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## 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 1<sup>st</sup> and 2<sup>nd</sup> IF stages in solid-state color and black and white TV sets. It will directly drive a 3<sup>rd</sup> 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 $25^\circ\text{C}$ .....	5mW/ $^\circ\text{C}$
Operating Temperature Range, $T_A$ .....	$0^\circ$ 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
<b>DC Characteristics</b>						
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
<b>Small-Signal Characteristics</b> ( $f = 45MHz$ )						
Power Gain		BW = 6MHz	–	46	50	dB
Y-Parameters Single-Ended Input Admittance	g <sub>11</sub>		–	1.0	–	mmho
	b <sub>11</sub>		–	2.8	–	mmho
Differential Output Admittance	g <sub>22</sub>		–	0.07	–	mmho
	b <sub>22</sub>		–	0.50	–	mmho
Differential Admittance Variation <sup>w/</sup> AGC Input Admittance	g <sub>11</sub>	0dB to 60dB	–	0.06	–	mmho
	b <sub>11</sub>		–	0.0	–	mmho
	Output Admittance	g <sub>22</sub>	–	0.004	–	mmho
		b <sub>22</sub>	–	0.04	–	mmho
	Y <sub>21</sub>	0dB Agc	–	0.2	–	mho
Useable AGC Range in 45MHz TV IF			–	> 60	–	dB

**Pin Connection Diagram**

