

NTE1559 Integrated Circuit FM IF Amp, Demod

Functions:

- FM IF Amplifier
- Quadrature Detector
- Audio Amplifier
- Muting Circuit
- Signal-Meter Driver
- AFC
- Center-Meter Driver
- Muting Controller (Bandwidth & Level)
- Center-Meter Short Circuit for AM Band (Pin15)
- IF Amp Killer for AM Band (Pin15)

Features:

- High Signal-to-Noise Ratio
- High Sensitivity
- Large Muting Attenuation
- Stable Operation using Full-Balanced Differential
- Triplex Amplifier
- High Linearity of Signal Meter
- Operational Input Level of Muting is Adjustable by Controlling External Resistance

Absolute Maximum Ratings:

Supply Voltage, V_{CC} 15V
 Power Dissipation, P_T 590mW
 Operating Temperature Range, T_{opr} -20° to $+70^{\circ}\text{C}$
 Storage Temperature Range, T_{stg} -55° to $+125^{\circ}\text{C}$

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = 13\text{V}$, $f_c = 10.7\text{MHz}$, $f_m = 400\text{Hz}$, $f = 75\text{kHz}$ dev. unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Current	I_{CCmax}	$V_{in} = 100\text{dB}\mu$, 2V supplied to Pin5, +150kHz detuned	–	30.5	39.3	mA
Limiting Sensitivity	$V_{in(lim)}$	Input level lower by 3dB than ($V_{o(AF)}$ under 100dB μ of input voltage)	–	33	37	dB μ
Recovered AF Voltage	$V_{o(AF)}$	$V_{in} = 100\text{dB}\mu$	280	380	510	mV
Total Harmonic Distortion	THD	$V_{in} = 100\text{dB}\mu$	–	0.01	0.08	%
Signal-to-Noise Ratio	S/N	$V_{in} = 100\text{dB}\mu$	83	88	–	dB
AM Rejection	AMR	$V_{in} = 100\text{dB}\mu$, $f_m = 1\text{kHz}$, MOD = 30%	45	60	–	dB
Muting Attenuation	Mute _(ATT)	(Output Voltage under 100dB μ if V_{in} and with Pin5 Open) = 0dB, 2V fed to Pin5 via 12k Ω	83	100	–	dB

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 13\text{V}$, $f_c = 10.7\text{MHz}$, $f_m = 400\text{Hz}$, $f = 75\text{kHz}$ dev. unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Muting Bandwidth	$BW_{(\text{Mute})}$	The sum of plus and minus side Δf_c 's for $V_{12} = 1.4\text{V}$ under $100\text{dB}\mu$ if V_{in}	60	100	160	kHz
Muting Sensitivity	$V_{in(\text{Mute})}$	Without muting level control, Pin16 Open, $V_{12} = 1.4\text{V}$	36	43	60	$\text{dB}\mu$
Muting Sensitivity Control Range	$\Delta V_{in(\text{Mute})}$	Max Input Level for Muting Level Control	75	—	—	$\text{dB}\mu$
Meter Driven Voltage (1)	V_{13-0}	$V_{in} = 0\text{dB}\mu$	—	0	—	V
Meter Driven Voltage (2)	V_{13-70}	$V_{in} = 70\text{dB}\mu$	0.9	1.6	—	V
Meter Driven Voltage (3)	V_{13-110}	$V_{in} = 110\text{dB}\mu$	4.5	5.5	—	V
Recovered AF Voltage Attenuation (for AM Band)	$V_{O(\text{AM})}$	$V_{in} = 100\text{dB}\mu$, Pin15 Open, 13V supplied to Pin15 via $4.7\text{k}\Omega$	60	81	—	dB
Center-Meter Voltage (For AM Band)	$V_{CM(\text{AM})}$	$V_{in} = 100\text{dB}\mu$, +150kHz detuned, the voltage difference of Pin7 and Pin10 with 13V supplied to Pin15	-30	+7	+30	mV

Pin Connection Diagram

