

## 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:** ( $V_{CC} = 12V$ ,  $T_A = +25°C$ , NB 0dB refers to 580mV<sub>rms</sub> 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 $\Omega$
	Pin2	4.3	5.6	6.9	k $\Omega$
Output Resistance	Pin6	1.8	2.4	3.0	k $\Omega$
	Pin3	-	80	120	k $\Omega$
	Pin7	-	80	120	k $\Omega$

**Pin Connection Diagram**

