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NTE731 Integrated Circuit TV Video Signal Processor

Description:

The NTE731 is an integrated circuit in a 16-Lead DIP type package and performs many of the functions which are often collectively referred to as the video “jungle”. This device provides keyed AGC for the tuner (forward and/or reverse) and the video IF (reverse), furnishes stripped synchronization signals in both polarities, and provides low-impedance video and noise-cancelled video output signals. The NTE731 is used as a low-cost, high-quality circuit in monochrome as well as color TV receivers.

The circuit combines high performance with economy by eliminating the need for either AGC or noise threshold adjustments. Positive noise gating and high sync. separator gain assure excellent performance over a wide range of signal conditions.

Features:

- High-Impedance Video Input
- Low-Impedance Emitter-Follower Video Output
- Forward AGC for Video IF
- Delayed Forward AGC for NPN Bipolar Tuner
- Delayed Reverse AGC for PNP, MOSFET, or Tube Tuner
- Positive and Negative Sync Outputs
- Preset Noise Detector
- Single-Supply Operation

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

DC Supply Voltage	30V
Device Dissipation ($T_A \leq +55^\circ\text{C}$)	750mW
Derate Linearly Above $+55^\circ\text{C}$	7.9mW/ $^\circ\text{C}$
Operating Ambient Temperature Range, T_A	-40° to $+85^\circ\text{C}$
Storage Temperature Range, T_S	-65° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/32" (0.79mm) from case, 10sec max.)	$+265^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_+ = 24\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current (Pulse Test)	I_{T24}		20	–	40	mA
AGC Threshold (Sync Tip Level at Video Input)	V_{TH}		4.5	–	5.5	V
Video Input Amplitude (White Positive)	V_8		–	3	–	V_{P-P}
Video Output Amplitude (Low Impedance)	V_9		–	3	–	V_{P-P}
Noise Cancelled Video Output at V_{TH} (Black Positive, Gain $\cong 2$)	V_5		3.6	–	9.2	V
AGC to Noise Separation	$V_{TH(SEP)}$		1.1	–	2.2	V
Sync Input Current for Full Amplitude Outputs	$I_{\$ (ON)}$		–	–	100	μA
Maximum Leakage Current at Pin4	$I_{\$ (OFF)}$		–	–	± 6	μA
Sync Outputs:						
Negative Sync Low	$V_{2(L)}$		0	–	2.6	V
Negative Sync High	$V_{2(H)}$		23.8	–	24.0	V
Positive Sync Low	$V_{3(L)}$		0	–	0.2	V
Positive Sync High	$V_{3(H)}$		20.1	–	24.0	V
AGC Filter:						
Charge Current (Pulse Test)	$I_{11(CH)}$		12	–	36	mA
Discharge Current	$I_{11(DISCH)}$		1.1	–	2.6	mA
Leakage Current	$I_{11(LEAK)}$		–	–	± 6	μA
AGC Enable:						
Horizontal Keying	$V_{16(ON)}$		3	–	6	V
Negative Sync Input Current	$I_{1(ON)}$		–	1	–	mA
Maximum IF Gain–Clamp Voltage	V_{11}		4.8	–	5.7	V
Maximum IF Gain Bias	V_{12}		4.2	–	5.2	V
IF AGC Voltage:						
Low	$V_{13(LOW)}$		0	–	3.3	V
High	$V_{13(HIGH)}$		5.7	–	6.0	V
Tuner Currents:						
Reverse AGC (FET) OFF Current	$I_{12(OFF)}$		–	–	± 6	μA
Reverse AGC (FET) ON Current	$I_{14(ON)}$		1.8	–	5.5	mA
Forward AGC (NPN) OFF Current	$I_{15(OFF)}$		–	–	± 6	μA
Reverse AGC (NPN) ON Current	$I_{15(ON)}$		4.5	–	15	mA
Internal Noise–Lockout Time	T		1	–	63	μs

Pin Connection Diagram

