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NTE1177 Integrated Circuit TV Luminance Processor

Description:

The NTE1177 is a monolithic silicon integrated circuit in a 14-Lead DIP type package that performs the luminance processing functions of amplification; contrast, brightness and peaking control; blanking; and black-level clamping.

Features:

- Black-Level Clamping
- Linear DC Controls for Brightness, Contrast, and Peaking
- Horizontal and Vertical Blanking
- Operates with Standard or Tapped Delay Line

Absolute Maximum Ratings:

DC Supply Current (Into Pin13, Note 1), V_{CC} 59.5mA
 Device Dissipation (Up to $T_A = +55^\circ\text{C}$, Note 1), P_D 750mW
 Derate Above 55°C 7.9mW/ $^\circ\text{C}$
 Operating Ambient Temperature Range, T_{opr} -40° to $+85^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Lead Temperature (During Soldering, 1/16" from case, 10sec max), T_L $+265^\circ\text{C}$

Note 1. Although the NTE1177 is rated for maximum dissipation of 750mW, it is recommended that the current into Pin13 be limited by external circuit resistance to 39mA for a typical voltage at Pin13 of 11.8V.

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

Parameter	Symbol	Test Conditions											Min	Typ	Max	Unit
		Switch Numbers														
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11				
Switch Positions For Characteristic Measurements																
Static Characteristics (Bias Voltage = 6.1V)																
Voltage at Pin13	V_{13}	2	1	1	2	2	4	1	2	2	1	1	11.0	11.8	13.2	V
Quiescent Voltage	V_4	2	1	1	2	2	3	1	2	2	1	1	3.3	4.0	5.7	V
	V_7	2	1	1	2	2	2	1	2	2	1	1	7.1	7.7	8.3	V
Current Into Pin13 Pin13 Connected to +11V	I_{13}	2	1	1	2	2	3	1	2	2	1	2	10	19	30	mA

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

Parameter	Test Conditions											Min	Typ	Max	Unit
	Switch Numbers														
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11				
Switch Positions For Characteristic Measurements															
Dynamic Characteristics (Bias Voltage = 5.8V)															
Wide-Band Gain (Note 2)	1	1	1	2	1	2	1	1	1	2	1	6.0	8.3	11.0	dB
Contrast Gain Reduction (Note 3)	1	1	1	2	1	2	1	1	2	2	1	27	30	–	dB
Peaking Gain (Note 2)	1	1	2	2	1	2	1	1	1	2	1	15.0	18.4	22.0	dB
Peaking Gain Reduction (Note 4)	1	1	2	2	1	2	1	1	1	2	1	16	18	–	dB
Max. Intermodulation Distortion 2V (Note 5)	1	–	1	1	1	2	–	2	1	2	1	–	20	–	%
	3V (Note 6)	1	–	1	1	2	–	2	1	2	1	–	40	–	%

- Note 2. Set 50kHz generator for 100mV_{P-P}. Adjust R1 Peaking Control for minimum setting. Measure wide-band gain at Pin7.
- Note 3. Set 50kHz generator for 100mV_{P-P}. Adjust R1 for minimum setting. Measure contrast gain reduction at Pin7.
- Note 4. Set 50kHz generator for 100mV_{P-P}. Adjust R1 for maximum setting. Measure peaking gain reduction at Pin7.
- Note 5. Adjust R1 for minimum setting. With S2 at switch position 1 and S7 at switch position 3, set 50kHz generator for 2V_{P-P}. Then with S2 at switch position 2, set 1MHz generator for 100mV_{P-P}. Then with S7 at switch position 2, measure downward modulation of the 1MHz signal due to the 50kHz signal.
- Note 6. Repeat step 5 except that the 50kHz generator must be set at 3V_{P-P}.

