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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

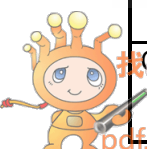
Absolute Maximum Ratings:

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

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: ($T_A = +25^{\circ}C$ 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 | 1 | 2 | – | 2 | 1 | 2 | – | 40 | – | % |

Note 2. Set 50kHz generator for $100\text{mV}_{\text{P-P}}$. Adjust R1 Peaking Control for minimum setting. Measure wide-band gain at Pin7.

Note 3. Set 50kHz generator for $100\text{mV}_{\text{P-P}}$. Adjust R1 for minimum setting. Measure contrast gain reduction at Pin7.

Note 4. Set 50kHz generator for $100\text{mV}_{\text{P-P}}$. 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 $2\text{V}_{\text{P-P}}$. Then with S2 at switch position 2, set 1MHz generator for $100\text{mV}_{\text{P-P}}$. 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 $3\text{V}_{\text{P-P}}$.

