



ELECTRONICS, INC.  
44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089

## 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 30μV 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), $R_{13-14}$ .....	1kΩ
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 <sub>P-P</sub>
AF Output Voltage	$V_{AF}$	$f = 5.5MHz, \Delta f = \pm 50kHz, f_{MOD} = 1kHz, V_1 = 10mV, Q = 45$	0.7	1.0	–	V
Distortion		$f = 5.5MHz, \Delta f = 25kHz, f_{MOD} = 1kHz, V_1 = 10mV, Q = 45$	–	1.5	–	%
		$f = 10.7MHz, \Delta f = \pm 50kHz, f_{MOD} = 1kHz, V_1 = 10mV, Q = 20$	–	0.2	–	%
Input Voltage Before Limiting	$V_{LIM}$	$f = 5.5MHz, \Delta f = \pm 50kHz, f_{MOD} = 1kHz, Q = 45$	–	30	60	$\mu V$
Input Impedance	$Z_I$	$f = 5.5MHz$	15/6	40/4.5	–	k $\Omega$ /pF
Output Resistance	$R_O$		1.9	2.6	3.3	k $\Omega$
Volume Control Range	$\frac{V_{af Max}}{V_{af Min}}$		70	85	–	dB
DC Component of the Output Signal	$V_8$	$V_1 = 0$	6.2	7.3	8.4	V
AM Rejection	$a_{AM}$	$f = 5.5MHz, \Delta f = \pm 50kHz, f_{MOD} = 1kHz, V_1 = 500\mu V, MOD = 30\%$	50	60	–	dB
		$f = 5.5MHz, \Delta f = \pm 50Hz, f_{MOD} = 1kHz, V_1 = 10mV, MOD = 30\%$	–	68	–	dB
Potentiometer Resistance	$R_5$	1dB Attenuation	–	3.7	4.7	k $\Omega$
Potentiometer Voltage	$V_5$	1dB Attenuation	–	2.2	2.5	V
Potentiometer Resistance	$R_5$	70dB Attenuation	1.0	1.4	–	k $\Omega$
Potentiometer Voltage	$V_5$	70dB Attenuation	–	1.2	–	V
Noise Voltage at Output	$V_5$	$V_1 = 10mV$	–	30	–	$\mu V$
Zener Voltage	$V_{12}$	$I_{12} = 5mA$	11.2	12.0	13.4	V
Zener Slope Resistance	$R_Z$		–	30	50	$\Omega$
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

