■ ADJUSTMENT

1. Receiving Unit

Item	Adjustment Point	Adjustment Method	SPEC.
1. Local OSC	L3, 4 (MAIN PCB) Measurement point Q3 base-C16	1. Grounding between R23 and Q6 collector is required. 2. Adjust for peak at L3, 4. 3. Repeat TX and RX, and adjust L3, 4 so that the oscillation level is the same and becomes maximum at TX and RX. (approx. 50 mV)	1 V (p-p) Min.
2. Local frequency	L5 (MAIN PCB)	(Counter) Adjust to 128.1 MHz at L5.	128.1 MHz ±200 Hz
3. VCO P/D voltage adjustment	L101 (VCO)	(DC Voltmeter) Adjust L101 so that P/D voltage is 2.0 V at 146.000 MHz.	2.0 V ±0.2 V
4. Detecting coil adjustment	L601 (IF PCB)	(Transceiver tester, oscilloscope) 1 kHz, 3.5 kHz/Dev., 60 dBμ 146.05 MHz AF output waveform maximum Note: Adjust AF VR for standard output 50 mW (8Ω) or so.	
5. RF AMP MAIN PCB	L202, 203, 204, 205, 209 (RF PCB) L8, 9, 10 (MAIN PCB)	(Transceiver tester) 1 kHz, 3.5 kHz/Dev, −6 dBμ (meter direct reading) 146.05 MHz, audio output 50 mW/8Ω Adjust L8, 9, 10, L202, 203, 204, 205 and 209 so that SINAD sensitivity becomes maximum. (AF level meter→Minimum) (L10 is extended for adjustment.)	−7 dBμ Max.
6. Squelch sensitivity	VR601 (IF PCB)	(Transceiver tester) 1 kHz, 3.5 kHz/Dev, −10 dBμ (meter direct reading) 146.05 MHz Turn VR601 counterclockwise from closed conditions and use VR601 to set to a point where the squelch is open.	

2. Transmitting Unit

Item	Adjustment Point	Adjustment Method	SPEC.
1. Transmission adjustment	L11, 12 (MAIN PCB)	(Transceiver tester, spectrum analyzer) Frequency (146.05 MHz) Adjust L11, 12 so that the output power becomes maximum.	●Power 20 W Min. (7.2 V) Within the band ●Spurious −60 dB Max. (HI) −50 dB Max. (LO)
2. Frequency adjustment	L6 (MAIN PCB)	Transceiver tester, counter ●SIMP Set the unit in the transmission mode at 146.05 MHz and adjust L6. ●−DUP Set it in the transmission mode and adjust L16. ●+DUP Set it in the transmission mode and adjust L15.	146.05 MHz ±50 Hz 145.45 MHz ±50 Hz 146.65 MHz ±50 Hz
3. Modulation degree adjustment	VR602 (IF PCB)	Transceiver tester Input a signal of 1 kHz/50 mV into the SP/MIC jack and adjust VR602 so that you obtain 4.8 kHz/Dev. in the transmission mode.	4.8 kHz ±0.2 kHz

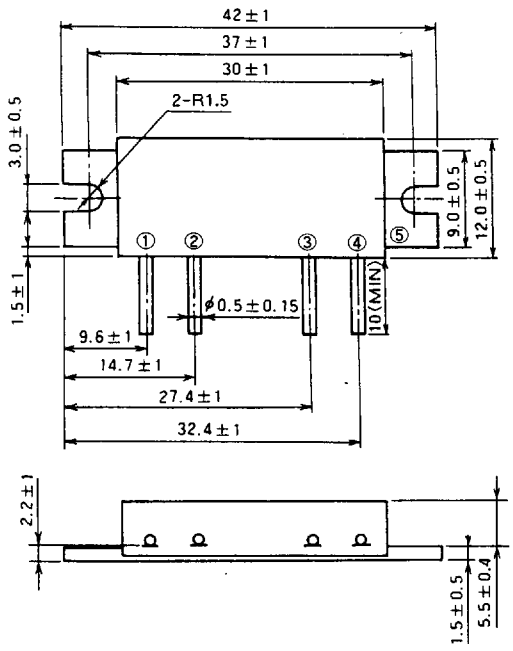
MITSUBISHI RF POWER MODULE

M57796MA

144-148MHz, 12.5V, 7W, FM PORTABLE RADIO

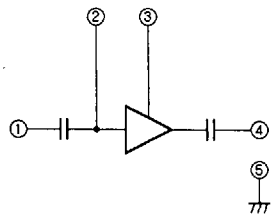
OUTLINE DRAWING

Dimensions in mm



H14

BLOCK DIAGRAM



PIN :
①Pin : RF INPUT
②VBB : BASE BIAS SUPPLY
③Vcc : DC SUPPLY
④Po : RF OUTPUT
⑤GND : FIN

ABSOLUTE MAXIMUM RATINGS (Tc = 25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		16	V
V_{BB}	Base bias		6	V
I_{CC}	Total current		3	A
$P_{in(max)}$	Input power	V_{CC1} = 12.5V, $Z_G = Z_L$ = 50 Ω	400	mW
$P_{O(max)}$	Output power	$Z_G = Z_L$ = 50 Ω	10	W
$T_{C(OP)}$	Operation case temperature		− 30 to 110	℃
T_{stg}	Storage temperature		− 40 to 110	℃

Note. Above parameters are guaranteed independently.

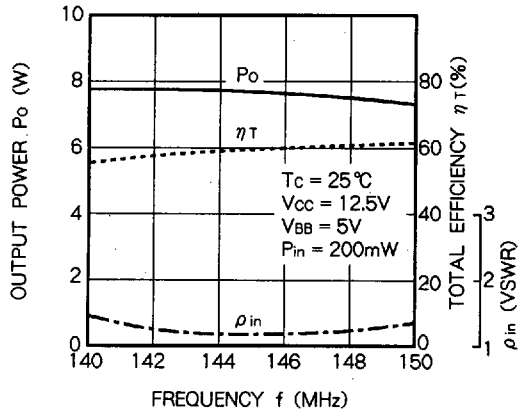
ELECTRICAL CHARACTERISTICS (Tc = 25℃ unless otherwise noted)

Symbol	Parameter	Test conditions	Limits		Unit
			Min	Max	
f	Frequency range	$V_{CC1} = V_{CC2}$ = 12.5V V_{BB} = 5V P_{in} = 200mW $Z_G = Z_L$ = 50 Ω	144	148	MHz
Po	Output power		7		W
η_T	Total efficiency		50		%
2fo	2nd. harmonic			− 20	dBc
3fo	3rd. harmonic			− 30	dBc
ρ in	Input VSWR			2.5	−
−	Load VSWR tolerance	$V_{CC1} = V_{CC2}$ = 13.2V, V_{BB} = 5V Po = 7W (P_{in} : controlled) Load VSWR ≧ 20 : 1 (All phase) Z_G = 50Ω	No degradation or destroy		−

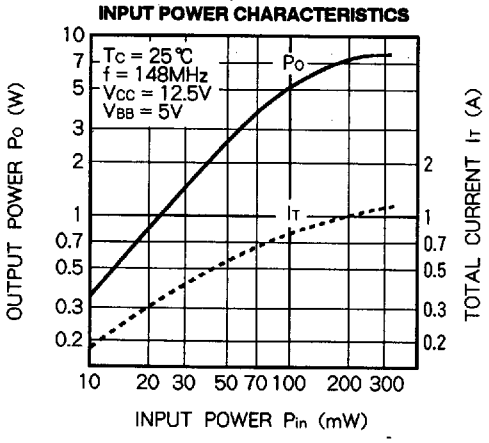
Note. Above parameters, ratings, limits and conditions are subject to change.

TYPICAL PERFORMANCE DATA

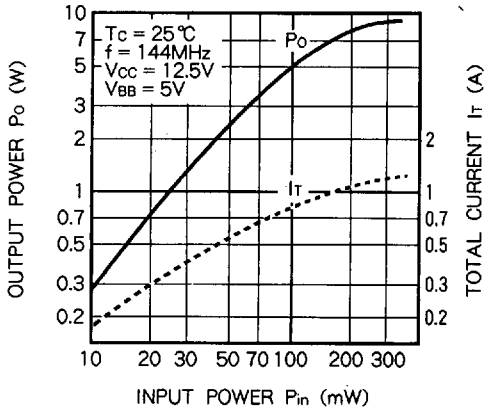
OUTPUT POWER, TOTAL EFFICIENCY, ρin VS. FREQUENCY CHARACTERISTICS



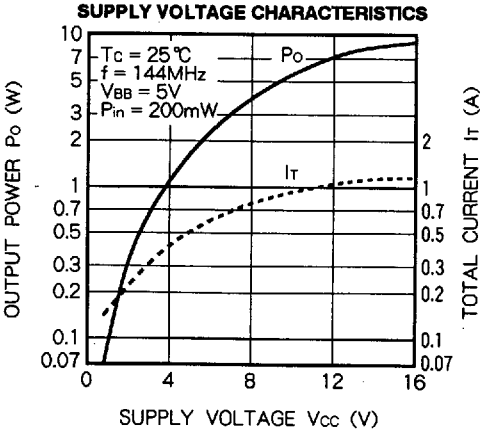
OUTPUT POWER, TOTAL CURRENT VS. INPUT POWER CHARACTERISTICS



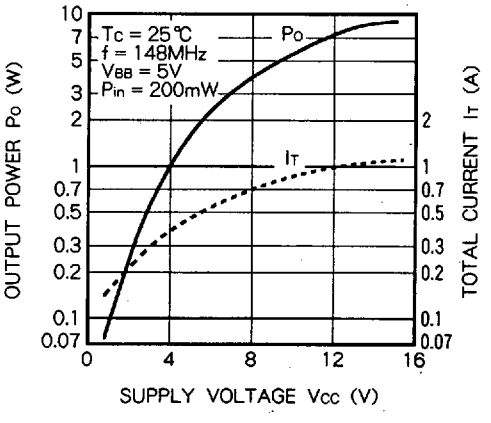
OUTPUT POWER, TOTAL CURRENT VS. INPUT POWER CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT VS. SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT VS. SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, 2nd, 3rd HARMONICS VS. FREQUENCY CHARACTERISTICS