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## NTE1469 Integrated Circuit Video IF & AFT

**Functions:**

- PIF Amplifier
- Video Detector
- AFS with Defeat
- Noise Canceller
- Forward AGC

**Features:**

- SAW Filter Connectable Without Preamp
- Input Sensitivity:  $V_{in} = 50\mu V_{rms}$  Typ.
- Output Peak-to-Peak Voltage at Video Detector Adjustable Externally.
- High S/N under Weak-Input Signal

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

Supply Voltage, $V_{CC}$ .....	15V
Input Voltage, $V_{in}$ .....	$5V_{p-p}$
Power Dissipation ( $T_A = +75^\circ C$ ), $P_T$ .....	625mW
Operating Temperature, $T_{opr}$ .....	$-20^\circ$ to $+75^\circ C$
Storage Temperature, $T_{stg}$ .....	$-40^\circ$ to $+125^\circ C$

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

Item	Symbol	Test Conditions	Min	Typ	Max	Unit	
Supply Current	$I_{CC}$	No signal input	Pin 21	21.0	27.0	34.5	mA
			Pin 9	22.0	25.5	28.4	
Input Sensitivity	$V_{in}$	$V_{out} = 1.35V_{P-P}$ (Pin 24)	25	50	100	$\mu V_{rms}$	
AFC Output Voltage at No Signal Input	$V_{16}$	$V_{C(AFC)} = 0$ , $V_{15} = 1V$	5.4	6.5	7.7	V	
		$V_{in(AFC)} = 0$ , $V_{15} = 0$	-	4.5	-		
Signal-to-noise Ratio	S/N	$V_{in} = 3mV_{rms}$ (no demodulation) $S/N = 20 \log V_{out}/V_n$ (Pin 2)	-	53	-	V	
Max. Input Voltage	$V_{in\ max}$	$V_{13-14} = 80mV_{rms}$ , $DG = 1dB$	-	12	-	$mV_{rms}$	
Output Carrier-Zero DC Voltage	$V_W$	$V_{in} = 0$ , $V_{22} = 1.8V$	4.5	5.8	7.0	V	
Sync Tip Voltage	$V_p$	$V_{in} = 3mV_{rms}$ , $m = 75\%$	Pin 2	3.9	4.1	4.3	V
			Pin 24	7.35	7.7	8.05	
Differential Voltage between Pin 14 and Pin 13	$V_{14,13}$	Input Voltage: $80\mu V_{rms} \sim 16mV_{rms}$ C.W. DC Voltage between Pin 14 and Pin 13 Measure $V_{14,13}$	-10	0	+10	mV	
Max, Video Output Voltage	$V_{2M}$	Voltage between Pin 14 and Pin 13: $300mV_{rms}$ C.W. $V_{22} = 1.8V$ , Measure DC Voltage at Pin 2	-	-	2.5	V	
Video Frequency Response	$f_B$	$V_{in}$ : modulation of video sweep. $3mV_{rms}$ Standardizing the output voltage at 100kHz Pin 2	2MHz	-	0	-	dB
			4MHz	-	0	-	
			6MHz	-	+1.5	-	
Supply Voltage for IF Block	$V_9$	$V_{CC} = 12V$ , $R_3 = 180\Omega$ , DC voltage at Pin 9 connecting $V_{CC}$ through $180\Omega$	$V_{in} = 0$	6.4	7.4	7.9	V
			$V_{in} = 3mV_{rms}$	5.8	6.4	7.0	
Small Signal Video Amp. Gain	$A_{AC}$	Input Signal at Pin 3: 10kHz, $0.1V_{P-P}$ plus 4.5V bias, Measure AC gain to Pin 24	-1.5	-0.7	0	dB	
Video Amp. DC Transfer Ratio	$A_{DC}$	Input Voltage at Pin 3: 4V DC Voltage at Pin 24	7.25	7.6	7.95	V	
Video Amp. Bandwidth	$B_V$	Input Signal at Pin 3: 0 ~ 20MHz Sweep: $0.1V_{P-P} + 4.5V$ , Frequency when voltage at Pin 24 goes down 3dB	8	-	-	MHz	
Noise Canceller Threshold Voltage	$V_{NS1}$	Input Signal Waveform 1 is applied to Pin 3. $V_{NS}$ means $V_N$ at Pin 3 when the pulse peak at Pin 24 begins to rise up	0.3	0.5	0.7	V	
Noise Canceller Clamp Voltage	$V_{NC}$	Input Signal Waveform 1 is applied to Pin 3. $V_{NC}$ at Output Signal Waveform 1 of Pin 24 when $V_N = 1V$	0.45	0.7	0.95	V	
AFC Detector Sensitivity	$\mu AFC$	$f_o = 58.75MHz$ , $V_{in(AFC)} = 14mV_{rms}$ , $V_{CC} = 12V$ , $\Delta V = 10V$ (1 ~ 11V)	-	-	200	$\frac{kHz}{10V}$	

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

Item	Symbol	Test Conditions	Min	Typ	Max	Unit	
AFC Output Voltage for Deviation of Input Frequency	$V_{AFC}$	$V_{CC} = 12V$ , $f_o = 58.75MHz$ , $V_{in(AFC)} = 5mV_{rms}$	$f_o + 2.0MHz$	2.0	-	-	V
			$f_o + 1.5MHz$	1.0	-	-	
			$f_o + 0.7MHz$	-	-	1.0	
			$f_o \pm 0MHz$	-	6.0	-	
			$f_o - 0.7MHz$	11.0	-	-	
			$f_o - 1.5MHz$	-	-	11.0	
			$f_o - 2.0MHz$	-	-	10.0	
Noise Figure	$F_1$	Voltage at Pin 12 is fixed, $V_{in} = 3mV_{rms}$	-	6.0	-	dB	
IF Input Impedance	$Z_{in}$	Either Pin 6 or Pin 7 is grounded, Pin 12: 8.0V	$C_{in}$	30	40	50	pF
			$R_{in}$	70	100	140	$\Omega$



