



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

## NTE738 Integrated Circuit Color TV Processing Circuit

**Description:**

The NTE738 is a chroma IF amplifier with automatic chroma control, color killer, dc chroma control, and injection lock reference system followed by dc hue control.

**Features:**

- Minimum Number of External Components required
- DC Control of both Chroma Amplitude and Hue Shift
- Crystal-Controlled Internal Feedback Oscillator
- Built-in Noise Immunity
- Schmitt Trigger Color Killer
- Automatic Chroma Control
- Internal Burst Gate and Gate Pulse Shaping Circuit
- High Oscillator Lock-in Sensitivity
- Built-in Supply Regulation

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

Power Supply Current	35mA
Horizontal Pulse Input Current	250 $\mu$ A Peak
Power Dissipation (Package Limitation), $P_D$	625mW
Derate above $T_A = +25^\circ\text{C}$	5.0mW/ $^\circ\text{C}$
Operating Temperature Range (Ambient), $T_{opr}$	$-20^\circ$ to $+75^\circ\text{C}$
Storage Temperature Range, $T_{stg}$	$-65^\circ$ to $+150^\circ\text{C}$

**Electrical Characteristics:** ( $V_{CC} = +20\text{V}$ ,  $R_S = 390\Omega$ ,  $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Regulated Voltage	$I_S = 35\text{mA}$	9.0	9.6	11.5	V
	$I_S = 27\text{mA}$	–	9.2	–	V
Maximum Undistorted Chroma Output	$E_{(Pin3)} = E_{(Pin14)}$ , Note 1	34	40	–	dB
Maximum Chroma Gain	$E_{(Pin3)} = E_{(Pin14)}$ , Note 1	34	40	–	dB
Automatic Chroma Control Range (ACC)	–3dB Down from Maximum Undistorted Output, Note 1	–	19	–	dB
Chroma Burst Level to Kill	Note 1	–	1.4	–	mV <sub>P-P</sub>
Manual Chroma Gain Control Range	$\Delta V_{(Pin3)} V_{(Pin14)}$ to 0V	50	60	–	dB

Note 1. With 5.0mV<sub>(p-p)</sub> burst input at pin 5 set  $E_{(pin 10)}$  to just “unkill”.

**Electrical Characteristics (Cont'd):** ( $V_{CC} = +20V$ ,  $R_S = 390\Omega$ ,  $T_A = +25^\circ C$  unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Chroma Input Resistance		-	2.3	-	k $\Omega$
Chroma Input Capacitance		-	13	-	pF
Chroma Output Impedance		-	15	-	$\Omega$
Horizontal Input Pulse		2.2	3.0	4.0	V <sub>P</sub>
Oscillator Output		100	-	-	mV <sub>(RMS)</sub>
Oscillator Output Impedance		-	15	-	$\Omega$
Hue Control Range	$\Delta V_{(Pin12)} V_{(Pin14)}$ to 4.3V	100	126	-	degrees
Oscillator Pull-In Range		1200	-	-	Hz
Oscillator Noise Bandwidth ( $f_N$ )		-	900	-	Hz
Static Phase Error with Oscillator Detuning	25mV <sub>P-P</sub> Burst Amplitude	-	0.20	-	deg/Hz
	2.0mV <sub>P-P</sub> Burst Amplitude	-	0.25	-	deg/Hz

**Pin Connection Diagram**

