

NTE1292 Integrated Circuit IF Amplifier and Detector

Description:

The NTE1292 is a monolithic integrated circuit in a 14-Lead DIP type package specifically designed for audio detection in TV and FM radio receivers. It incorporates an 8-stage limiting IF amplifier and balanced detector plus a DC operated volume control.

Pin3 and Pin4 are connected to the collector and base of a transistor which may be used as an AF-preamplifier or as a switch.

At Pin12 a zener-diode is accessible which can be used to stabilize the supply voltage of this integrated circuit or the voltage of other circuit elements in the set.

Features:

- Electronic Attenuator: Replaces Conventional AC Volume Control
- Volume Reduction Range: 85dB Typ
- Sensitivity: 3dB Limiting Voltage 30 μ V Typ
- Excellent AM Rejection 68dB Typ at 10mV
- Audio Output Voltage: 1V Typ
- Wide Supply Voltage Range: V_{CC} = 6V to 18V
- Internal Zener Diode Regulator
- Very Low External Component Requirement
- Simple Detector Alignment: One Coil

Absolute Maximum Ratings:

Supply Voltage, V_{11}	18V
Volume Control Voltage, V_5	4V
Zener Current, I_{12}	20mA
Transistor Collector Current, I_3	5mA
Transistor Base Current, I_4	2mA
Bias Resistance (Max), R_{13-14}	1k Ω
Operating Temperature Range, T_{opr}	-15° to +70°C
Storage Temperature Range, T_{stg}	-65° to +150°C

Electrical Characteristics: ($V_{CC} = 12V$, $T_A = +25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_{CC}	$R_5 = \infty$	10	14	18	mA
		$R_5 = 0$	11	—	20	mA
IF Voltage Gain	G_V	$f = 5.5MHz$	—	68	—	dB
IF Output Voltage (Each Output)	V_O	At Limiting	170	250	—	mV _{P-P}
AF Output Voltage	V_{AF}	$f = 5.5MHz$, $\Delta f = \pm 50kHz$, $f_{MOD} = 1kHz$, $V_I = 10mV$, $Q = 45$	0.7	1.0	—	V
Distortion		$f = 5.5MHz$, $\Delta f = 25kHz$, $f_{MOD} = 1kHz$, $V_I = 10mV$, $Q = 45$	—	1.5	—	%
		$f = 10.7MHz$, $\Delta f = \pm 50kHz$, $f_{MOD} = 1kHz$, $V_I = 10mV$, $Q = 20$	—	0.2	—	%
Input Voltage Before Limiting	V_{LIM}	$f = 5.5MHz$, $\Delta f = \pm 50kHz$, $f_{MOD} = 1kHz$, $Q = 45$	—	30	60	μV
Input Impedance	Z_I	$f = 5.5MHz$	15/6	40/4.5	—	k Ω /pF
Output Resistance	R_O		1.9	2.6	3.3	k Ω
Volume Control Range	$\frac{V_{af} Max}{V_{af} Min}$		70	85	—	dB
DC Component of the Output Signal	V_8	$V_I = 0$	6.2	7.3	8.4	V
AM Rejection	a_{AM}	$f = 5.5MHz$, $\Delta f = \pm 50kHz$, $f_{MOD} = 1kHz$, $V_I = 500\mu V$, $MOD = 30\%$	50	60	—	dB
		$f = 5.5MHz$, $\Delta f = \pm 50Hz$, $f_{MOD} = 1kHz$, $V_I = 10mV$, $MOD = 30\%$	—	68	—	dB
Potentiometer Resistance	R_5	1dB Attenuation	—	3.7	4.7	k Ω
Potentiometer Voltage	V_5	1dB Attenuation	—	2.2	2.5	V
Potentiometer Resistance	R_5	70dB Attenuation	1.0	1.4	—	k Ω
Potentiometer Voltage	V_5	70dB Attenuation	—	1.2	—	V
Noise Voltage at Output	V_5	$V_I = 10mV$	—	30	—	μV
Zener Voltage	V_{12}	$I_{12} = 5mA$	11.2	12.0	13.4	V
Zener Slope Resistance	R_Z		—	30	50	Ω
Breakdown Voltage	$V_{(BR)CBO}$		45	65	—	V
	$V_{(BR)CEO}$	$I_3 = 500\mu A$	18	24	—	V
Current Gain	h_{FE}	$I_3 = 1mA$	50	100	500	

Pin Connection Diagram

