

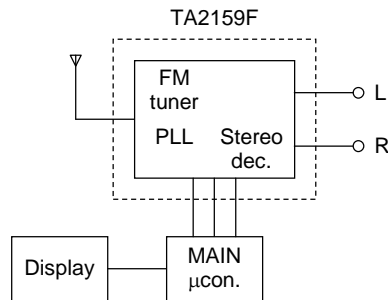
Preliminary

Tentative Data Audio IC Application Circuit

TAN-325

Example of 3-V FM Radio Circuit
TA2159F

1. Outline



This is an application example of an FM radio circuit targeting compact sets.

The TA2159F is a single-chip tuner IC which is integrated an FM front-end, FM IF amp detector, stereo decoder, PLL circuit, and auto-seek circuit.

2. Ratings

Characteristic	Rating	Unit
Supply voltage	3	V
Current dissipation (quiescent)	17	mA
Signal frequency range	87.5-108	MHz
Intermediate frequency	10.7	MHz
Sensitivity	15.5 (S/N = 30dB)	dB μ V EMF

3. Usage Precautions

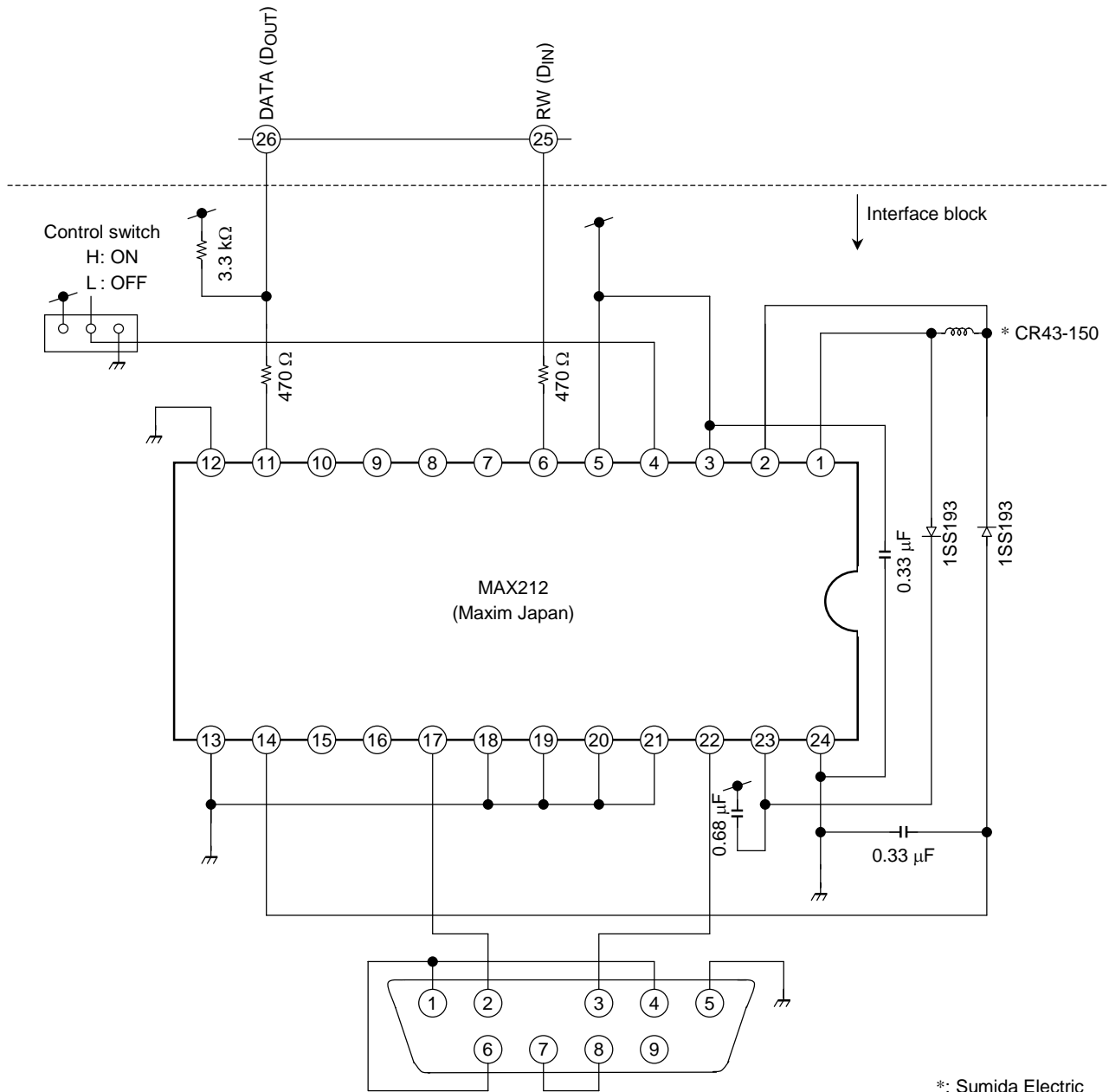
TA2159F

- (1) The TA2159F supports two control bus formats: 3-bus and UART. (For details, refer to the TA2159F technical data sheet.)

In the application printed circuit board, in UART format, a block using MAX212 as the PC interface is added.

Tuner control software in UART format is available on CD-ROM.

Circuit diagram

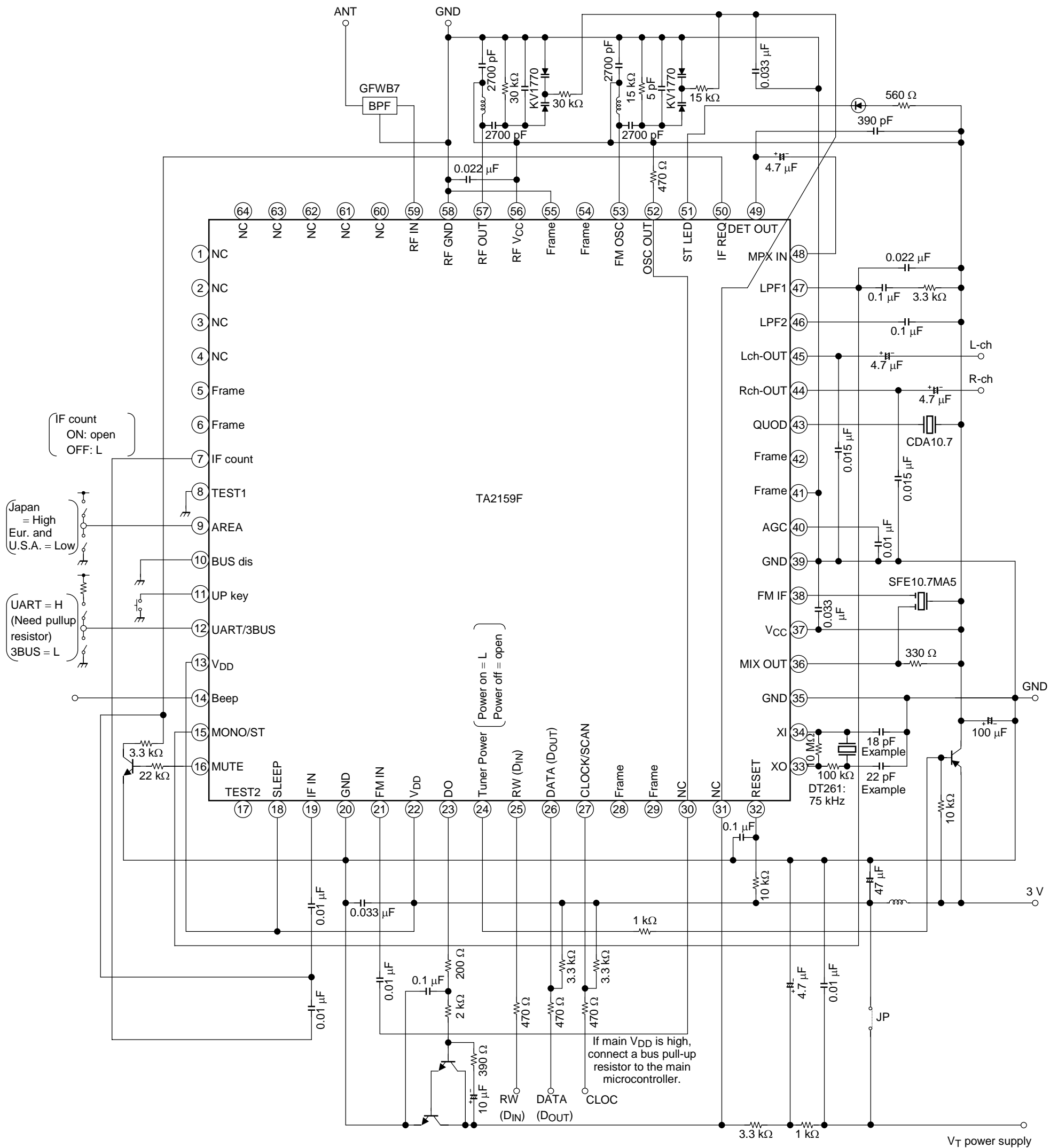


*: Sumida Electric

*: Use RS232C straight cable.

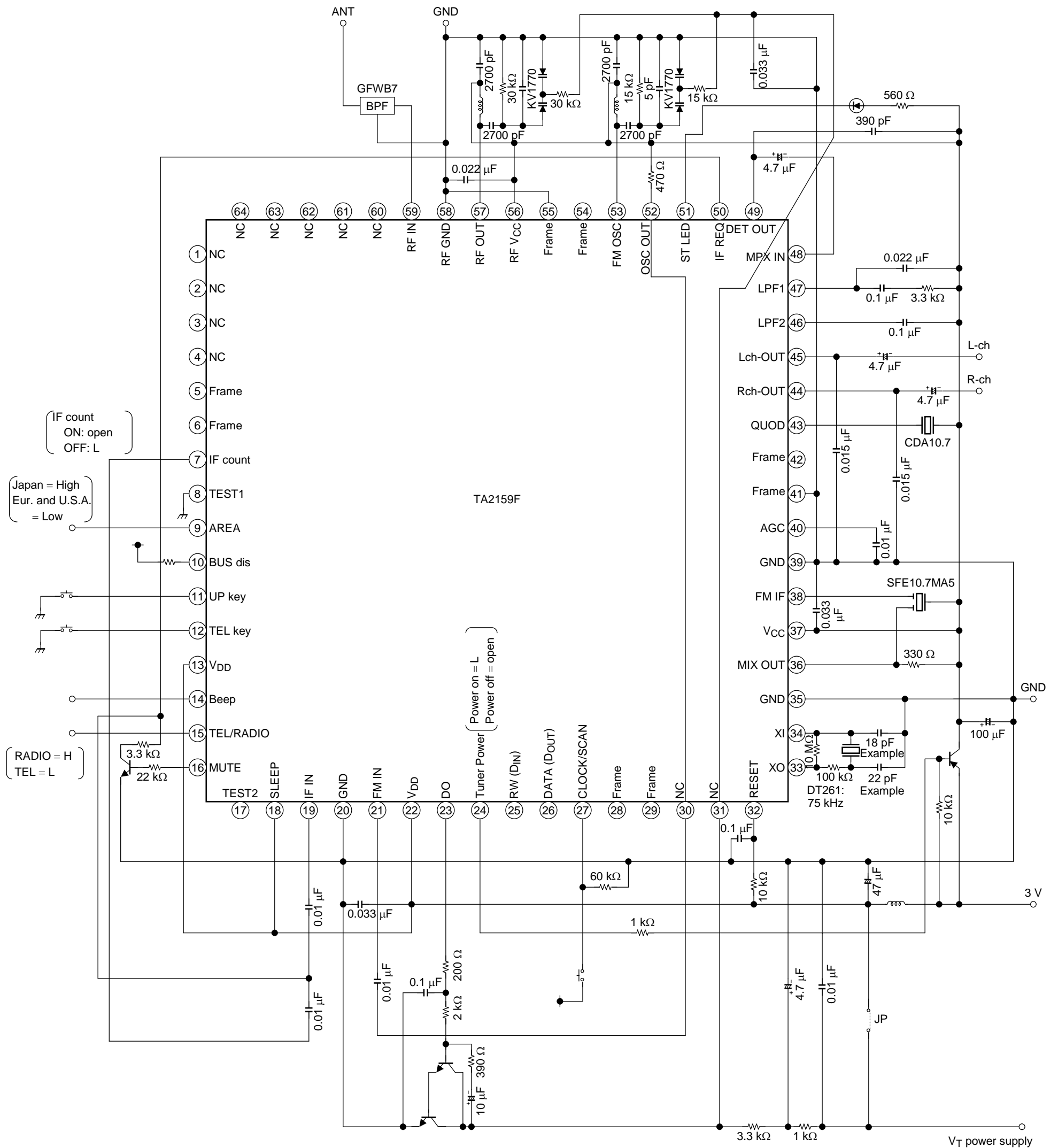
Application Circuit

Transmission mode specifications: BUS dis (pin 10) = Low



Application Circuit

No-Transmission mode specifications: BUS dis (pin 10) = High



Coil specifications

(1) Wide VT range

Coil No.	Test Freq	L (μH)	Co (pF)	Q ₀	Turns					Wire (mmφ)	Reference
					1-2	2-3	1-3	1-4	4-6		
L ₁ FM RF	100 MHz	—	—	79	—	—	2 $\frac{1}{2}$	—	—	0.16UEW	TOKO Co., Ltd. 666SNF-305NK
L ₂ FM OSC	100 MHz	—	—	76	—	—	2	—	—	0.16UEW	TOKO Co., Ltd. 666SNF-306NK

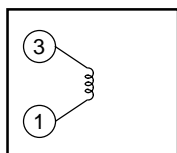
(2) Narrow VT range for Eur. and U.S.A. band.

Coil No.	Test Freq	L (μH)	Co (pF)	Q ₀	Turns					Wire (mmφ)	Reference
					1-2	2-3	1-3	1-4	4-6		
L ₁ FM RF	100 MHz z	—	33.4	61	—	—	3	—	—	0.09 2UEW	TOKO Co., Ltd. 657AN-1609
L ₂ FM OSC	100 MHz z	—	40.2	67	—	—	3	—	—	0.08 2UEW	TOKO Co., Ltd. 657AN-1608

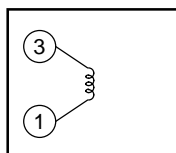
(3) Narrow VT range for Japan band.

Coil No.	Test Freq	L (μH)	Co (pF)	Q ₀	Turns					Wire (mmφ)	Reference
					1-2			1-4	4-6		
L ₁ FM RF	100 MHz z	—	24.9	66	—	—	4	—	—	0.09 2UEW	TOKO Co., Ltd. 657AN-1611
L ₂ FM OSC	100 MHz z	—	17.9	69	—	—	5	—	—	0.09 2UEW	TOKO Co., Ltd. 657AN-1610

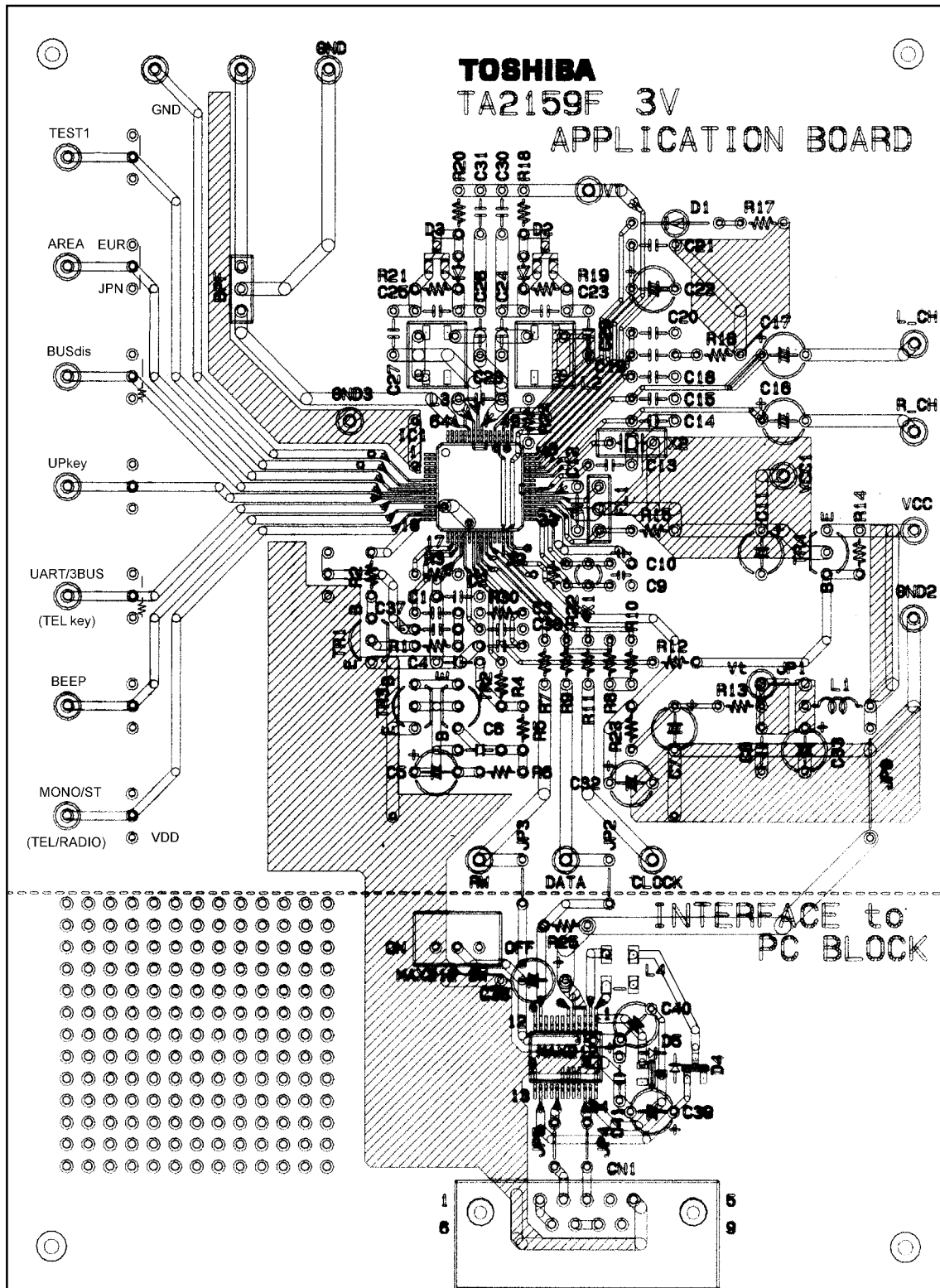
L₁: FM RF

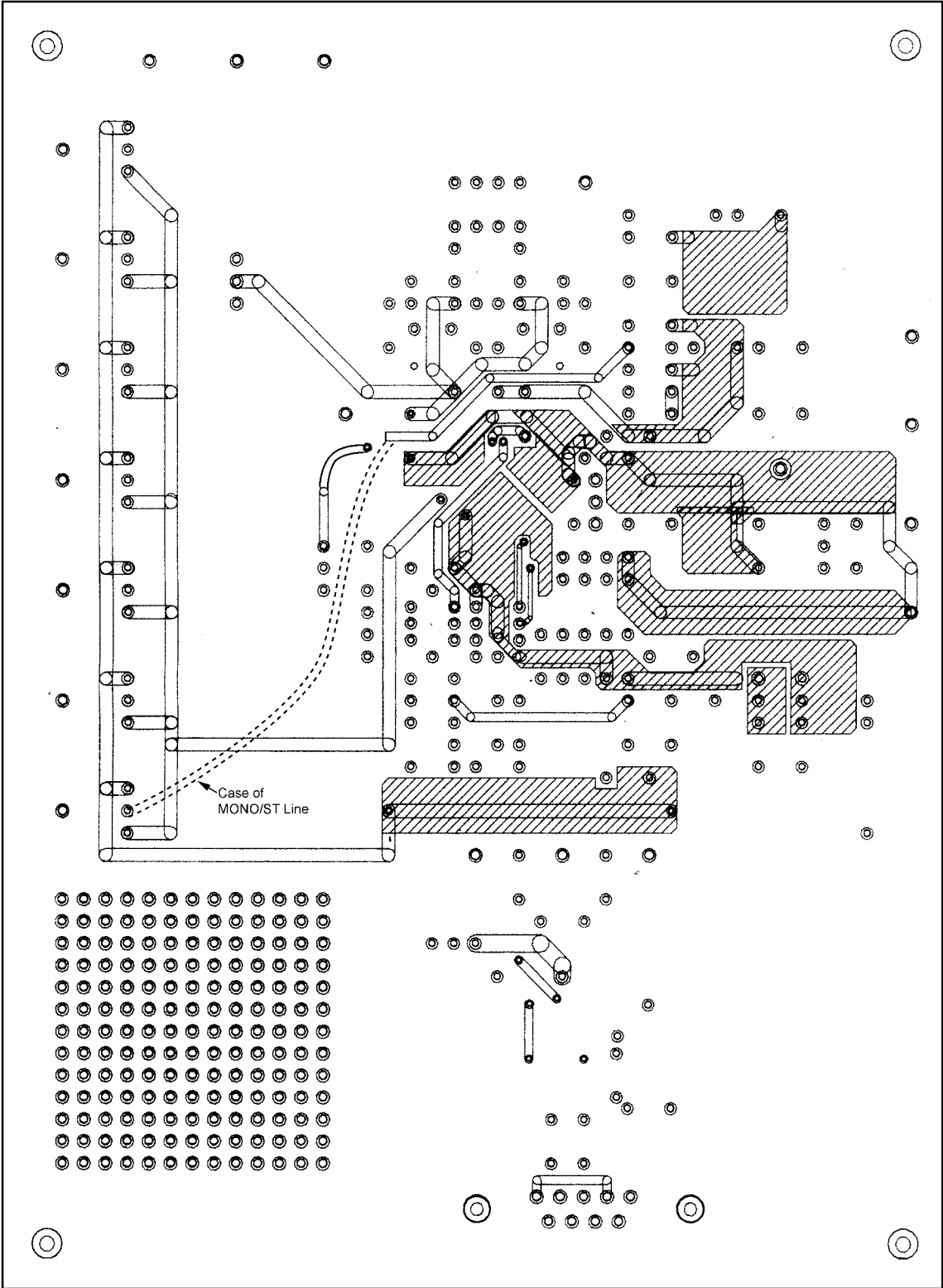


L₂: FM OSC

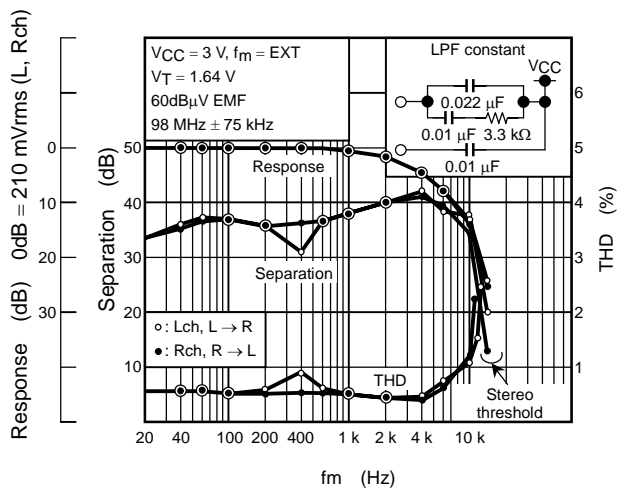
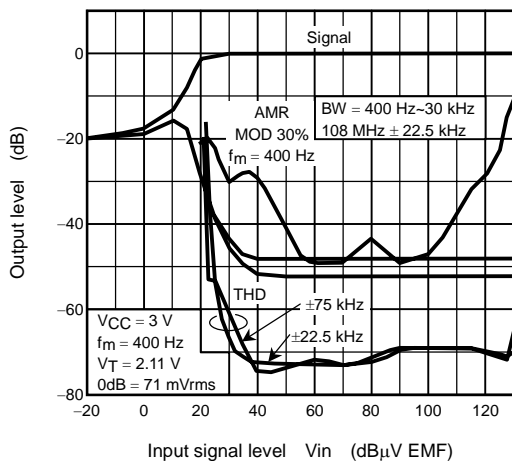
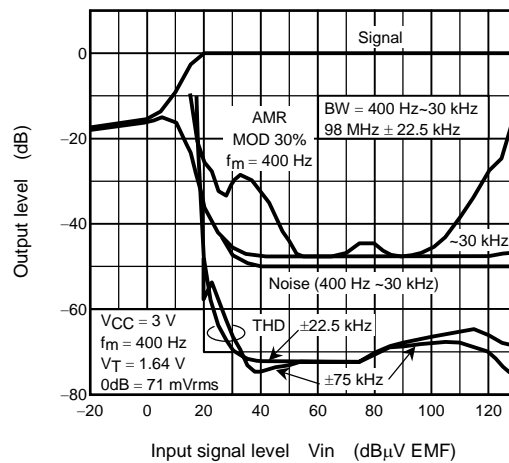
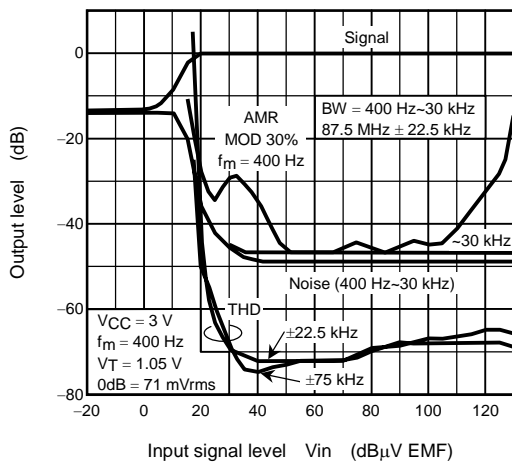
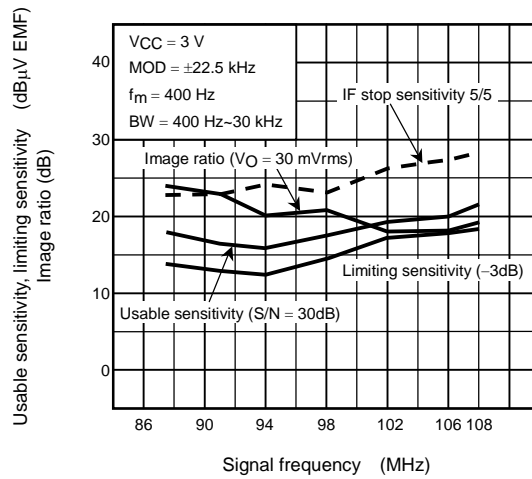
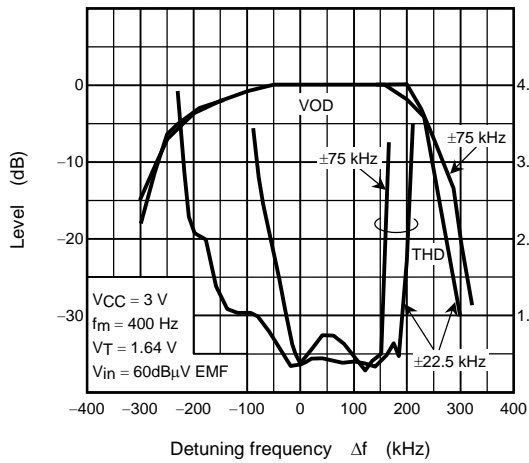


Example of Printed Circuit Board Pattern (bottom view)

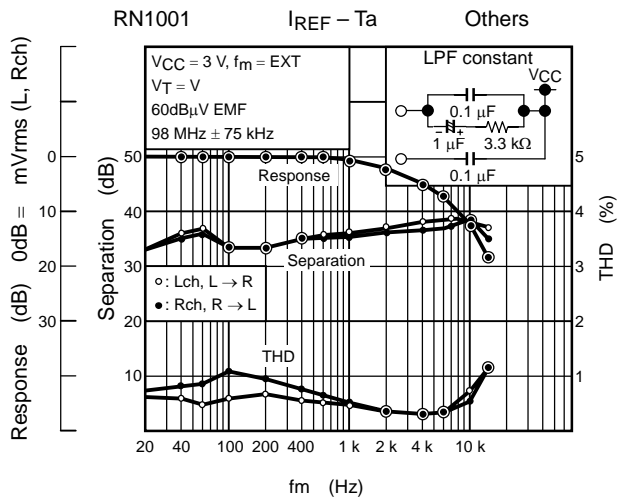
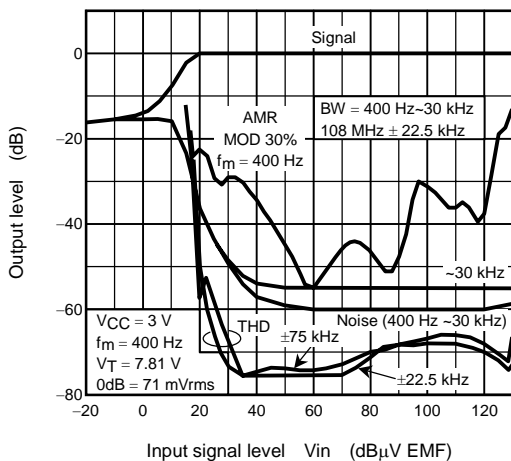
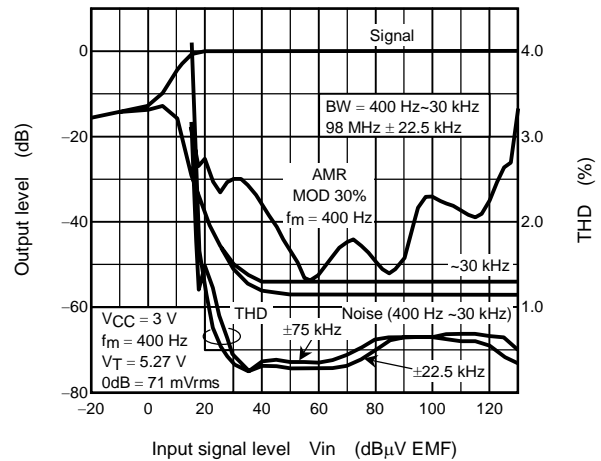
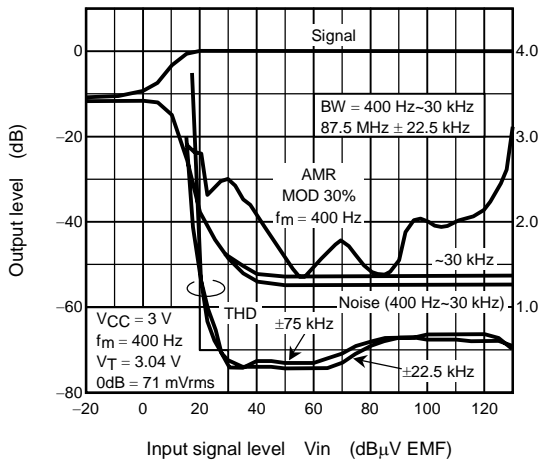
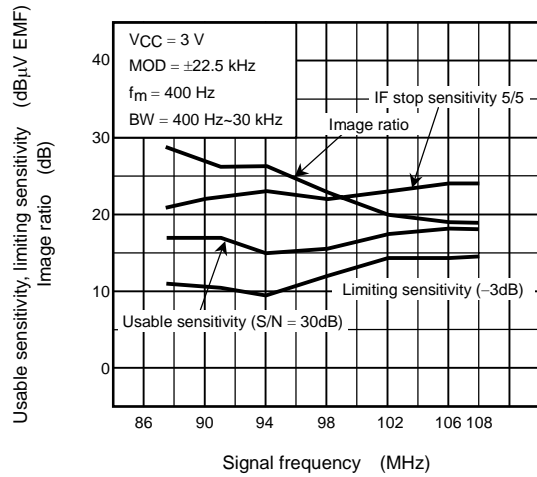
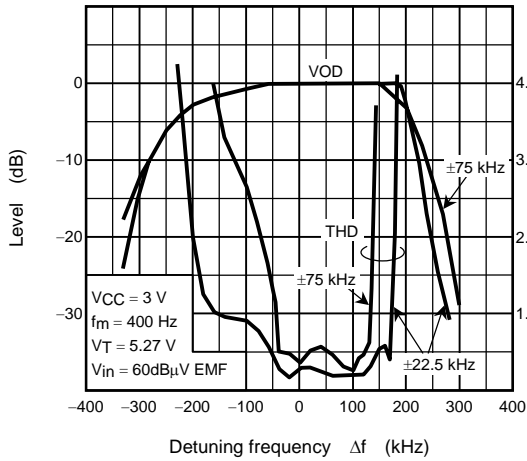




1. Narrow V_T range ($V_T = 1.05\sim 2.11$ V)



2. Wide V_T range ($V_T = 3.04 \sim 7.81$ V)



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