

AN7222N

AM 调谐器、FM/AM 中频放大器

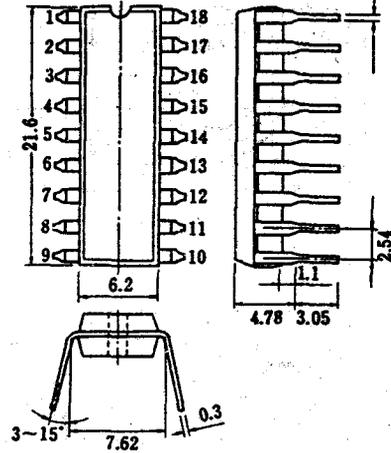
简要说明

AN7222N 为收录机用调幅调谐器、调频/调幅中频放大电路。该电路内含调频鉴频电路、调幅检波电路、电平表(调频/调幅共用)等电路。

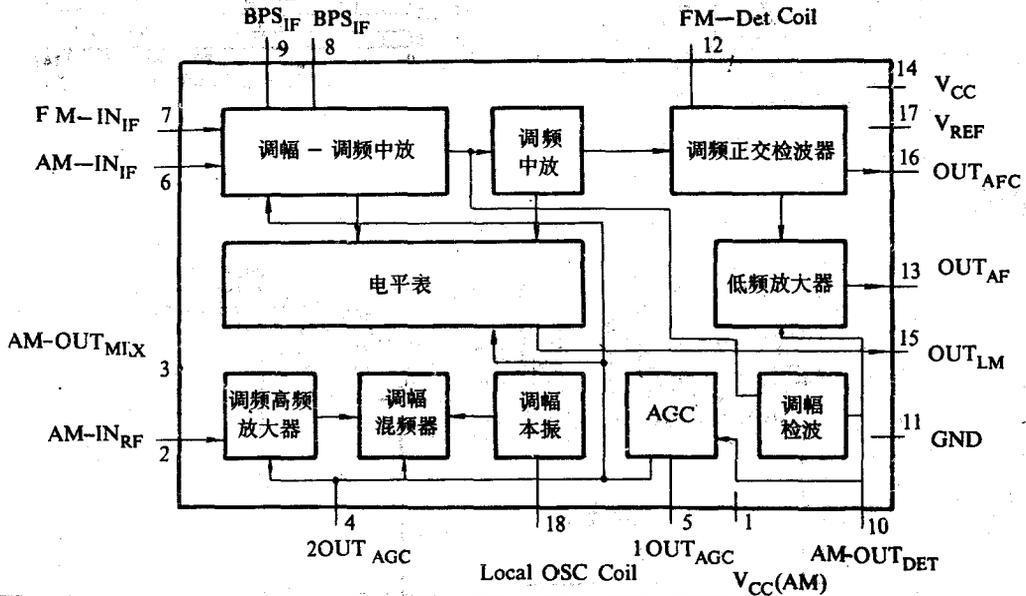
该电路的电源电压范围宽( $V_{CC} = 2.8 \sim 1.2V$ ), 内部设有调幅高频放大器, 接收灵敏度高, 电路消耗功率小并带有自动频率控制。短波频率可达到  $f = 27MHz$ 。

该电路外接元件较少。

外形图



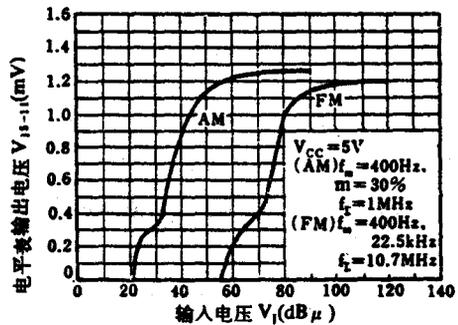
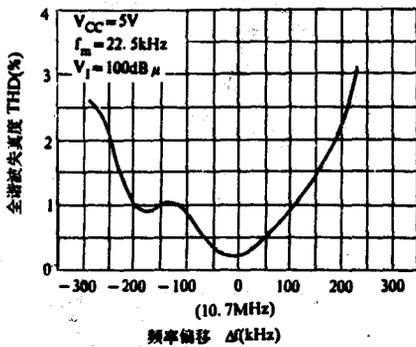
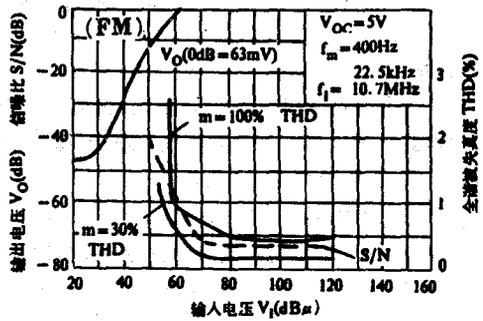
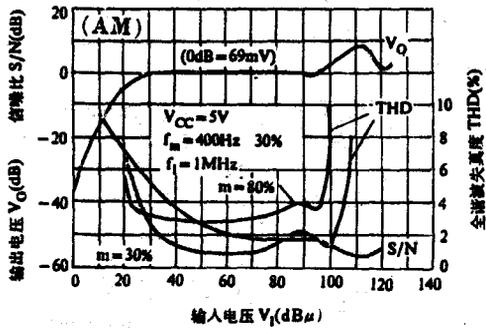
电路框图 [ $V_{CC(max)} = 9.6V, P_{D(max)} = 192mW$ ]



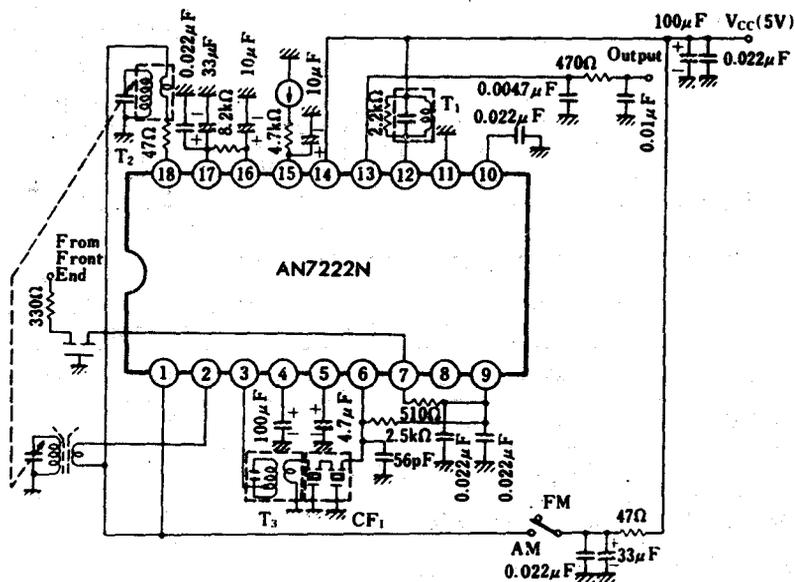
电参数 ( $V_{CC} = 5V, FM: f = 10.7MHz, f_m = 400Hz, f_{dev} = 22.5kHz, AM: f = 1MHz, f_m = 400Hz, m = 30%$ )

调频	检波输出电压	$V_{O(FM)}$	$V_1 = 100dB\mu$	60mV
	限幅灵敏度	$V_{I(lim)}$	$V_0 = -3dB$ 时之输入	44dB $\mu$
	电平表输出电压(1)	$V_{O(15-11)}$	$V_1 = 60dB\mu$	450mV
	电平表输出电压(2)	$V_{O(15-11)}$	$V_1 = 100dB\mu$	1100mV
调幅	检波输出电压	$V_{O(AM)}$	$V_1 = 60dB\mu$	58mV
	灵敏度	$S_{(AM)}$	$V_0 = 10mV$	14dB $\mu$

特点与性能



典型应用



# AN7222N

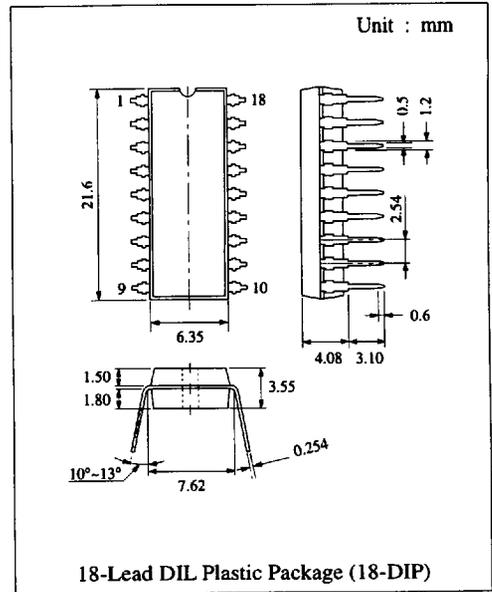
## AM Tuner, FM-AM IF Amplifier

### ■ Description

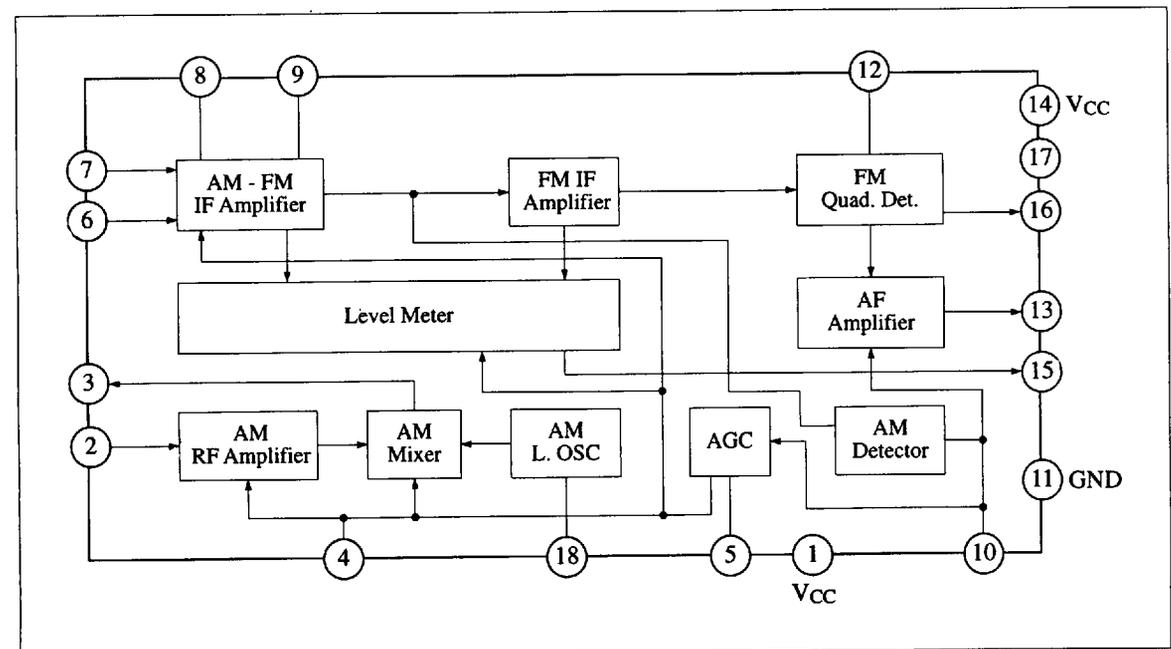
The AN7222N is a monolithic integrated circuit designed for high performance, multi-function FM-AM IF system of low voltage operation.

### ■ Features

- Wide operation voltage ( $V_{CC} = 2.8 \sim 9.6V$ )
- Built-in detectors for both FM and AM
- Built-in level meter output (for both FM and AM)
- High sensitivity for AM owing to RF amplifier
- Low power consumption
- AFC control terminal
- Fewer external components



### ■ Block Diagram



### ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	9.6	V
Supply Current	I <sub>CC</sub>	20	mA
Power Dissipation	P <sub>D</sub>	192	mW
Operating Ambient Temperature	T <sub>opr</sub>	-20 ~ +75	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

Operating Supply Voltage Range: V<sub>CC</sub> = 2.8V ~ 9.6V

### ■ Electrical Characteristics (V<sub>CC</sub>=5V, Ta=25°C)

Item		Symbol	Condition	min.	typ.	max.	Unit
F M	Detector Output Voltage	V <sub>O(FM)</sub>	Input = 100dB	45	60	72	mV
	Limiting Sensitivity	V <sub>in(lim)</sub>	Measure V <sub>in</sub> at V <sub>O</sub> -3dB	41	44	47	dBμ
	Meter Output Voltage (1)	V <sub>15-11</sub>	Input = 60dB	150	450	750	mV
	Meter Output Voltage (2)	V <sub>15-11</sub>	Input = 100dB	970	1100	1250	mV
	Offset Voltage	V <sub>16-17</sub>	Input = 0dB	-250	0	250	mV
A M	Detector Output Voltage	V <sub>O(AM)</sub>	Input = 60dB	45	58	70	mV
	Sensitivity	S <sub>(AM)</sub>	Measure V <sub>in</sub> at V <sub>O</sub> = 10mV	8.5	14	19.5	dBμ

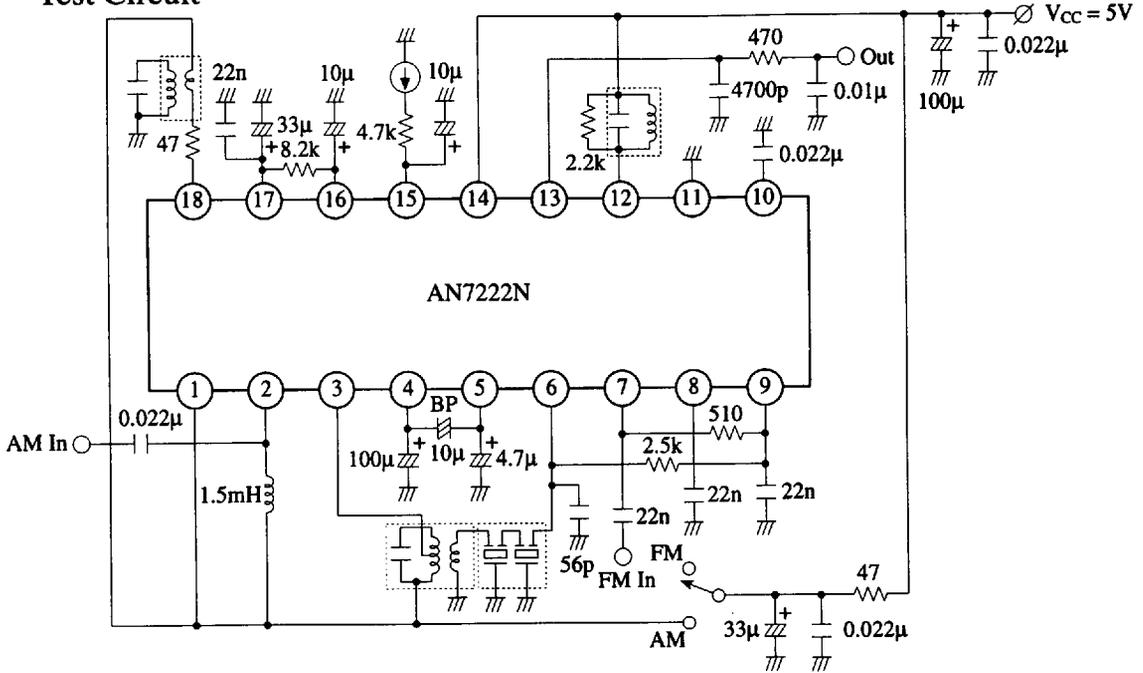
Note : FM: f = 10.7MHz, f<sub>dev</sub> = 22.5kHz, f<sub>m</sub> = 400Hz

AM: f = 1MHz, f<sub>m</sub> = 400Hz, Mod. = 30%

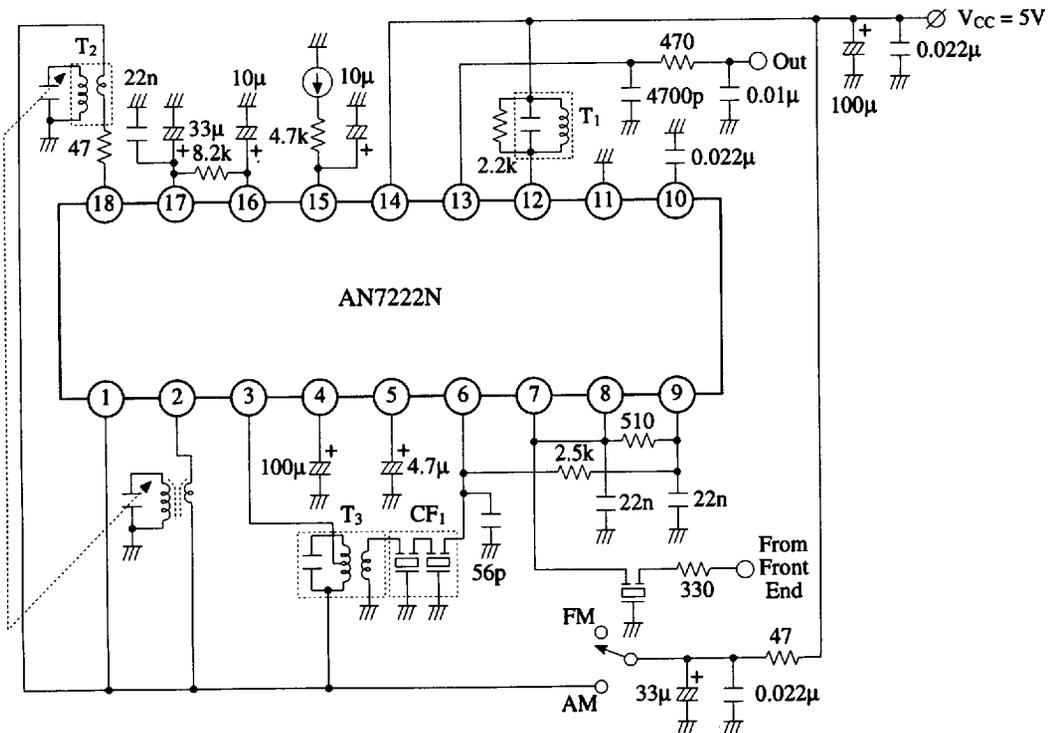
### ■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	V <sub>CC</sub> (AM)	10	AM Detector Output
2	AM RF Amplifier Input	11	GND
3	AM Mixer Output	12	FM Detector Coil
4	AGC Output (2)	13	AF Output
5	AGC Output (1)	14	V <sub>CC</sub>
6	AM IF Amplifier Input	15	Level Meter Output
7	FM IF Amplifier Input	16	AFC Output
8	IF By-pass	17	Reference Voltage
9	IF By-pass	18	Local Oscillator Coil

Test Circuit



Application Circuit



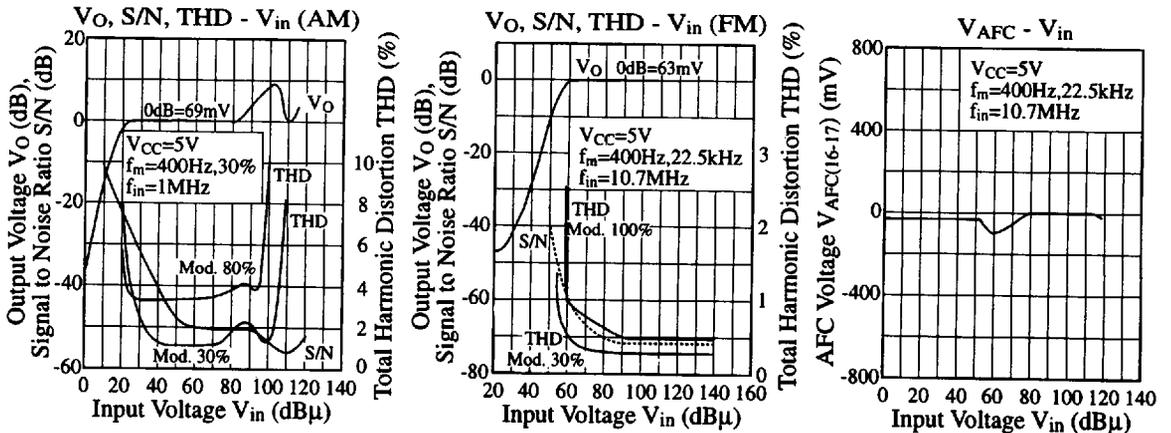
■ Coil Specifications

Symbol	Use, Freq.	Type No.	Maker	Connection Diagram	Number of Turns	Tuning Cap.	Unloaded Q
T <sub>1</sub>	FM Quad Coil 10.7MHz	EIF-7S752A	Matsushita		①...② 8T ②...③ 5T ④...⑥ 3T	100pF	90±20%
T <sub>2</sub>	AM MW Osc. Coil	ELL-7S754	Matsushita		①...② 4T ②...③ 125T ④...⑥ 7T	-	95±20%
T <sub>3</sub>	AM Mixer Output 455kHz	EIA-7S802A	Matsushita		③...② 35T ⑥...④ 10T ②...① 19T	1500pF	60±30%

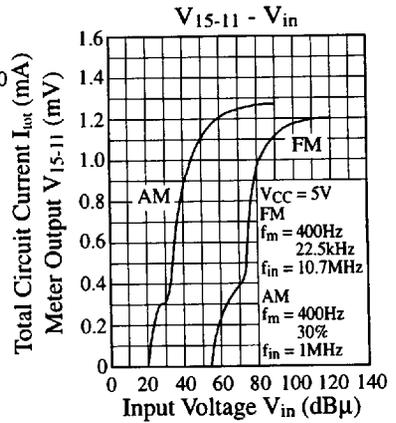
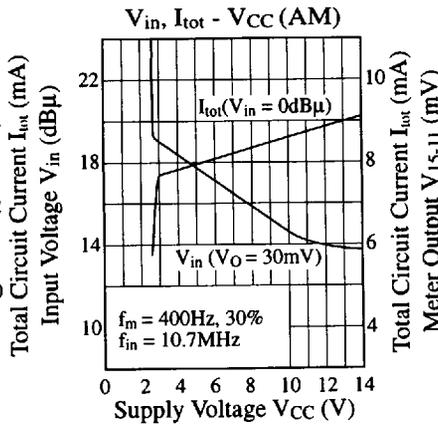
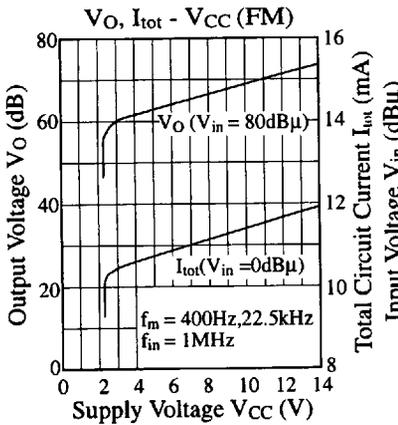
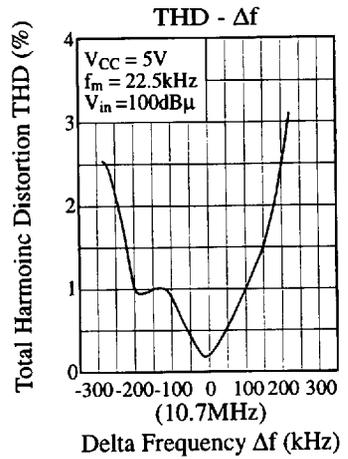
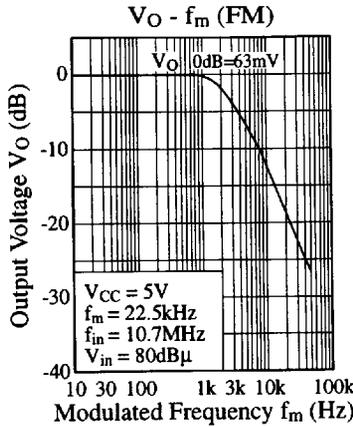
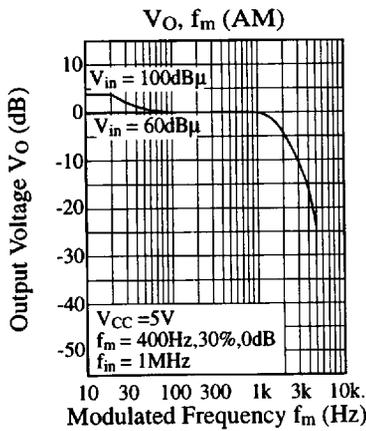
■ Ceramic Filter Specification

Symbol	Use	Type No.	Maker	Center Freq.	Band Width	Loss
CF <sub>1</sub>	AM IF	CFM2-455B	Toko	455Hz	7kHz (-6dB)	2.6dB

■ Characteristics Curve



■ Characteristics Curve (Continue)



■ Printed Circuit Board Layout (Scale: 1:1)

