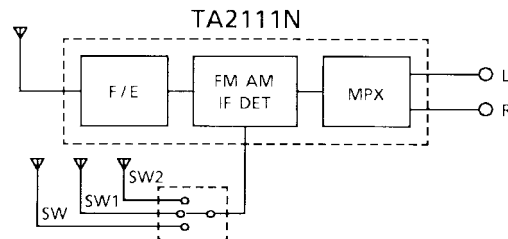


Audio IC Application Circuit

# TAN-320

5 V FM, SW2, SW1, MW Single-chip Tuner IC  
TA2111N

## 1. Outline



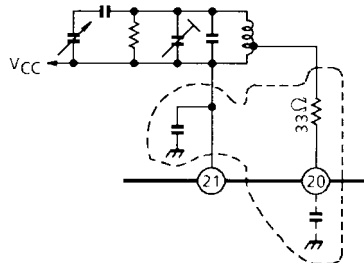
This application circuit example is for a three-band (FM, SW2, SW1, MW) 5 V tuner circuit. The IC is a single-chip TA2111N which incorporates all circuits from RF to MPX. Four bands are supported by switching an antenna and an oscillator circuit using a six-circuit four-contact lever switch. Signal frequencies are tuned using polyvaricons.

## 2. Ratings

Characteristics	Rating			
	FM	SW2	SW1	MW
Supply voltage	5 V			
Current dissipation (quiescent)	14 mA	8 mA		
Signal frequency range	87.5~108 MHz	6.7~22.5 MHz	2.2~7.3 MHz	520~1650 kHz
Intermediate frequency	10.7 MHz	455 kHz		
Sensitivity	14.5dB $\mu$ V EMF (S/N = 30dB)	4dB $\mu$ V EMF ( $V_o = 10$ mVrms)	4dB $\mu$ V EMF ( $V_o = 10$ mVrms)	32dB $\mu$ V/m ( $V_o = 10$ mVrms)

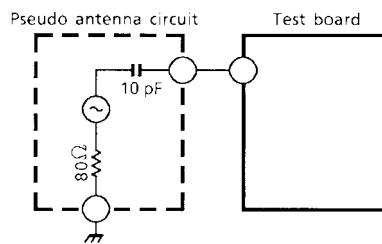
**3. Cautions on Use**

- (1) To reduce spurious signals in the FM frequency range in the SW1 or SW2 band, an inductor (1  $\mu$ H) is inserted next to the AMRF input pin (pin 24).
- (2) Insert a resistor (33  $\Omega$ ) next to the AM OSC pin (pin 20). In the lower part of the frequency range, if the load impedance of the oscillator circuit drops lower than that of the parasitic circuit (indicated by the dots in Figure 1), oscillation frequency of the parasitic circuit may stop. To avoid signals not being received due to the above, insert a resistor to lower the Q of the parasitic circuit.



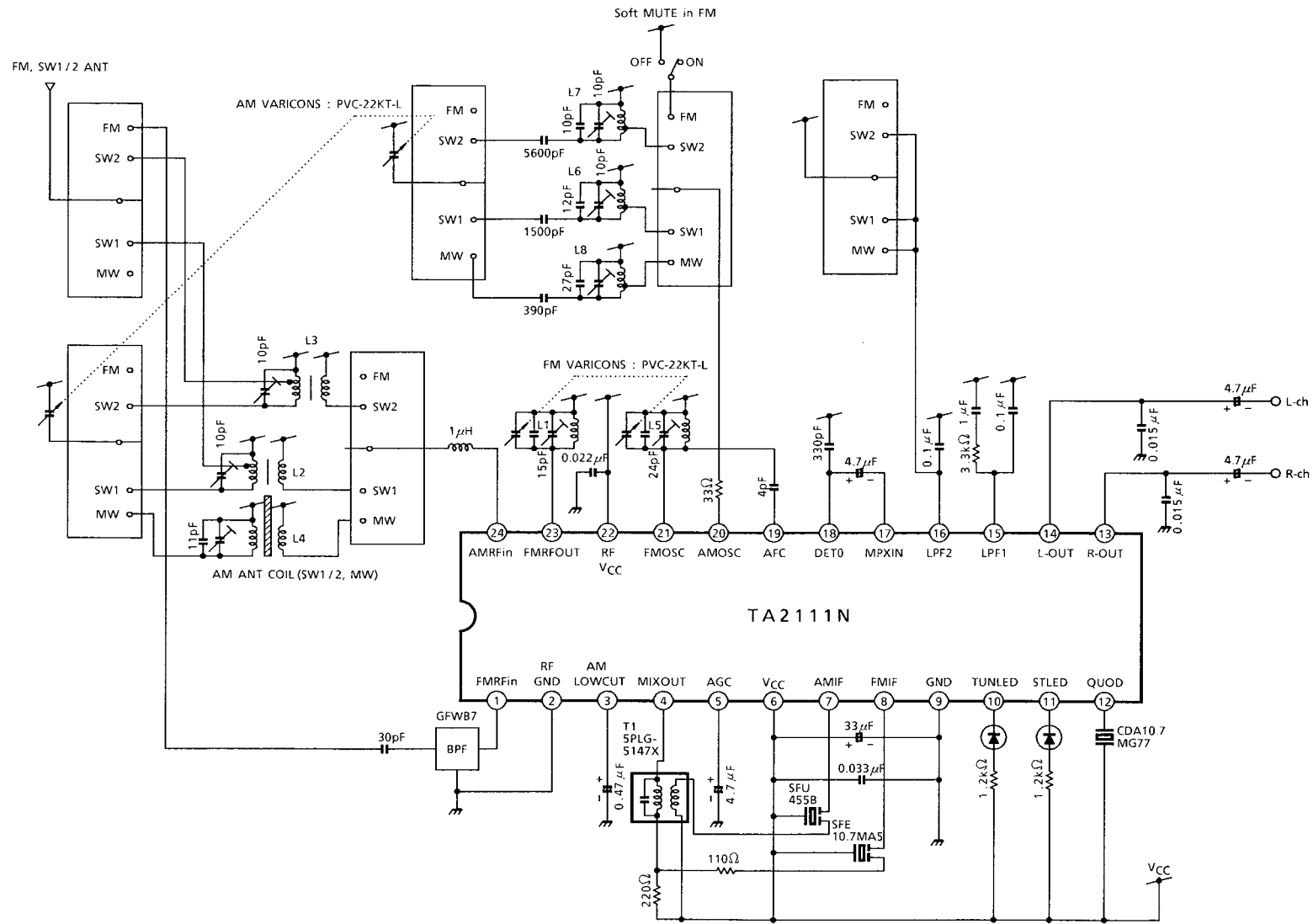
**Figure 1**

- (3) To reduce the stray capacitance of the circuit board (pattern), the primary side of the SW1/SW2 antenna coil is input from the tap.
- (4) The characteristics of the SW1 and SW2 bands are measured using the pseudo antenna circuit shown in Figure 2 below :



**Figure 2**

## TA2111N-3BAND (FM, SW1, SW2) Application Circuit



## TA2111N-3BAND (FM, SW1, SW2, MW) Coil Specification

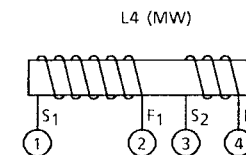
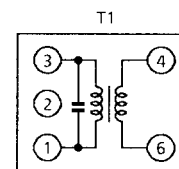
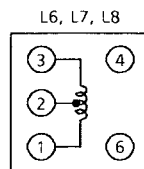
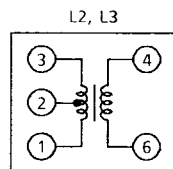
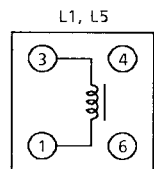
No.	Stage	f (Hz)	L (μH)	C (pF)	Q (min)	Turns					Wire (mm)	Note
						1-2	2-3	1-3	1-4	4-6		
L1	FM RF	100M	0.06	—	100	—	—	2 1/4	—	—	0.5 UEW	0258-000-021@S
L2	SW1 ANT	2.52M	17	—	75	16	11	27	—	11	0.08 MUEW	4148-T024@S
L3	SW2 ANT	7.96M	1.7	—	70	6	3	9	—	5	0.12 MUEW	4148-T026@S
L4	MW ANT	796k	279	—	200	—	68 (1-2)	—	13 (3-4)	—	7/0.07 USTC	MSE-0119@M
L5	FM OSC	100M	0.045	—	100	—	—	1 3/4	—	—	0.5 UEW	0258-000-020@S
L6	SW1 OSC	2.52M	12.4	—	125	7	16	—	—	—	0.08 UEW	4148-3099-176@S
L7	SW2 OSC	7.96M	1.4	—	85	4	4	—	—	—	0.12 UEW	4148-3167-079@S
L8	MW OSC	796k	120	—	120	13	56	—	—	—	0.07 UEW	A7BRS-12552Y@T
T1	MW IFT	455k	—	470	60	—	—	109	—	7	0.05 UEW	5PLG-5147X@T

S: SUMIDA ELECTRIC CO., LTD

M: MITSUMI (SEGAMAT) SDN. BHD

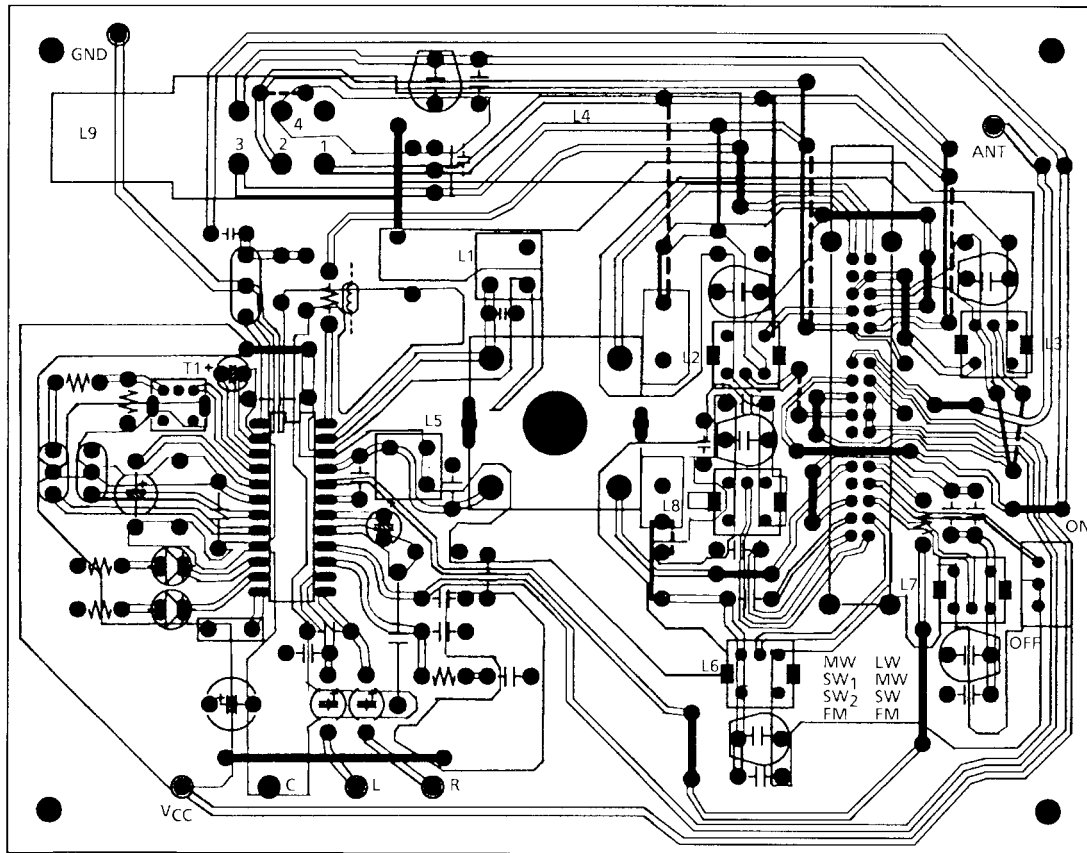
T: Toko, inc

### (bottom view)

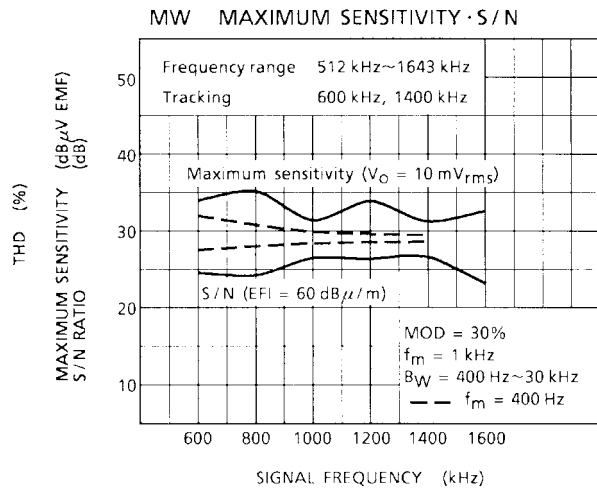
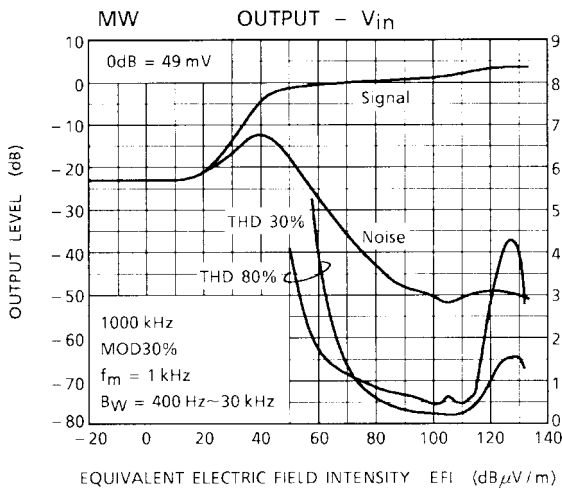
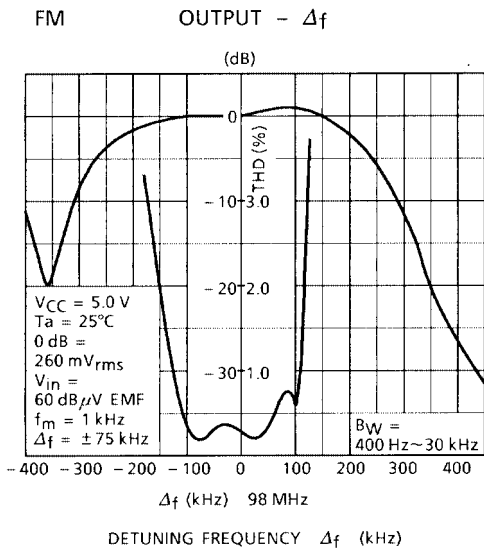
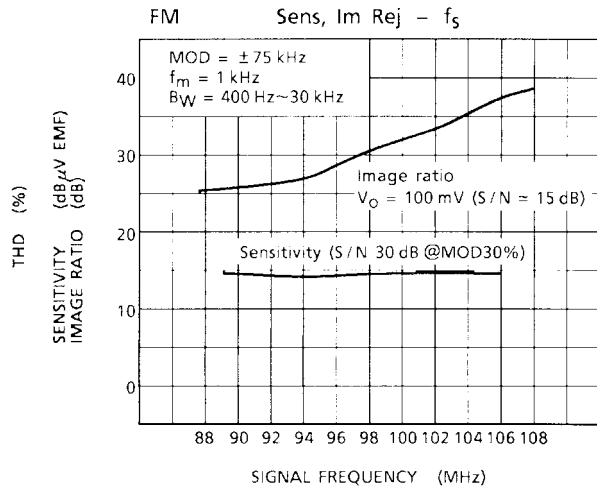
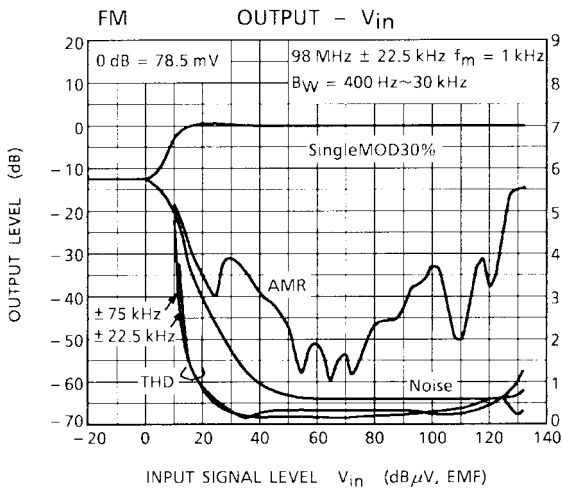


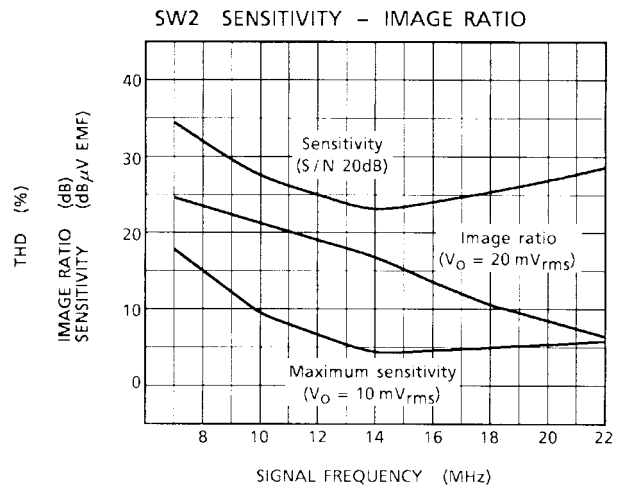
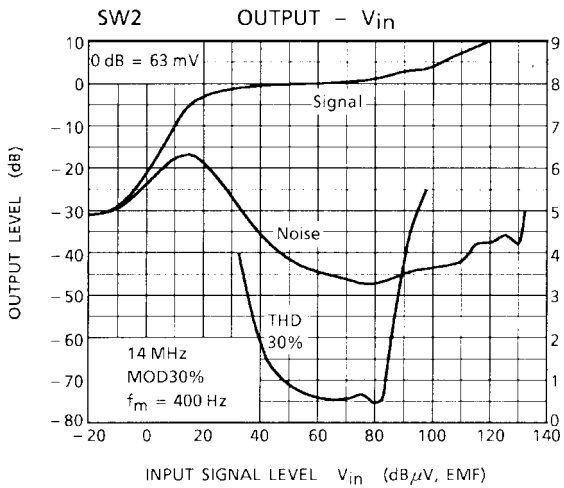
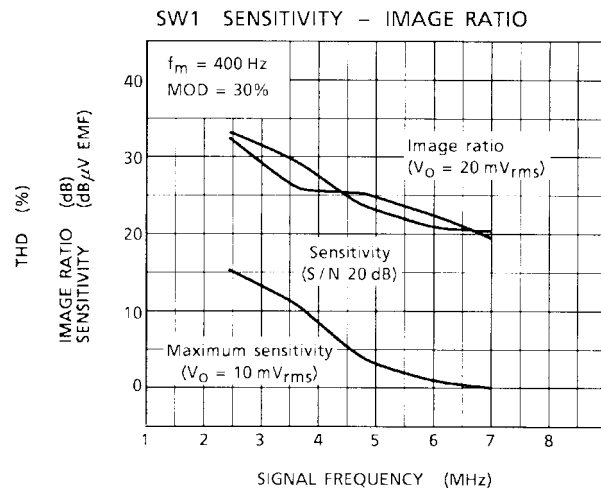
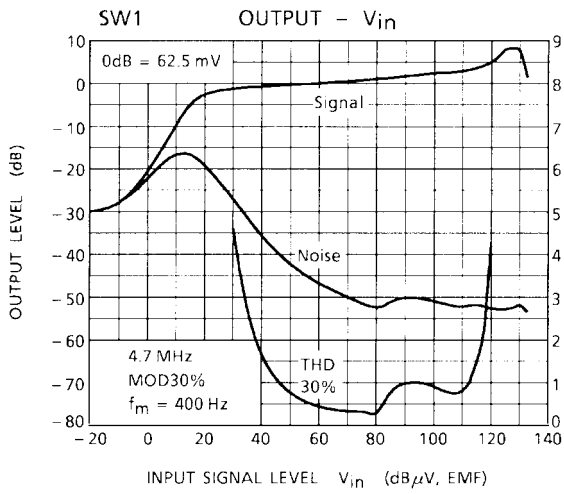
## Example of Printed Circuit Board Pattern

TOSHIBA  
TA2111N-3BAND



- COMMON JUMPER
- LW MW SW FM
- - - MW SW<sub>1</sub> SW<sub>2</sub> FM





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