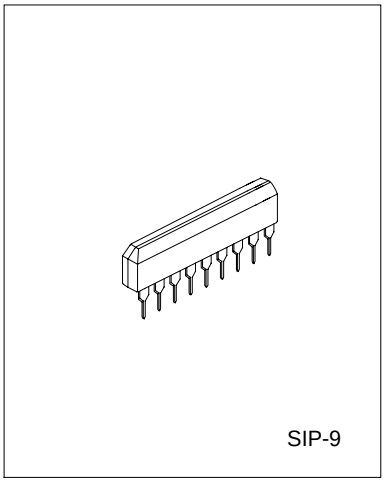
SINGLE-BAND AM RADIO

DESCRIPTION

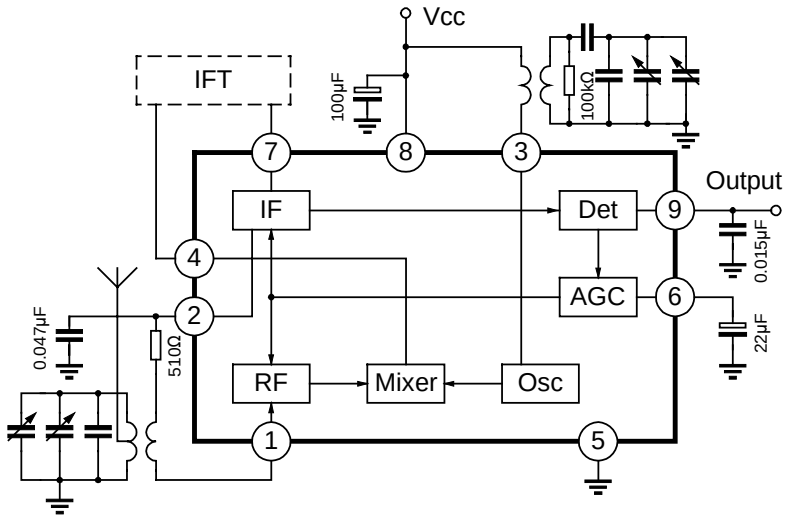
The UTC1600, Being an Am tuner IC placed in SIP-9, provides the functions of Am tuner. It is usable in the band range up to SW band and is especially suited for use in low-cost AM radios and radio-controlled receivers.it includes RF amplifier,Mixer,IF amplifier,Detyector and AGC.



FEATURES

*Minimum number of external parts required.
*Low current dissipation(3.7mA,Tpyical)
*Low supply voltage(1.8V, minimum)
*Adoption of double-balanced mixer.
*Usable in the band range up to SW band

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

Characteristic	Symbol	Value	Unit
Maximum Supply voltage	Vcc	9	V
Allowable Power dissipation	Pd	100	mW
Operating Temperature	Topr	-20 ~ +70	°C
Storage Temperature	Tstg	-65 ~ +150	°C

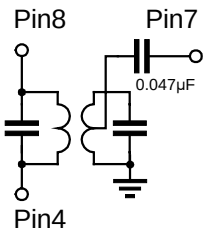
ELECTRICAL CHARACTERISTICS

(Ta=25°C,Vcc=3V,f=1MHz,unless otherwise specified)

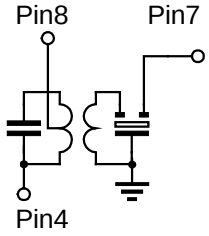
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Quiescent current	Icc	Vin=0		3.7	4.6	mA
Detection Output	Vo1	Vin=23dBμ,1kHz,30% mod	-30	-25	-20	dBm
			24	43	78	mV
	Vo2	Vin=80dBμ,1kHz,30% mod	-18	-14	-10	dBm
			97	155	250	mV
Signal-Noise Ratio	S/N(1)	Vin=23dBμ	18	21.5		dB
	S/N(2)	Vin=80dBμ	48	53		dB
Total Harmonic distortion	THD1	Vin=80dBμ,1kHz,30% Mod		0.3	1.2	%
	THD2	Vin=100dBμ,1kHz,30% Mod		0.4	1.5	%

IFT(intermediate frequency transformer)

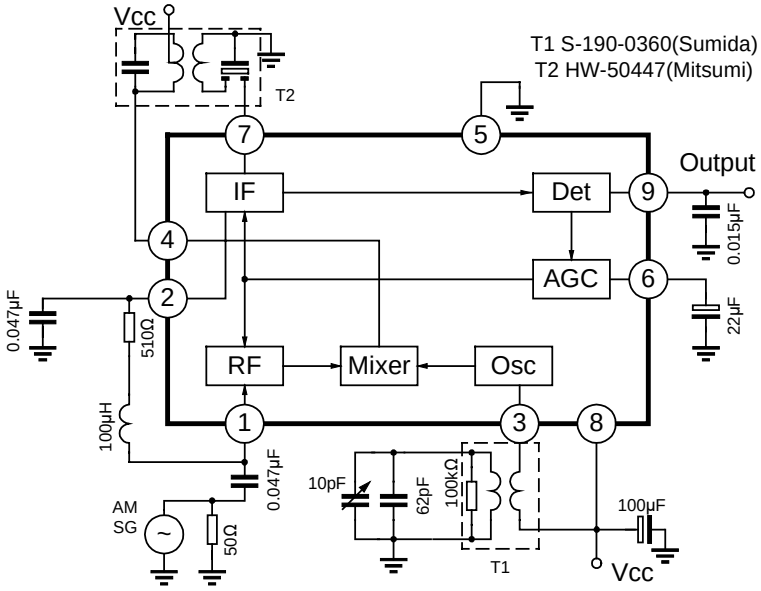
1.Using Double tuning Coil



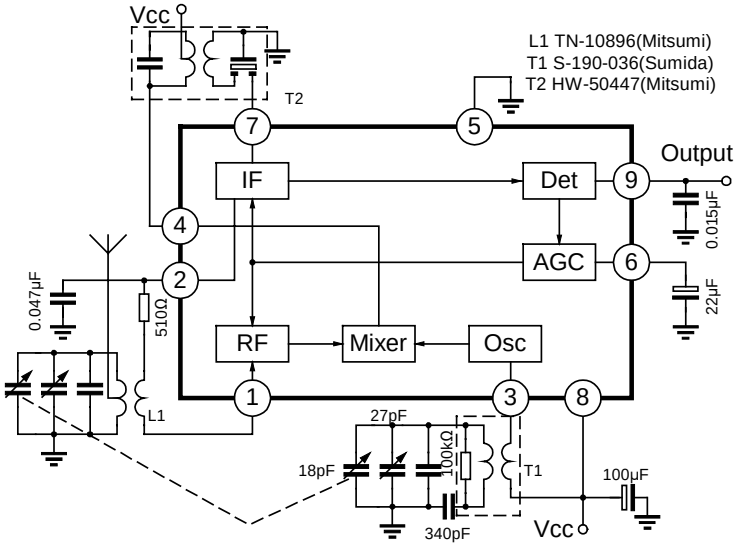
2.Using Ceramic filter



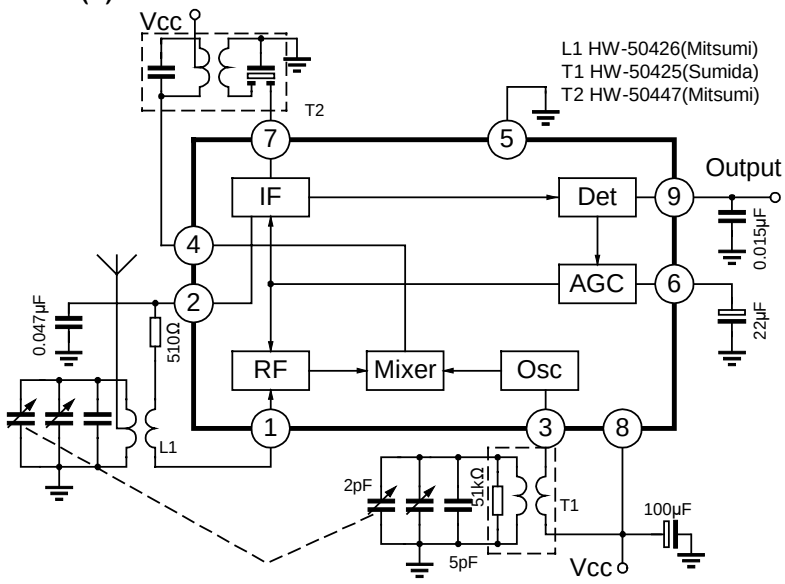
SPECIFIED TEST CIRCIT DIAGRAM



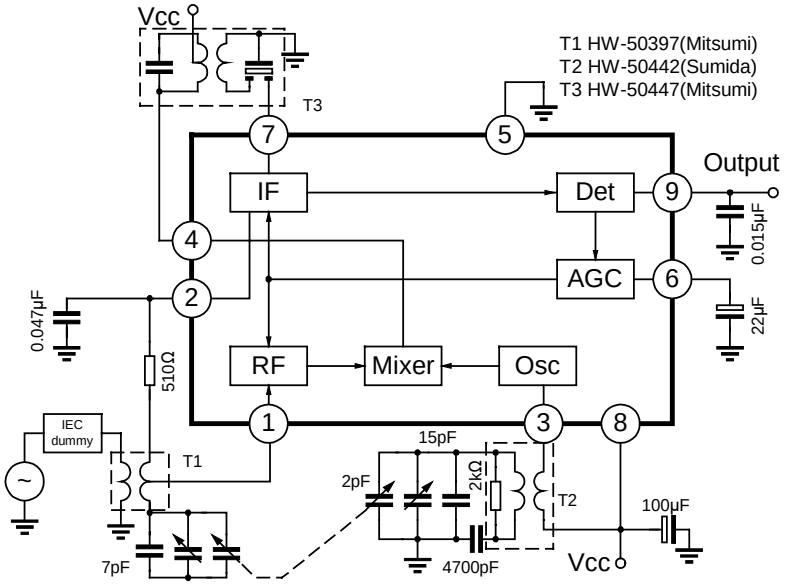
TEST CIRCUIT (1): AM-MW



TEST CIRCUIT (2): AM-MW



TEST CIRCUIT (3): SW2(7.2 TO 24.0MHZ)

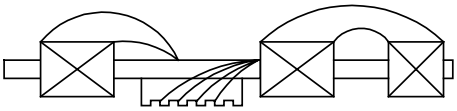


COIL SPECIFICATIONS

1. MW antenna

Bar antenna(for PVC22KTL)

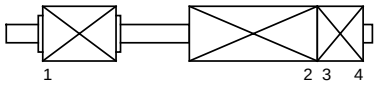
TN-10896(Mitsumi)



①-② 22T+49T,L=260μH,Qo=330(>220)
③-④ 10T,L=15μH,Qo=250 (>150)
Tight solenoid direct winding
⑤-⑥ 17T, 0.5φ space winding
⑦-⑧ 4T tight solenoid winding

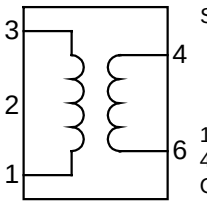
Bar antenna(for PVC-LYT)

HW-50426(Mitsumi)



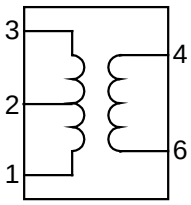
①-② 21T+100T,L=604μH,Qo>120
③-④ 30T

2. MW OSC



S-190036(Sumida)
for PVC22KTL

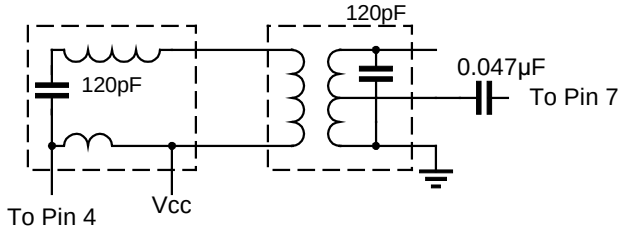
1-3 5T,
4-6 8T
Qo>80,L=140μH



HW-50425(Mitsumi)
for PVC-LYT

2-3 2T,
4-6 9T,
1-2 86T,
Qo>80,L=270μH

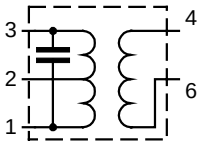
AM IFT



HW-50475
(mitsumi)
1-2 80T,
3-4 70.5T
Qo=120

HW-50498
(mitsumi)
1-2 134T,
4-6 3T
2-3 18T
Qo=70

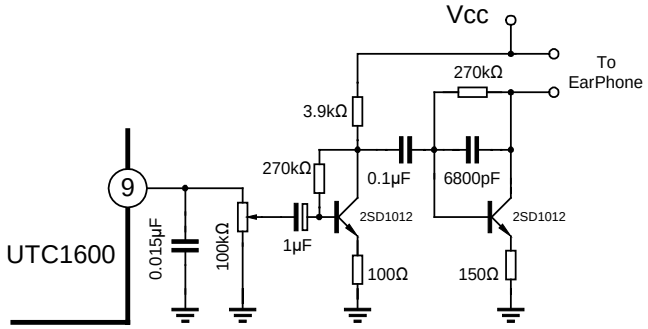
AM IFT



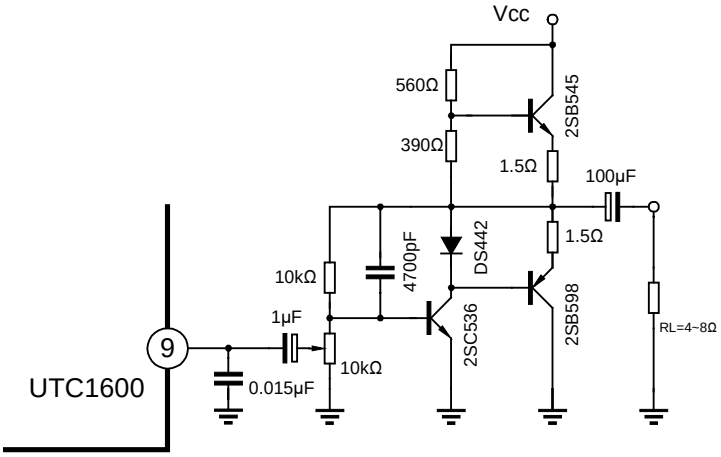
HW-50447(Mitsumi)
1-2 82T,
3-4 70T
4-6 7T
Qo=110,f=450kHz
internal 180pF

TYPICAL APPLICATION

1.Earphone Tr. Rank=G (280~560)



2.Power amplifier using Tr.Rank=E (100~200)



TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 MW input/output characteristics

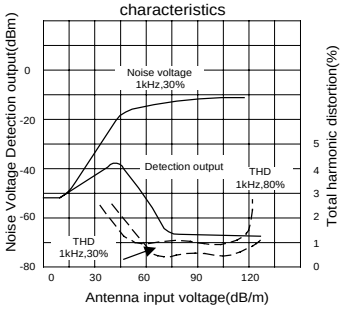


Fig.2 current dissipation,pin 6 voltage characteristics

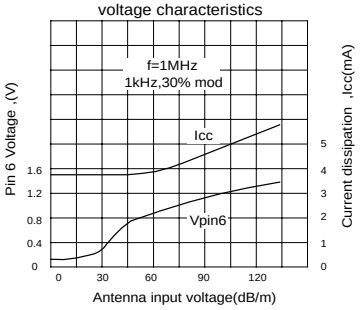


Fig.3 Whistle characteristics

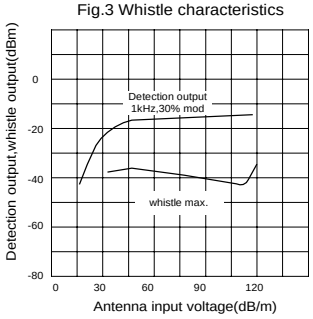


Fig.4 Selectivity characteristics

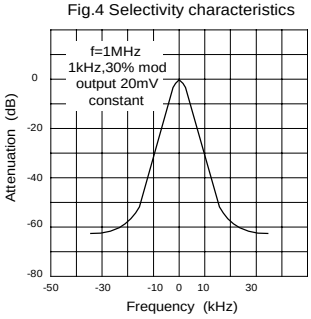


Fig.5 Vcc characteristics

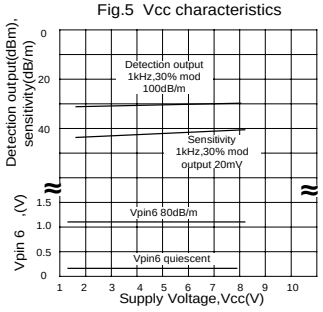


Fig.6 MW Fidelity characteristics

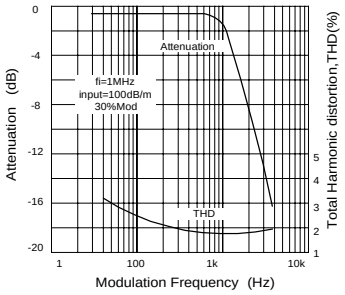


Fig.7 MW Reception characteristics

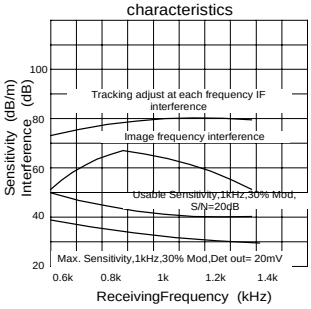


Fig.8 Spurious Response