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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°C, $V_{11–13}$ = 12V, f = 38.9MHz 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	$\lvert Z_{1–16}\rvert$	In parallel with 2pF	–	2	–	kΩ
Zero–Signal Output Level	$V_{12–13}$	Note 1	–	6 ±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

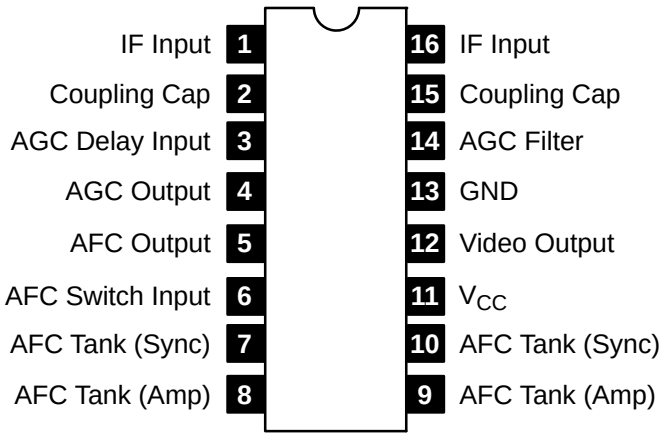
Note 1. So–called “Projected Zero Point”, e.g. with switched demodulator.

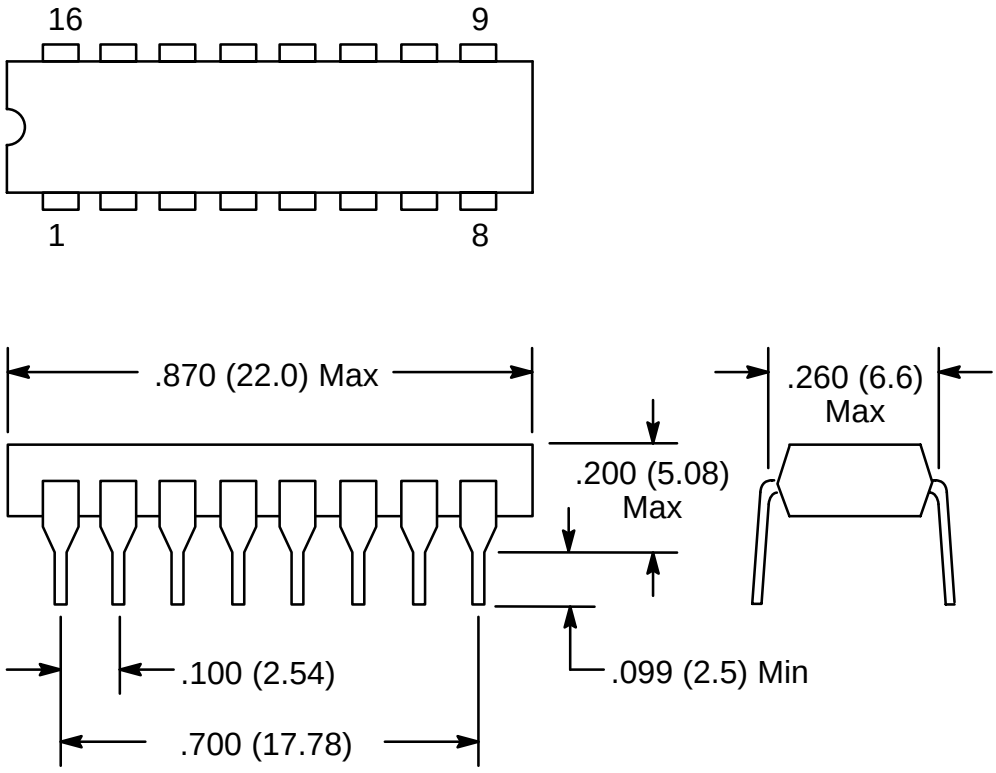
Electrical Characteristics (Cont'd): (T_A = +25°C, $V_{11–13}$ = 12V, f = 38.9MHz unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Signal–to–Noise Ratio	S/N	V_i = 10mV, 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
2nd 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 = 10mA	–	–	0.3	V
Tuner AGC Output Leakage Current	I_4	$V_{14–13}$ = 11V, $V_{4–13}$ = 12V	–	–	15	µA
Maximum AFC Output Voltge Swing	$\Delta V_{5–13}$		10	11	–	V
Detuning for AFC Output Voltage Swing	Δf	of 10V	–	100	200	kHz
AFC Zero–Signal Output Voltage (Minumum 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 black–to–white/$V_{n(rms)}$ at B = 5MHz.
Note 3. 20 log (V_O at 4.4MHz/V_O at 1.1MHz) + 3.6dB.
Note 4. 20 log (V_O at 4.4MHz/V_O at 3.3MHz)

Pin Connection Diagram




16
9
1
8
.870 (22.0) Max
.260 (6.6)
Max
.200 (5.08)
Max
.100 (2.54)
.099 (2.5) Min
.700 (17.78)