

NTE746 Integrated Circuit TV Video IF Amplifier

Description:

The NTE746 is a monolithic integrated circuit in an 8-Lead DIP type package with wide-range AGC for replacement of 1st and 2nd IF stages in solid-state color and black and white TV sets. It will directly drive a 3rd IF stage.

Features:

- Center Frequency: $F_O = 45\text{MHz}$
- Bandwidth: $BW = 6\text{MHz}$
- Power Gain: 50dB Min
- AGC Range: 60dB Min
- Low Reverse-Transfer Admittance: $1\mu\text{mho Typ}$
- Y_{21} Constant to 75MHz
- 12V Operation, Single-Polarity Power Supply
- Total Supply Current: 20mA Typ
- Nearly Constant Input and Output Admittance over the Entire AGC Range

Applications:

- TV Video IF
- Defense Communications Satellite Programs
- Combined AM/FM Radio IF Amplifiers
- Linear Switch or Chopper for Multiplex Modulation or Demodulation

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

Power Supply, V_+	18V
Output Supply, V_1, V_8	18V
AGC Supply, V_{AGC}	$4V < V_{AGC} < V_+$
Differential Input Voltage, V_{in}	$\pm 7V$
Power Dissipation, P_D	625mW
Derate Above 25°C	5mW/ $^\circ\text{C}$
Operating Temperature Range, T_A	0° to $+75^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Characteristics						
Total Supply Current	I_S	Pin1, Pin2, and Pin8	—	20	—	mA
Output Stage Current	$I_1 + I_8$		—	6.5	—	mA
AGC Supply Voltage	V_{AGC}	0dB Attenuation	—	5.0	—	V
		60dB Attenuation	—	6.9	—	V
AGC Supply Current	I_{AGC}	0db Attenuation	—	0.1	—	mA
		60dB Attenuation	—	0.2	—	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Small-Signal Characteristics ($f = 45MHz$)						
Power Gain		BW = 6MHz	–	46	50	dB
Y-Parameters Single-Ended Input Admittance	g11		–	1.0	–	mmho
	b11		–	2.8	–	mmho
Differential Output Admittance	g22		–	0.07	–	mmho
	b22		–	0.50	–	mmho
Differential Admittance Variation ^{w/} AGC Input Admittance	g11	0dB to 60dB	–	0.06	–	mmho
	b11		–	0.0	–	mmho
	g22		–	0.004	–	mmho
	b22		–	0.04	–	mmho
Output Admittance						
	Y ₂₁	0dB Agc	–	0.2	–	mho
Useable AGC Range in 45MHz TV IF			–	> 60	–	dB

Pin Connection Diagram

