



**ELECTRONICS, INC.**  
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## 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°C  
 Storage Temperature Range,  $T_{stg}$  ..... -55° to +125°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 $\mu$ of input voltage)	-	33	37	dB $\mu$
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 <sub>(ATT)</sub>	(Output Voltage under 100dB $\mu$ if $V_{in}$ and with Pin5 Open) = 0dB, 2V fed to Pin5 via 12k $\Omega$	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 $\Delta f_c$ '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**

