



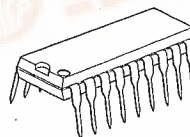
LOW POWER NARROW BAND FM IF

■ GENERAL DESCRIPTION

The NJM3359 is a low power narrow band FM detector integrated circuit for FM dual conversion of communication equipment. The NJM3359 includes oscillator, limiting amplifier, AFC circuit, quadrature detect, operational amplifier, squelch circuit, scan-control and muting switch.

The NJM3359 is a circuit of NJM3357 plus one stage limiting IF amplifier and AFC output terminal.

■ PACKAGE OUTLINE



NJM3359D

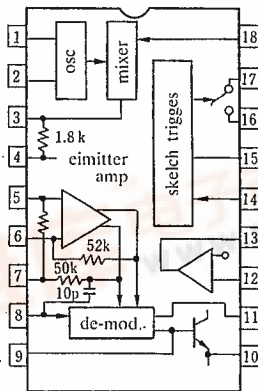
■ FEATURES

- Low Operating Current (3.6mA typ @ $V^+=6V$)
- Input Limiting Voltage (2.0 μV_{rms} typ @ -3dB)
- Minimum other parts.
- Package Outline DIP18
- Bipolar Technology

■ RECOMMENDED OPERATIONAL CONDITION

- Operating Voltage 4~9V

■ PIN CONFIGURATION



NJM3359D

PIN FUNCTION

Pin No.

- | | |
|-----------------------|-------------------------|
| 1. crystal | 10. de-modulator output |
| 2. crystal | 11. AFC |
| 3. mixer output | 12. filter input |
| 4. V^+ | 13. filter output |
| 5. limiter input | 14. skelch input |
| 6. de-coupling | 15. scan, control |
| 7. de-coupling | 16. audio muting |
| 8. detector input | 17. GND |
| 9. de-modulator input | 18. RF input |

NJM3359

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

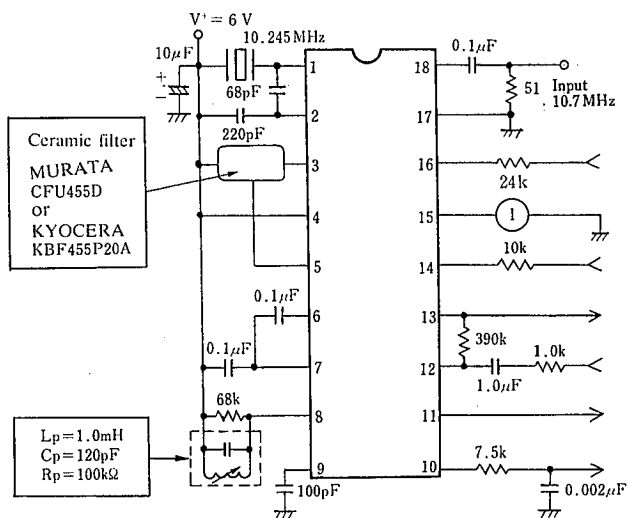
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*	12	V
Input Voltage	V ₁₈	1.0	V _{rms}
Muting Function	V ₁₆	-0.7 ~ 12	V _{PK}
Operating Temperature Range	T _{opr}	-20 ~ 75	°C
Storage Temperature Range	T _{stg}	-40 ~ 125	°C

■ ELECTRICAL CHARACTERISTICS

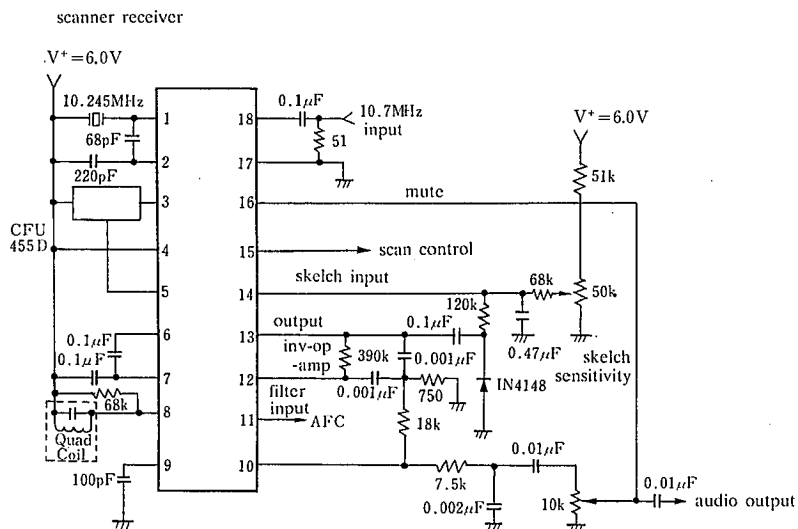
(V*=6V, fo=10.7MHz, Δf=±3.0kHz, fmod=1.0kHz, Ta=25°C)

PARAMETER	PIN	MIN.	TYP.	MAX.	UNIT
Operating Current	P _{IN} 4, 8	—	3.6	6.0	mA
Squelch OFF		—	5.4	7.0	mA
Squelch ON		—	8.0	—	μVrms
Input Sensitivity (S/N: 20dB)		—	2.0	—	μVrms
Input Limiting Voltage (-3dB)		—	33	—	dB
Mixer Voltage Gain	P _{IN} 18 - P _{IN} 3 Open	—	-1.0	—	dBm
Mixer Intercept Point	50Ω input	—	3.6	—	kΩ
Mixer Input Resistance		—	2.2	—	pF
Mixer Input Capacitance		450	700	—	mVrms
Recovered Audio Output Voltage	P _{IN} 10, V _{IN} =1.0mVrms	—	0.3	—	V/kHz
Detector Center Frequency Slope	P _{IN} 10	—	12	—	V/kHz
AFC Center Frequency Slope	P _{IN} 11, R _L =∞	—	40	51	dB
Filter Gain	f _{in} =10kHz, V _{IN} =5mV	—	0.62	—	V _{dc}
Squelch Threshold Voltage	P _{IN} 14, 10kΩ	—	0.01	1.0	μA
Scan Control Current	P _{IN} 15	—	2.0	2.4	mA
	P _{IN} 14 - High	—	5.0	10	Ω
	- Low	—	1.5	—	MΩ
Mute Switch Impedance	P _{IN} 16 - GND	—	—	—	—
	P _{IN} 14 - High	—	—	—	—
	- Low	—	—	—	—

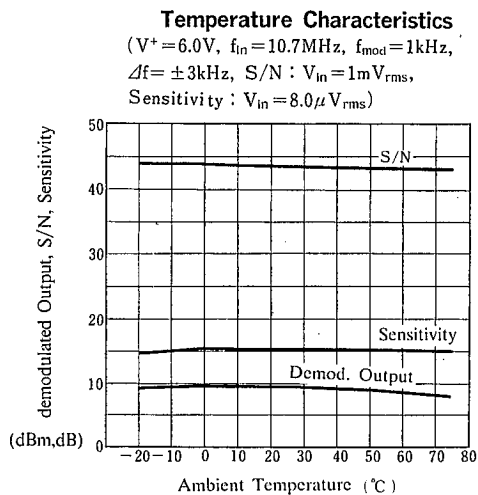
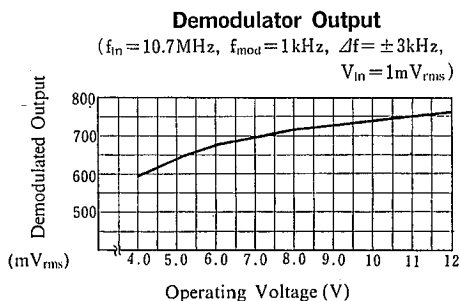
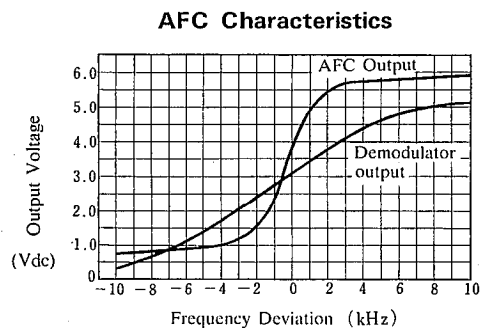
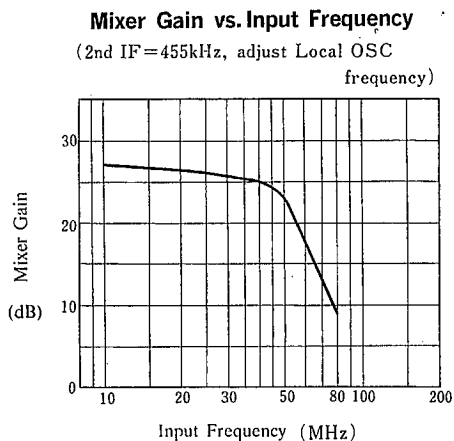
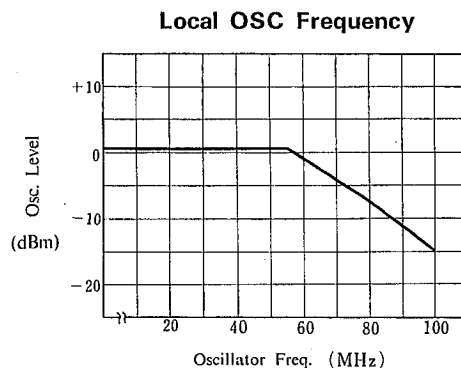
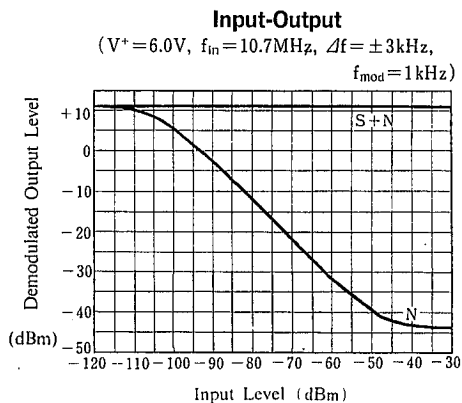
■ TEST CIRCUIT



■ APPLICATION EXAMPLE



TYPICAL CHARACTERISTICS



NJM3359

MEMO

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