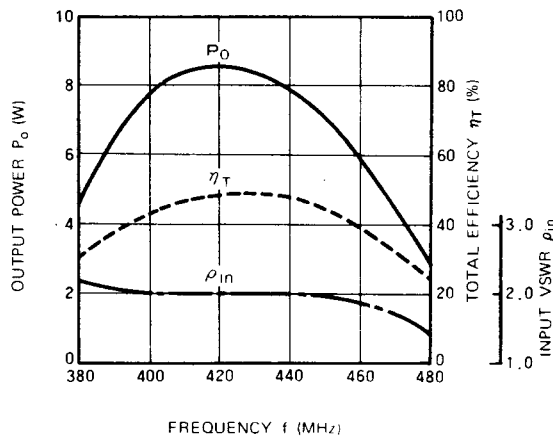
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
P_o	Output power	$V_{CC} = 9.6\text{V}$, $V_{BB} = 5\text{V}$, $f = 490 \sim 430\text{MHz}$ $P_{in} = 20\text{mW}$, $Z_G = Z_L = 50\ \Omega$	7	8		W
η_T	Total efficiency		40	45		%
—	2nd harmonic				-25	dB
—	3rd harmonic				-30	dB
ρ_{in}	Input VSWR			1.5	2.5	—
ρ_{out}	Output VSWR			1.5		—
—	Load VSWR tolerance	$V_{CC1} = V_{CC2} = 9.6\text{V}$, $V_{BB} = 5\text{V}$, $f = 400 \sim 430\text{MHz}$, $P_o = 7\text{W}$, $\rho_L \geq 20$ (All phase), $Z_G = 50\ \Omega$	20 : 1			—

TEST BLOCK DIAGRAM

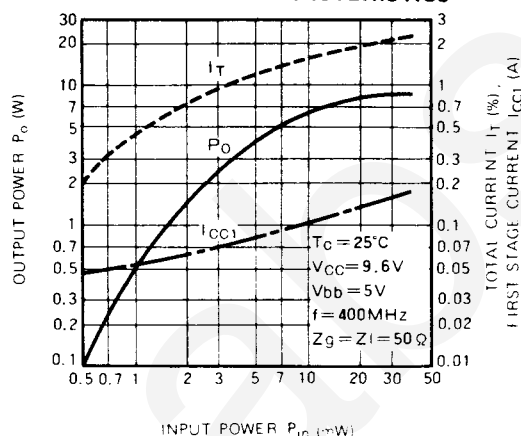


400~430MHz 5W FM PORTABLE RADIO

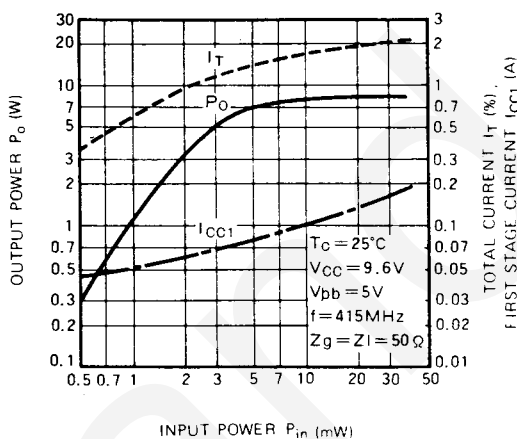
TYPICAL PERFORMANCE DATA
OUTPUT POWER, TOTAL EFFICIENCY,
INPUT VSWR VS. FREQUENCY
CHARACTERISTICS



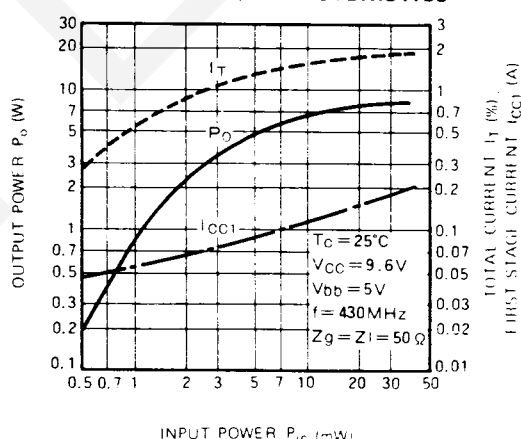
OUTPUT POWER, TOTAL CURRENT,
FIRST STAGE CURRENT VS.
INPUT POWER CHARACTERISTICS



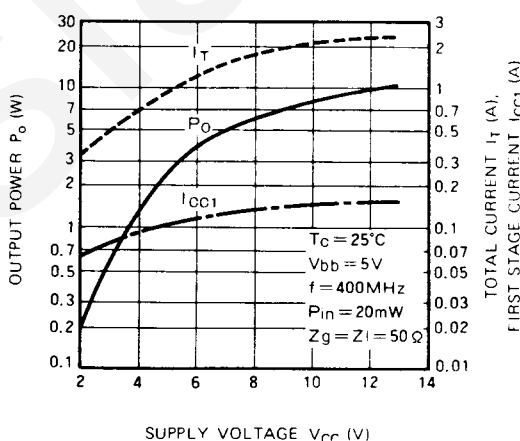
OUTPUT POWER, TOTAL CURRENT
FIRST STAGE CURRENT VS.
INPUT POWER CHARACTERISTICS



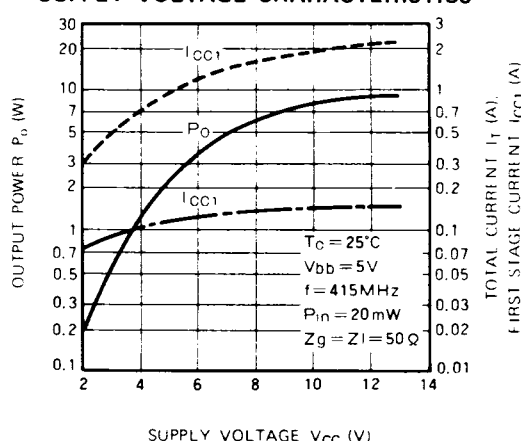
OUTPUT POWER, TOTAL CURRENT,
FIRST STAGE CURRENT VS.
INPUT POWER CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT,
FIRST STAGE CURRENT VS.
SUPPLY VOLTAGE CHARACTERISTICS

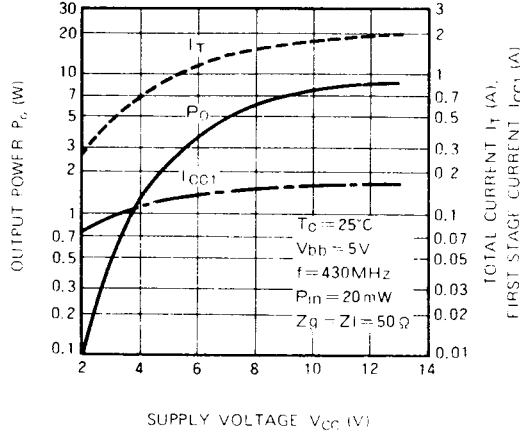


OUTPUT POWER, TOTAL CURRENT,
FIRST STAGE CURRENT VS.
SUPPLY VOLTAGE CHARACTERISTICS

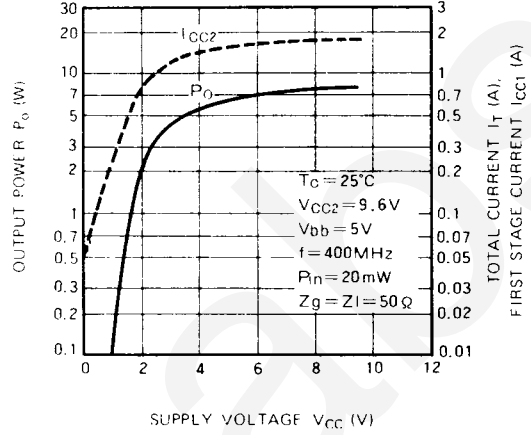


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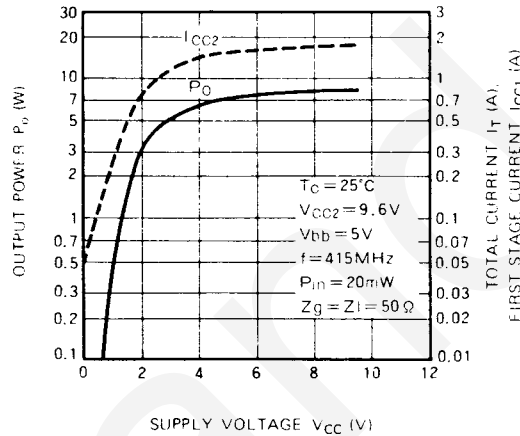
**OUTPUT POWER, TOTAL CURRENT,
 FIRST STAGE CURRENT VS.
 SUPPLY VOLTAGE CHARACTERISTICS**



**OUTPUT POWER, FINAL SUPPLY
 VS. FIRST STAGE CURRENT
 CHARACTERISTICS**



**OUTPUT POWER, FIRST STAGE CURRENT
 VS. FIRST STAGE SUPPLY VOLTAGE
 CHARACTERISTICS**



**OUTPUT POWER, FINAL STAGE CURRENT
 VS. FIRST STAGE SUPPLY VOLTAGE
 CHARACTERISTICS**

