

NTE2003 Integrated Circuit Dolby B-Type Noise Reduction Processor

Description:

The NTE2003 is a monolithic integrated circuit in a 16-Lead DIP type package specifically designed to realized the Dolby B-type noise reduction system.

Features:

- Reduced distortion at high frequencies and high signal levels
- Improved transient stability
- Wide Operating Voltage Range
- Low Supply Current

Absolute Maximum Ratings:

Supply Voltage, V_{CC} 24V
 Operating Temperature Range, T_{opr} 0° to +70°C
 Storage Temperature Range, T_{stg} -65° to +150°C
 Lead Temperature (During Soldering, 10sec Max), T_L +300°C

Electrical Characteristics: ($V_{CC} = 12V$, $T_A = +25^\circ C$, NB 0dB refers to 580mV_{rms} Dolby level at Pin3 unless otherwise specified)

| Parameter | Test Conditions | Min | Typ | Max | Unit |
|---|----------------------------------|-----|------|-----|------|
| Supply Voltage Range | | 9 | - | - | V |
| Supply Current | | 12 | 17 | 22 | mA |
| Voltage Gain (Pin5-Pin3) | 1kHz Pin6 & Pin2 Connected | 24 | 26 | 28 | dB |
| (Pin3-Pin7) | 1kHz (Noise Reduction Out) | -1 | 0 | 1 | dB |
| Distortion | 1kHz, 0dB; 10kHz, 10dB | - | 0.05 | 0.1 | % |
| Signal Handling | 1kHz 0.3% Distortion | 10 | 14 | - | dB |
| Signal-to-Noise Ratio Encode (CCIR Weighted) | Pin6 & Pin2 Connected, RS = 10kΩ | 65 | 70 | - | dB |
| Decode | | +75 | 80 | - | dB |

Electrical Characteristics (Cont'd): ($V_{CC} = 12V$, $T_A = +25^\circ C$, NB 0dB refers to $580mV_{rms}$ Dolby level at Pin3 unless otherwise specified)

| Parameter | Test Conditions | Min | Typ | Max | Unit |
|--|--------------------------------------|-------|-------|-------|------------|
| Encode Characteristics (Input to Pin5) | 1.3kHz, -20dB | -17.2 | -15.7 | .14.2 | dB |
| | 2.5kHz, -20dB | -17.4 | -15.9 | -14.4 | dB |
| | 3.0kHz, -30dB | -22.7 | -21.2 | -19.7 | dB |
| | 5.0kHz, -30dB | -23.3 | -21.8 | -20.3 | dB |
| | 10kHz, 0dB | -1.0 | 0.5 | 2.0 | dB |
| | 10kHz, -40dB | -31.1 | -29.6 | -28.1 | dB |
| | 14kHz, -30dB | -25.4 | -23.9 | -22.4 | dB |
| Back-to-Back Frequency Response | With Standard Dolby B-Type Processor | -1.5 | 0 | 1.5 | dB |
| Input Resistance | Pin5 | 45 | 65 | 85 | k Ω |
| | Pin2 | 4.3 | 5.6 | 6.9 | k Ω |
| Output Resistance | Pin6 | 1.8 | 2.4 | 3.0 | k Ω |
| | Pin3 | - | 80 | 120 | k Ω |
| | Pin7 | - | 80 | 120 | k Ω |

Pin Connection Diagram

