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## NTE7112 Integrated Circuit Color TV Video Signal/Chrominance Signal Processing Circuit

**Description:**

The NTE7112 is an integrated circuit in an 18-Lead DIP type package designed for use in color TV video signal and chrominance signal processing circuits.

**Features:**

- Chrominance signal processing circuitry for either PAL or SECAM system color TV receivers can be made by using the NTE7112 in combination with the AN5622 and the AN5630N:  
     PAL System: NTE7112, AN5622  
     SECAM System: NTE7112, AN5622, AN5630N
- Incorporating luminance signal mixer circuit, provides R, G, B original color output
- DC Transmission Quality: 100%
- All DC controlled adjustment simplifies wiring operation (Color/Contrast/Brightness adjustment)

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

Supply Voltage,  $V_{CC}$  ..... 14.4V  
 Circuit Voltage,  $V_{4-10}$ ,  $V_{16-10}$ ,  $V_{18-10}$  .....  $V_{17-10}$  to 0V  
 Circuit Voltage,  $V_{5-10}$ ,  $V_{6-10}$  ..... +6V to -4V  
 Circuit Current,  $I_7, I_8, I_9$  ..... +7mA to -15mA  
 Circuit Current,  $I_{11}, I_{13}, I_{14}$  ..... +3mA to -3mA  
 Power Dissipation ( $T_A = +70^\circ\text{C}$ ),  $P_D$  ..... 800mW  
 Operating Ambient Temperature Range,  $T_{opr}$  .....  $-20^\circ$  to  $+70^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-55^\circ$  to  $+155^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Circuit Current	$I_{tot}$	$V_{CC} = 12V$	27	37	47	mA
Voltage Gain (Max Video)	$A_V$	Sine wave 10kHz, 100mV <sub>rms</sub> input, Contrast max., Picture min.	3.1	4.0	4.9	times
Contrast Attenuation Ratio (Min)	$A_{Vmax}/A_{Vmin}$		0.15	0.19	0.26	times
Frequency Characteristics (Video)	$f_c$	Sine wave 100mV <sub>rms</sub> input frequency when output/input is -3dB, Picture min. (10kHz level assumed as 0dB)	6	-	-	MHz

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Transfer Quantity	$T_{DC}$	Video input $1V_{P-P}$ (stair step), APL 10 to 90, B output	90	96	100	%
Color Difference Voltage Amplification B – Y	$A_{V(B-Y)}$	Sine wave 10kHz, $240mV_{P-P}$ , Pin9 output voltage gain for Pin12 input	5.1	6.6	7.9	times
R – Y	$A_{V(R-Y)}$	Cosine wave 10kHz, $200mV_{P-P}$ Pin7 for Pin15 input	5.1	6.6	7.9	times
G – Y Color Difference Ratio	$G - Y/B - Y$	Sine wave 10kHz, $240V_{P-P}$ Pin12 input cosine wave 10kHz, $200mV_{P-P}$ Pin8 output ratio to Pin9 output for Pin15 input	0.28	0.34	0.40	times
Demodulation Color (G – Y)	$\angle(G - Y)$	In $G - Y/B - Y$ , phase difference between Pin8 output and Pin9 output	234	236	239	deg.
Color Difference Output Voltage (max.)	$e_o$	Sine/Cosine wave 10kHz, Pin7 or Pin9 output voltage at input $1.5V_{P-P}$	5.5	6.5	7.6	$V_{P-P}$
Differential Gain (Video Amp)	DG	Superimpose 3.58MHz components at $10mV_{P-P}$ on the video part of stair step $1V_{P-P}$ for measurement with a vector scope	–	–	6	%
Demodulation DC Output Voltage	$E_{O(DC)}$	$V_4 = 8V$ , $VR_{-4}$ for input invalid Signal: $VR_{-5}$ RGB outputs	1.3	1.9	2.4	V
$E_{O(DC)}$ Change <sup>w</sup> /Supply Voltage	$\Delta E_{O(DC)}/V_{CC}$	$V_{CC} = 12V \pm 20\%$ , $V_7 = 2V$ ( $V_{CC} = 12V$ ) RGB outputs	0.16	0.24	0.32	V/V
$E_{O(DC)}$ Change <sup>w</sup> /Ambient Temperature	$\Delta E_{O(DC)}/T_A$	$V_7 = 2V$ ( $T_A = +25^\circ\text{C}$ ) $T_A = -20^\circ$ to $+70^\circ\text{C}$ , RGB outputs	–4	–2	+0.5	mV/ $^\circ\text{C}$
DC Voltage Difference between Demodulation Outputs	$\Delta E_{X-Y}$	$V_7 = 2V$ , Output differential voltage for each of R.G.B	–	0	$\pm 300$	mV
$\Delta E_{X-Y}$ Change <sup>w</sup> /Supply Voltage	$\Delta E_{X-Y}/V_{CC}$	$V_{CC} = 12V \pm 20\%$ , $V_7 = 2V$ ( $V_{CC} = 12V$ ) for $V_{CC} = 12V$	–	0	$\pm 100$	mV
$\Delta E_{X-Y}$ Change <sup>w</sup> /Ambient Temperature	$\Delta E_{X-Y}/T_A$	$V_7 = 2V$ ( $T_A = +25^\circ\text{C}$ ) $T_A = -20^\circ$ to $+70^\circ\text{C}$ , for $T_A = +25^\circ\text{C}$	–	0	$\pm 100$	mV
Pedestal Clamp Voltage	$V_{(clamp)}$	Pulse voltage for pedestal clamp operation	0.65	0.85	1.05	V
Blanking Voltage	$V_{(BLK)}$	Pulse voltage for blanking operation	0.65	0.85	1.05	V

### Pin Connection Diagram

