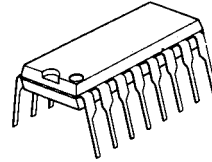


## LOW POWER NARROW BAND FM IF

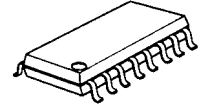
### ■ GENERAL DESCRIPTION

The **NJM3357** includes Oscillator, Mixer, Limiting Amplifier, Quadrature Discriminator, Active Filter, Squelch Scan Control, and Mute Switch. The **NJM3357** is designed for use in FM dual conversion communication equipment.

### ■ PACKAGE OUTLINE



**NJM3357D**

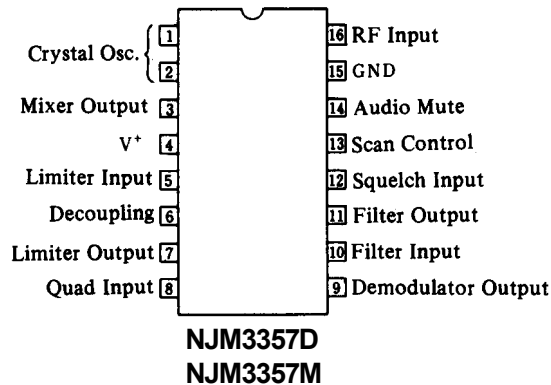


**NJM3357M**

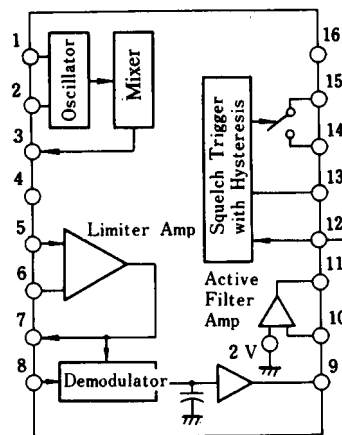
### ■ FEATURES

- Low Operating Current (3.0mA typ. @V<sup>+</sup>=6V)
- Minimum other parts.
- Package Outline DIP16, DMP16
- Bipolar Technology

### ■ PIN CONFIGURATION



### ■ BLOCK DIAGRAM



**NJM3357D**  
**NJM3357M**

# NJM3357

## ■ ABSOLUTE MAXIMUM RATINGS

( $T_a=25^\circ\text{C}$ )

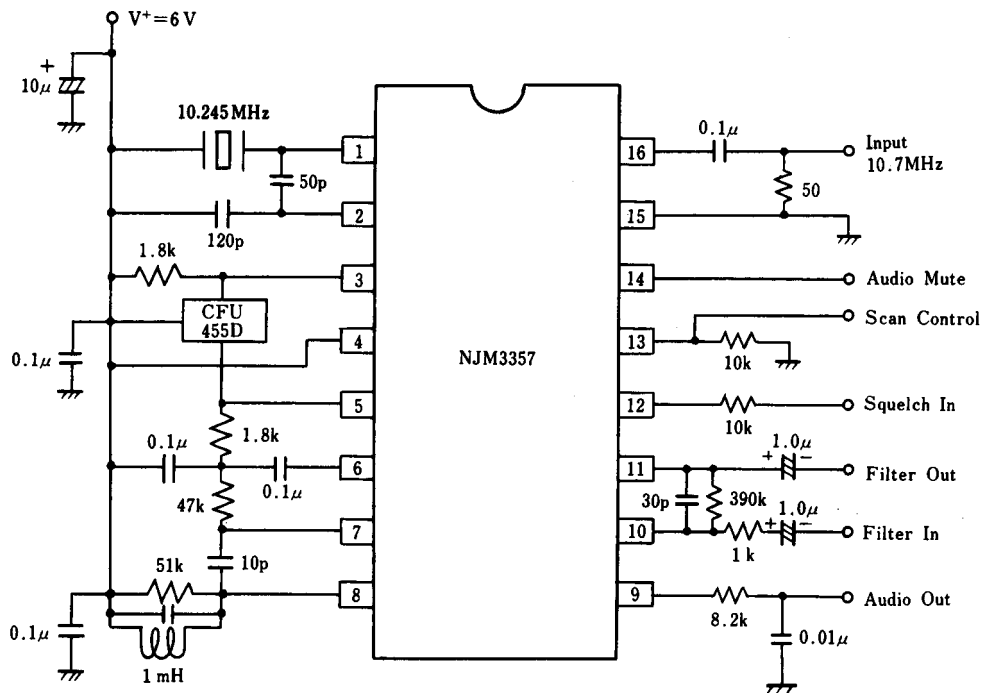
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	12	V
Operating Supply Voltage Range	$V^+_{opr}$	4 to 8	V
Detector Input Voltage	$V_8$	1.0	$V_{P-P}$
Input Voltage ( $V^+ \geq 6\text{V}$ )	$V_{16}$	1.0	$V_{rms}$
Mute Function	$V_{14}$	-0.5 to 5.0	$V_{PK}$
Operating Temperature Range	$T_{opr}$	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to +125	$^\circ\text{C}$

## ■ ELECTRICAL CHARACTERISTICS

( $V^+=6\text{V}$ ,  $f_o=10.7\text{MHz}$ ,  $\Delta f=\pm 3.0\text{kHz}$ ,  $F_{mod}=1.0\text{kHz}$ ,  $T_a=25^\circ\text{C}$ )

PARAMETER	PIN	MIN.	TYP.	MAX.	UNIT
Operating Current	4	-	2.0	-	mA
Squelch OFF		-	3.0	5.0	mA
Squelch ON		-	3.0	5.0	mA
Input Limiting Voltage (-3dB Limiting)	16	-	5.0	10.0	$\mu\text{V}$
Detector Output Voltage	9	-	3.0	-	V
Detector Output Impedance	-	-	400	-	$\Omega$
Recovered Audio Output Voltage ( $V_{IN}=10\text{mVrms}$ )	9	200	350	-	mVrms
Filter Gain ( $f=10\text{kHz}$ , $V_{IN}=5\text{mVrms}$ )	-	40	46	-	dB
Filter Output Voltage	11	1.8	2.0	2.5	V
Trigger Hysteresis	-	-	100	-	mV
Mute Function Low	14	-	15	50	$\Omega$
Mute Function High	14	1.0	10	-	$\text{M}\Omega$
Scan Function Low (Mute OFF $V_{12}=2\text{V}$ )	13	-	0	0.5	V
Scan Function High (Mute ON $V_{12}=0\text{V}$ )	13	5.0	-	-	V
Mixer Conversion Gain	3	-	20	-	dB
Mixer Input Resistance	16	-	3.3	-	$\text{k}\Omega$
Mixer Input Capacitance	16	-	2.2	-	pF

## ■ TEST CIRCUIT

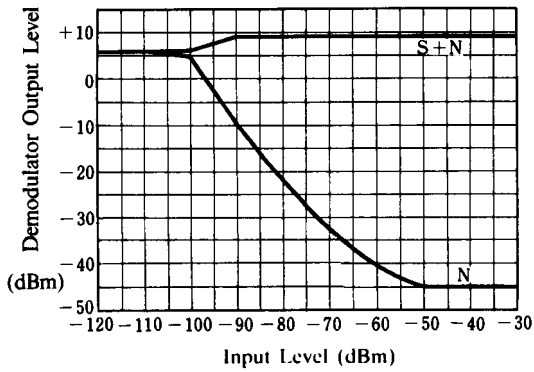


1mH: TOKO IFP455B

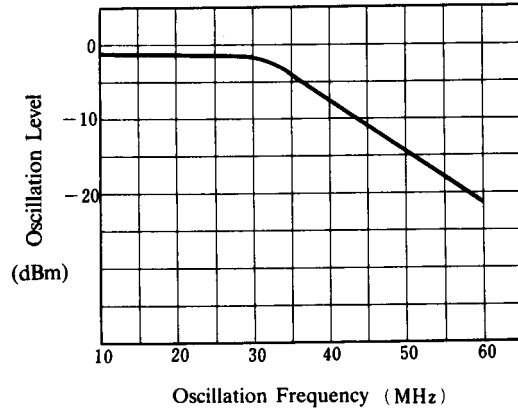
## ■ TYPICAL CHARACTERISTICS

### Input - Output

( $V^+ = 6.0V$ ,  $f_{in} = 10.7MHz$ ,  $f_{mod} = 1kHz$ ,  
 $\Delta f = \pm 3kHz$ )

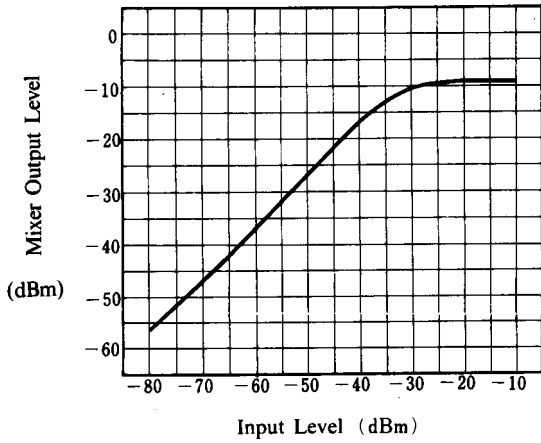


### Local OSC Frequency



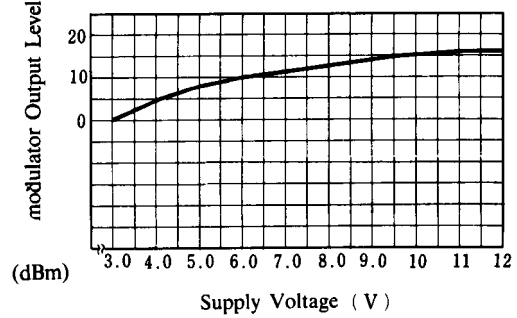
### Mixer Input - Output

( $V^+ = 6.0$ ,  $f_{in} = 10.7MHz$ , 2nd IF = 455kHz)



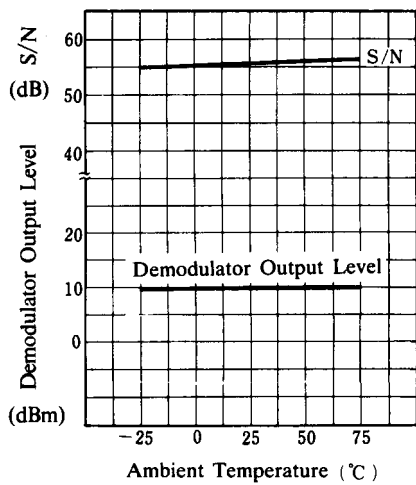
### Demodulator Output Level

( $f_{in} = 10.7MHz$ ,  $V_{in} = 10mV_{rms}$ ,  
 $\Delta f = \pm 3kHz$ ,  $f_{mod} = 1kHz$ )



### Demodulator Output Level, S/N

( $V^+ = 6.0V$ ,  $f_{in} = 10.7MHz$ ,  $V_{in} = 10mV_{rms}$ ,  
 $f_{mod} = 1kHz$ ,  $\Delta f = \pm 3kHz$ )



**[CAUTION]**

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