



ELECTRONICS, INC.
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NTE1611 Integrated Circuit Video and FM Sound Modulator/Carrier Oscillator for VCR

Features:

- Video Clamp
- White Clip
- Main Carrier Oscillator
- Main Carrier Attenuator
- Video Modulator
- Sound Modulator
- Sound FM Modulator
- Channel Switch
- Low Power Operation
- Adjustable Output Power Level and V/A Ratio with External Resistance
- Minimum Number of External Parts Required

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

Supply Voltage, V_{CC}	12V
Power Dissipation ($T_A = +70^\circ\text{C}$), P_D	480mW
Input Signal Level, e_{IN}	$2.5V_{P-P}$
Input Level at Pin7, V_{IN}	GND to $V_{CC}+0.3V$
Operating Temperature Range, T_{opr}	-10° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 6.2V$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Supply Voltage	V_{CC}		5.7	6.2	6.7	V	
Supply Current	I_{CC}	$S_1 = 2, S_2 = 1, S_3 = 2$	16.5	21.5	28.0	mA	
Video RF Output Level	$v_o(f_{p1})$	$S_2 = 1, S_3 = 2, v_{i1} = \text{open},$ $v_{o1} = \text{measure}$	$S_1 = 2$	85	87	89	dB μ
	$v_o(f_{p2})$		$S_1 = 1$	85	87	89	dB μ
Video RF Output Level Temperature Drift	$\Delta v_o(f_{p1})$	$v_o(f_{p1}) (T_A = -10^\circ \text{ to } +70^\circ\text{C}) -$ $v_o(f_{p1}) (T_A = +25^\circ\text{C})$	-	± 2	± 3	dB	
	$\Delta v_o(f_{p2})$	$v_o(f_{p2}) (T_A = -10^\circ \text{ to } +70^\circ\text{C}) -$ $v_o(f_{p2}) (T_A = +25^\circ\text{C})$	-	± 2	± 3	dB	
Video Modulation Factor	m_{p1}	$S_2 = 1, S_3 = 2, v_{i1} = 1V_{P-P}$	$S_1 = 2$	73	76	79	%
	m_{p2}		$S_1 = 1$	73	76	79	%
Video Modulation Factor Temperature Drift	Δm_{p1}	$m_{p1} (T_A = -10^\circ \text{ to } +70^\circ\text{C}) -$ $m_{p1} (T_A = +25^\circ\text{C})$	-	-	± 3	%	
	Δm_{p2}	$m_{p2} (T_A = -10^\circ \text{ to } +70^\circ\text{C}) -$ $m_{p2} (T_A = +25^\circ\text{C})$	-	-	± 3	%	

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 6.2\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Video Modulation Factor Difference	Δm_p	$m_{p1} - m_{p2}$	-	-	± 3	%	
Maximum Video Modulation Factor	$m_{p2\text{max}}$	$S_1 = 1, S_2 = 1, S_3 = 2, v_{i1} = 2V_{P-P}$ WHITE	92	96	-	%	
Maximum Video Modulation Temperature Drift	$\Delta m_{p2\text{max}}$	$T_A = -10^\circ$ to $+70^\circ\text{C}$, $m_{p2\text{max}}$	90	96	-	%	
Differential Gain	DG ₁	$S_2 = 1, S_3 = 2, v_{i1} = 1V_{P-P}$ STAIRCASE	$S_1 = 2$	-	2	5	%
	DG ₂		$S_1 = 1$	-	2	5	%
Differential Phase	DP ₁	$S_2 = 1, S_3 = 2, v_{i1} = 1V_{P-P}$ STAIRCASE	$S_1 = 2$	-	2	5	deg
	DP ₂		$S_1 = 1$	-	2	5	deg
Video Section Harmonic Distortion	v_{oH}	$S_1 = 1, S_2 = 1, S_3 = 2, v_{i1} = 1V_{P-P}$ 1MHz CW	-	-	-40	dB	
Sound RF Output Level	$v_o (fS_1)$	$S_2 = 1, S_3 = 2,$ $v_o = \text{Measure}$	$S_1 = 2$	81	83	85	dB μ
	$v_o (fS_2)$		$S_1 = 1$	81	83	85	dB μ
Sound FM Temperature Drift	Δf_S	$S_1 = 1, S_2 = 2, S_3 = 2,$ $T_A = 0^\circ$ to $+60^\circ\text{C},$ ($f_S = 4.5\text{MHz}, T_A = +25^\circ\text{C}$)	-	-	± 10	kHz	
Sound FM Modulation Sensitivity	β_S	$S_1 = 1, S_2 = 2, S_3 = 1$	0.35	0.45	0.55	kHz/ mV	
Sound Total Harmonic Distortion	THD	$S_1 = 1, S_2 = 2, S_3 = 3, v_{i2} = 1\text{kHz}$	-	0.3	1.0	%	

Pin Connection Diagram



