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NTE1861 Integrated Circuit TV Video IF Processor

Features:

- PLL True Synchronous Detector Incorporates VCO
- Quadrature Sound FM Detector
- AGC Defeat Terminal (Pin 20)

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Supply Voltage, V_{CC}	13.8V
Circuit Voltage	
$V_{5-1,14,21}$	$V_{4,12-1,14,21}$ to 0V
$V_{6-1,14,21}$	$V_{4,12-1,14,21}$ to 0V
$V_{7-1, 14,21}$	$V_{4,12-1,14,21}$ to 0V
$V_{10-1,14,21}$	$V_{4,12-1,14,21}$ to 0V
$V_{18-1,14,21}$	$V_{4,12-1,14,21}$ to 0V
$V_{25-1,14,21}$	8.0V to 0V
Circuit Current	
I_{17}	-7mA to +0.5mA
I_{19}	-7mA to +0.5mA
I_{26}	-5mA to +0.5mA
Power Dissipation ($T_A = +70^\circ\text{C}$), P_D	1300mW
Operating Ambient Temperature Range, T_{opr}	-20° to +70°C
Storage Temperature Range, T_{stg}	-55° to +150°C

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
IF Amplifier • Detection • AGC • AFC Circuit						
Video Detector Output	V_O	$f = 58.75\text{MHz}$, $V_i = 80\text{dB}\mu$, $m = 87.5\%$	1.8	2.1	2.4	V_{p-p}
Input Sensitivity	$S_{(IN)}$	$V_O = -3\text{dB}$	49	53	57	$\text{dB}\mu$
Max. Allowable Input	$V_{I(max)}$		103	108	-	$\text{dB}\mu$
Differential Gain	DG	$f = 58.75\text{MHz}$, $V_i = 80\text{dB}\mu$, $m = 87.5\%$	-	2	6	%
Differential Phase	DP	$f = 58.75\text{MHz}$, $V_i = 80\text{dB}\mu$, $m = 87.5\%$	-	2	5	deg
Frequency Characteristics	f_c	$V_O = -3\text{dB}$	4.5	5	6	MHz
RF AGC Gain	G_{RFAGC}	$f = 10\text{kHz}$, $V_i = 10\text{mV}$	40	44	48	dB
AFC Phase Det. Sensitivity	μ	$R_L = 68\Omega/82\text{k}\Omega$	30	40	60	mV/kHz
AFC Center Voltage	V_{10}	$R_L = 68\text{k}\Omega/82\text{k}\Omega$	4.2	6.5	8.2	V
VCO APC Circuit						

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
VCO Max. Variable Range	$\Delta f_{V(1)}$	$V_{13} = 2V$	+0.85	+1.5	+2.5	MHz
	$\Delta f_{V(2)}$	$V_{13} = 3V$	-4.0	-2.4	-1.4	MHz
VCO Control Sensitivity	β		3	4.5	6	kHz/mV
APC Pull-In Range	$f_{APC(1)}$		+0.85	+1.5	+2.5	MHz
	$f_{APC(2)}$		-3.5	-2.5	-1.6	MHz
SIF Circuit						
Total Detector Output	V_O	$f_o = 4.5\text{MHz}, f_m = 400\text{Hz}, \Delta f = \pm 25\text{kHz}, V_i = 100V_{ms}$	400	500	600	mV_{rms}
Input Limiting Voltage	$V_{i(lim)}$	$f_o = 4.5\text{MHz}, f_m = 400\text{Hz}$	-	36	40	$\text{dB}\mu$
DC Characteristics						
Circuit Current	I_4+I_{12}		50	70	90	mA

Pin Connection Diagram

