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NTE1785 Integrated Circuit TV IF Amp ^w/Demod and AFC (For PNP Tuners)

Description:

The NTE1785 is an IF amplifier and demodulator circuit in a 16-Lead DIP type package designed for use in color and black and white television receivers using PNP tuners.

Features:

- Gain-Controlled Wide-Band Amplifier Providing Complete IF Gain
- Synchronous Demodulator
- White Spot Inverter
- Video Preamplifier with Noise Protection
- AFC Circuit which can be Switched ON/OFF by a DC Level (e.g. During Tuning)
- AGC Circuit with Noise Gating
- Tuner AGC Output (PNP Tuners)
- VCR Switch which Switches Off the Video Output (e.g. For Insertion of a VCR Playback Signal)

Absolute Maximum Ratings:

Supply Voltage, V_{11-13} 13.2V
 Tuner AGC Voltage, V_{4-13} 12V
 Total Power Dissipation, P_{tot} 900mW
 Operating Ambient Temperature Range, T_A -25° to +60°C
 Storage Temperature Range, T_{stg} -55° to +125°C

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{11-13} = 12\text{V}$, $f = 38.9\text{MHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range	V_{11-13}		10.2	12.0	13.2	V
IF Input Voltage for Onset of AGC (RMS Value)	$V_{1-16(rms)}$		–	100	150	μV
Differential Input Impedance	$ Z_{1-16} $	In parallel with 2pF	–	2	–	k Ω
Zero-Signal Output Level	V_{12-13}	Note 1	–	6 \pm 0.3	–	V
Top Sync Output Level	V_{12-13}		2.9	3.07	3.2	V
IF Voltage Gain Control Range	G_V		–	64	–	dB
Bandwidth of Video Amplifier	B	3dB	–	6	–	MHz

Note 1. So-called “Projected Zero Point”, e.g. with switched demodulator.

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{11-13} = 12\text{V}$, $f = 38.9\text{MHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Signal-to-Noise Ratio	S/N	$V_i = 10\text{mV}$, Note 2	–	58	–	dB
Differential Gain	dG		–	4	10	%
Differential Phase			–	2	10	deg.
Intermodulation, Blue		1.1MHz, Note 3	–	46	60	dB
Intermodulation, Yellow			–	46	50	dB
Intermodulation		3.3MHz, Note 4	–	46	54	dB
Carrier Signal at Video Output			–	4	30	mV
2 nd Harmonic of Carrier at Video Output			–	20	30	mV
White Spot Inverter Threshold Level			–	6.6	–	V
White Spot Insertion Level			–	4.7	–	V
Noise Inverter Threshold Level			–	1.8	–	V
Noise Insertion Level			–	3.8	–	V
External Video Switch (VCR) Switched Off	V_{14-13}		–	–	1.1	V
Tuner AGC Output Current Range	I_4		0	–	10	mA
Tuner AGC Output Voltage	V_{4-13}	$I_4 = 10\text{mA}$	–	–	0.3	V
Tuner AGC Output Leakage Current	I_4	$V_{14-13} = 11\text{V}$, $V_{4-13} = 12\text{V}$	–	–	15	μA
Maximum AFC Output Voltage Swing	ΔV_{5-13}		10	11	–	V
Detuning for AFC Output Voltage Swing	Δf	of 10V	–	100	200	kHz
AFC Zero-Signal Output Voltage (Minimum Gain)	V_{5-13}		4	6	8	V
AFC Switches ON	V_{6-13}		3.2	–	–	V
AFC Switches OFF	V_{6-13}		–	–	1.5	V

Note 2. $S/N = V_O \text{ black-to-white} / V_{n(rms)}$ at $B = 5\text{MHz}$.

Note 3. $20 \log (V_O \text{ at } 4.4\text{MHz} / V_O \text{ at } 1.1\text{MHz}) + 3.6\text{dB}$.

Note 4. $20 \log (V_O \text{ at } 4.4\text{MHz} / V_O \text{ at } 3.3\text{MHz})$

Pin Connection Diagram



