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## **NTE879**

### **Integrated Circuit**

### **RGB to PAL/NTSC Encoder for Color TV**

**Description:**

The NTE879 is an integrated circuit in a 20-Lead DIP type package used to generate a composite TV signal from baseband red, blue, green, and sync inputs. This device has color subcarrier oscillator, voltage controlled 90° phase shifter, two DSB suppressed carrier chroma modulators, RGB input matrices, and blanking level clamps. It can be operated with very few external parts, but has the pin-outs for a fully implemented, top quality composite signal. It is ideal for encoding signals from color cameras and graphic generators.

**Features:**

- Reference Oscillator Self-Contained or Externally Driven
- Nominal 90° ±5° Axes are Optionally Trimmable
- Simple PAL/NTSC Switch
- Luminance and Chroma Channels can accept Delay Line/Bandpass Elements or Direct Connection
- Provides DC Reference to Permit Direct Drive to RF Modulator

**Absolute Maximum Ratings:**

Supply Voltage, $V_{CC}$ .....	15V
8.2Vdc Regulator Output Current, $I_{REG}$ .....	10mA
Power Dissipation, $P_D$ .....	1.25W
Derate Above 25°C .....	10mW/°C
Junction Temperature, $T_J$ .....	+150°C
Operating Temperature Range, $T_A$ .....	0° to +70°C
Storage Temperature Range, $T_{stg}$ .....	-65° to +150°C

**Recommended Operating Conditions:**

Supply Voltage, $V_{CC}$ .....	12 ±2V
Sync Tip Level .....	-0.5 to +1.0V
Sync, Blanking Level .....	+1.7 to +8.2V
Reg, Green, Blue Inputs (Saturated) .....	1V <sub>P-P</sub>

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

Parameter	Pin Number/Test Conditions	Min	Typ	Max	Unit
Supply Current	Pin14	–	32	–	mA
Oscillator Amplitude	Pin18	–	0.5	–	$V_{P-P}$
External Subcarrier Input	Oscillator Components Removed, Pin17	–	0.25	–	$V_{RMS}$
Subcarrier Input Resistance	Pin17	–	5.0	–	$k\Omega$
Capacitance		–	2.0	–	pF
Modulation Angle	(R–Y) to (B–Y)	85	90	95	Degrees
Angle Adjustment	(R–Y), Pin19	–	0.25	–	Deg/ $\mu A$
R, G, B Input	100% Color Saturation Pin3, Pin4, Pin5	0.95	1.0	1.05	$V_{P-P}$
R, G, B Input Resistance	Pin3, Pin4, Pin5	–	10	–	$k\Omega$
Capacitance		–	2.0	–	pF
Sync Threshold	Pin2	–	1.7	–	V
Sync Input Resistance	Input > 1.7V, Pin2	–	10	–	$k\Omega$
Chroma Output Level	100% Saturation. Pin13	–	1.0	–	$V_{P-P}$
Chroma Output Resistance	Pin13	–	–	80	$\Omega$
Chroma Input Resistance	Pin10	–	10	–	$k\Omega$
Capacitance		–	2.0	–	pF
Composite Output Sync	100% Saturation, Pin9	–	0.6	–	$V_{P-P}$
Luminance		–	1.4	–	$V_{P-P}$
Chroma		–	1.7	–	$V_{P-P}$
Burst		–	0.6	–	$V_{P-P}$
Output Impedance	Pin9, Note 1	–	–	100	$\Omega$
Luminance Bandwidth	3dB, Less Delay Line, Pin9	–	8.0	–	MHz
Subcarrier Leakage in Output	Pin9	–	–	40	$mV_{P-P}$

Note 1. Output impedance can be reduced to less than  $10\Omega$  by using a  $150\Omega$  output load from Pin9 to GND. Power supply current will increase to about 60mA.

### Pin Connection Diagram

