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

NTE7060
Integrated Circuit
NTSC Single Chip Color TV Signal Processor

Description:

The NTE7060 is an integrated circuit in a 52–Lead DIP type package that combines all of the signal (VIF, SIF, Video, Color and Synchronous Signal) processing circuits in NTSC color TV onto one chip.

Features:

- VIF Circuit using PLL Complete Synchronous Detection
- Audio External Input Pin and Volume Adjusting Circuit Built–In
- Y Delay Line Built–In and Y Delay Line Switchable
- Block Level Compensation Circuit Built–In
- 3.58MHz BPF Built–In
- APC Killer Filter Built–In (No Adjustment of ACP)
- On–Screen Pin Attached (Only for Green and Other Output Blanking)
- Compatible with S–VHS System (3.58MHz ON/OFF Switching)
- No Adjustment of Horizontal/Vertical Oscillation Frequency
- Horizontal Synchronous Lock Detecting Pin Attached
- Service Switch Circuit Built–In (Vertical Out Stop, Y Out Blanking)
- Y Output is Black Level when No Synchronous Signal is Input

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Supply Voltage, V_{CC1} 12V
Supply Current (I_{43}), I_{CC} 82mA
Supply Current (I_9), I_{CC} 30mA
Supply Current ($I_{32–19}$), I_{CC} 61mA
Power Dissipation (T_A = +70°C), P_D 1.3mW
Operating Ambient Temperature Range, T_{opr} . . . . . –20° to +70°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Recommended Operating Range: (T_A = +25°C unless otherwise specified)

Operating Supply Voltage Range, V_{CC1} . . . . . 8.1V to 9.9V
Operating Supply Voltage Range, $V_{CC3,4}$ . . . . . 4.5V to 5.5V

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
VIF Section						
Video Detection Output	V_{O21}	M = 87.5%, V_{in} = 80dBμ	1.75	2.0	2.25	V_{P-P}
Video Frequency Characteristics	f_C	–3dB Frequency for 1MHz Detection Output	4.0	5.5	–	MHz
VCO Oscillator Sensitivity	β	ΔV_{20} = 0.2V (DC: About 2V)	3.0	4.3	6.5	kHz/mV
RF AGC Sensitivity	G_{RF}	Difference in Input Level of V_{33} = 1V → 7V	–	1.5	3.0	dB
AFC Phase Detector Sensitivity	μ_{AFC}	R_L = 100kΩ//100kΩ	25	40	55	mV/kHz
SIF Section						
Audio Detection Output	V_{O27}	f_O = 4.5MHz, V_{in} = 100dBμ, Δf = ±25kHz, f_m = 1kHz	125	155	185	mV_{rms}
Audio Output	V_{O28}		410	530	650	mV_{rms}
Video Signal Processing Section						
Video Voltage Gain	A_V	Input: f = 1MHz, 0.2V_{P-P}, Contrast VR: Max	7.6	9.3	12.2	Times
Video Frequency Characteristics	f_{YC}	Picture Quality VR: Min., 3dB Down from f = 1MHz	4.5	5.5	–	MHz
Brightness Oscillator Sensitivity	BR	Bright VR = 7.5V to 8V	–4.5	–3.6	–2.7	Times
Chroma Signal Processing Section						
Color Difference Output (Typ.)	e_{O1B}	B–Y Color Bar Signal Color VR: 3.3V, Contrast VR: 5V	2.3	3.0	3.7	V_{P-P}
Color Difference Output (Max.)	e_{O2B}	B–Y Color Bar Signal Color VR: 5V, Contrast VR: 5V	3.7	4.7	5.7	V_{P-P}
ACC Characteristics	ACC	Burst 200 → 400mV_{P-P}	0.9	1.0	1.1	Times
		Burst 200 → 20mV_{P-P}	0.5	0.7	1.0	Times
Demodulator Output Ratio	R/B	Color Bar Signal (Burst 200mV_{P-P})	0.72	0.96	1.2	Times
	G/B		0.22	0.31	0.39	Times
Demodulator Angle R	∠ R		89	104	119	Deg.
Demodulator Angle G	∠ G		225	240	255	Deg.
Color Killer Tolerance	e_K	Color Bar Signal Burst 200mV_{P-P} = 0dB	–55	–42	–30	dB
Synchronous Signal Processing Section						
Horizontal Natural Oscillation Frequency	f_{HO}	Output frequency of Pin4	15.45	15.75	16.05	kHz
Horizontal Pull–In Range	f_{PH}		15.25	–	16.25	kHz

Pin Connection Diagram

GND	1	52	Sharpness
Vertical Output	2	51	Pedestal Blank
X–Ray Protect	3	50	Brightness Adjustment
Horizontal Output	4	49	Black Level Compensartion
GND	5	48	Y Output
Horizontal Oscillation (VCO)	6	47	On–Screen Input (G–Y)
Horizontal AFC Output	7	46	B–Y Output
FBP Sawtooth Input	8	45	G–Y Output
V_{CC2} (6.1V)	9	44	R–Y Output
Flyback Pulse Input	10	43	V_{CC1} (9V)
Sync Separator Input	11	42	Tint Adjustment
Vertical Sync Input	12	41	Color Saturation Adjustment
Y Input	13	40	Contrast Adjustment/Service SW
Vertical Sync Output	14	39	3.58MHz Oscillation
Chroma Input	15	38	ACC Detection Filter
Horizontal AFC Lock Detect	16	37	GND
VCO Coil Pin	17	36	VIF Input
VCO Coil Pin	18	35	VIF Input
V_{CC4} (5V)	19	34	V_{CC3} (5V)
APC Filter	20	33	RF AGC Output
Video Detection Output	21	32	IF AGC Output/AV Switching
AFC Tank Circuit	22	31	RF AGC Delay Adjustment
AFC Tank Circuit	23	30	SIF Coil
AFC Output	24	29	SIF Coil
SIF Input/Volume Adjustment	25	28	Audio Output
Audio Feedback	26	27	Audio Detection Output/External Audio Input