

NTE846 Integrated Circuit TV Video Modulator

Description:

The NTE846 is designed to interface color difference, audio, and luminance signals to the antenna terminals of a TV receiver. It consists of a sound subcarrier oscillator, chroma subcarrier oscillator, quadrature chroma modulators, and RF oscillators and modulators for two low-VHF channels.

The NTE846 allows video information from VTR's test equipment, games, or similar sources to be displayed on black and white or color TV receivers.

Features:

- DC Channel Switching
- Excellent Oscillator Stability
- 12V to 18V Supply Operation
- Low Intermodulation Products
- 5V_{p-p} Chroma Reference Signal
- May Be Used to Encode Composite Video

Absolute Maximum Ratings:

Supply Voltage	19V
(V ₁₆ -V ₁₅) Max	±5V
(V ₁₄ -V ₁₀) Max	7V
(V ₁₄ -V ₁₁) Max	7V
Power Dissipation Package (Note 1), P _D	1390mW
Chroma Osc Current I ₁₇ Max	10mA
Operating Temperature Range, T _{opr}	0° to 150°C
Storage Temperature Range, T _{stg}	-55° to +150°C
Lead Temperature (During Soldering, 10 seconds), T _L	+300°C

Note 1. For operation in ambient temperatures above 25°C, the device must be derated based on a 150°C maximum junction temperature and a thermal resistance of 90°C/W junction to ambient.

DC Electrical Characteristics: (All SW Normally Pos. 1, $V_A = 15V$, $V_B = 12V$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_S		20	35	45	mA
Sound Oscillator, Current Change	ΔI_{15}	Change V_A from 12.5V to 17.5V	0.3	0.6	0.9	mA
Chroma Oscillator Balance	V_{17}		9.5	11.0	12.5	V
Chroma Modulator Balance	V_{13}		7.0	7.4	7.8	V
R–Y Modulator Output Level	ΔV_{13}	SW 3: Pos. 2, Change SW 1 from Pos. 1 to Pos. 2	0.6	0.9	1.2	V
B–Y Modulator Output Level	ΔV_{13}	SW 3: Pos. 2, Change SW 2 from Pos. 1 to Pos. 2	0.6	0.9	1.2	V
Chroma Modulator Conversion Ratio	$\Delta V_{13}/\Delta V_3$	Divide ΔV_{13} by ΔV_3 , SW 3: Pos. 2, Change SW 0 from Pos. 1 to Pos. 2,	0.45	0.70	0.95	V/V
Channel A Oscillator “OFF” Voltage	V_8, V_9	SW 4: Pos. 2	0.5	1.5	3.0	V
Channel A Oscillator Current Level	I_9	$V_B = 12V$, $V_C = 13V$	2.5	3.5	5.0	mA
Channel B Oscillator “OFF” Voltage	V_6, V_7	SW 4: Pos. 2	0.5	1.5	3.0	V
Channel B Oscillator Current Level	I_6	$V_B = 12V$, $V_C = 13V$	2.5	3.5	5.0	mA
Channel A Modulator Conversion Ratio	$\Delta V_{11}/(V_{13}-V_{12})$	SW 1, SW 2, SW 3: Pos. 2, $V_B = 12V$, Change V_C from 13V to 11V for ΔV_{11} , Divide by $V_{13} - V_{12}$	0.35	0.55	0.75	V/V
Channel B Modulator Conversion Ratio	$\Delta V_{10}/(V_{13}-V_{12})$	All SW: Pos. 2, $V_B = 12V$, Change V_C from 13V to 11V, Divide as Above	0.35	0.55	0.75	V/V

AC Electrical Characteristics: ($V = 15V$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Chroma Oscillator Output Level	V_{17}	$C_{LOAD} \leq 20pF$	4	5	–	V_{P-P}
Sound Carrier Oscillator Level	V_{15}	Loaded by RC Coupling Network	2	3	4	V_{P-P}
Channel 3 RF Oscillator Level	V_8, V_9	Ch SW: Pos. 3, $f = 61.25MHz$, Use FET Probe	200	350	–	mV_{P-P}
Channel 4 RF Oscillator Level	V_6, V_7	Ch SW: Pos. 4, $f = 67.25MHz$, Use FET Probe	200	350	–	mV_{P-P}

Pin Connection Diagram

