



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089

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 | |
| | Output Admittance | | g22 | – | 0.004 | – | mmho |
| | | | b22 | – | 0.04 | – | mmho |
| | Y_{21} | 0dB Agc | – | 0.2 | – | mho | |
| Useable AGC Range in 45MHz TV IF | | | – | > 60 | – | dB | |

Pin Connection Diagram

