

NTE1794 Integrated Circuit Voltage Controlled Amp (VCA) for dbx Noise Reduction System

Description:

The NTE1794 is a dbx noise reduction system voltage controlled amp (VCA) in an 8-Lead SIP type package designed for use in tape decks and other audio equipment. This device features excellent linearity VCA for wider input level due to super low noise and a high gain NPN/PNP complementary process.

Features:

- Wide Operating Supply Voltage
- Excellent Linearity Control Constant
- Low Total Harmonic Distortion
- Low Noise

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

Supply Voltage, V_{CC} , V_{EE} 15V
 Supply Current, I_{CC} 30mA
 Power Dissipation ($T_A = +75^\circ\text{C}$), P_D 330mW
 Operating Temperature Range, T_{opr} -20° to $+75^\circ\text{C}$
 Storage Temperature Range, T_{stg} -40° to 125°C

Recommended Operating Conditions:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Supply Voltage	V_{CC} , V_{EE}	Note 1	± 4	± 12	± 15	V
Bias Current	I_{SET}		–	2.0	–	mA
Input Level Range	v_{in}		–40	–	+10	dBV

Note 1. $I_{SET} = V_{EE} - 4 \bullet V_{BE}/R_{EXT} = V_{EE} - 2.4/R_{EXT} = 2\text{mA}$

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = +12\text{V}$, $V_{EE} = -12\text{V}$, $I_{SET} = 2\text{mA}$, $f = 1\text{kHz}$, $R_{IN} = R_{OUT} = 33\text{k}\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_{CC}	Non Signal	1.0	2.0	3.0	mA
Equivalent Input Bias Current	I_{IN}	Non Signal	–	6	20	nA
Gain Cell Idling Current	I_{DLE}	Non Signal	–	20	–	μA
Gain Cell Offset Voltage	V_{OFF}	$A_V = 0\text{dB}$, $\text{THD} \leq 0.07\%$	–	± 0.5	–	mV
Control Constant	V_C	$A_V = -30\text{dB}$ to $+30\text{dB}$	-5.8	-5.9	-6.1	mV/dB
Total Harmonic Distortion	THD	$A_V = 0\text{dB}$, $V_O = 0\text{dBV}$, BPF = 400Hz to 5kHz	–	0.007	0.07	%
		$A_V = +20\text{dB}$, $V_O = 0\text{dBV}$, BPF = 400Hz to 5kHz	–	0.02	0.10	%
		$A_V = -20\text{dB}$, $V_{IN} = 0\text{dBV}$, BPF = 400Hz to 5kHz	–	0.02	0.15	%
Output Noise Level	NV	$A_V = 0\text{dB}$, $R_{IN} = 33\text{k}\Omega$, BPF = 10Hz to 20kHz	–	-94	-84	dBV
Symmetry Control Voltage	V_{SYM}	$A_V = 0\text{dB}$, $\text{THD} \leq 0.07\%$	-4	0	+4	mV

Pin Connection Diagram
(Front View)

