

NTE903 Integrated Circuit Operational Amplifier

Description:

The NTE903 is an operational amplifier in a 12-Lead TO5 type metal can having all the desirable features and characteristics of its prototypes plus a lower noise figure and improved characteristics for offset voltage, offset current, bias current, and impedance.

Typical Applications:

- Narrow-Band and Band-Pass Amplifier
- Operational Functions
- Feedback Amplifier
- DC and Video Amplifier
- Multivibrator
- Oscillator
- Comparator
- Servo Driver
- Scaling Adder
- Balanced Modulator-Driver

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

Maximum Signal Voltage -8V to +1V
Maximum Device Dissipation 600mW
Operating Temperature Range, T_{opr} -55° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg} -65° to $+200^\circ\text{C}$
Lead Temperature (During Soldering, 1/16" from case, 10sec max.), T_L $+265^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = \pm 12\text{V}$, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Input Offset Voltage	V_{IO}		—	1	2	mV
Input Offset Current	I_{IO}		—	0.5	1.6	μA
Input Bias Current	I_{IB}		—	4.7	6.0	μA
Input Offset Voltage Sensitivity, Positive			—	0.096	0.5	mV/V
Input Offset Voltage Sensitivity, Negative			—	0.156	0.5	mV/V
Device Dissipation	P_D		—	175	—	mW
		Pin8 shorted to Pin12	—	500	—	mW

Note 1. Pin5 not connected unless otherwise specified

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = \pm 12\text{V}$, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics (All tests at $f = 1\text{kHz}$ except BW_{OL})						
Open-Loop Differential Voltage Gain	A_{OL}		66	70	–	dB
Open-Loop Bandwidth	BW_{OL}	–3dB Point	200	320	–	kHz
Slew Rate	SR	$R_S = 1\text{k}\Omega$	–	7	–	$\text{V}/\mu\text{s}$
Common-Mode Rejection Ratio	CMRR		80	103	–	dB
Maximum Output-Voltage Swing	$V_{\text{O}}(\text{P-P})$		12	14	–	$V_{\text{P-P}}$
Input Impedance	Z_{IN}		7.5	10	–	$\text{k}\Omega$
Output Impedance	Z_{OUT}		–	85	–	Ω
Common-Mode Input-Voltage Range	V_{ICR}		+0.65 to –8			V
Noise Figure	NF	$V_{\text{CC}} = \pm 3\text{V}$, $R_S = 1\text{k}\Omega$	–	6.3	9.0	dB
		$V_{\text{CC}} = \pm 6\text{V}$, $R_S = 1\text{k}\Omega$	–	8.3	12	dB
		$V_{\text{CC}} = \pm 9\text{V}$, $R_S = 1\text{k}\Omega$	–	10	14	dB
		$V_{\text{CC}} = \pm 12\text{V}$, $R_S = 1\text{k}\Omega$	–	11	16	dB

Note 1. Pin5 not connected unless otherwise specified

