National Semiconductor

MICROCIRCUIT DATA SHEET

MNLM7709-X REV 0BL

Original Creation Date: 08/08/95
Last Update Date: 10/23/97
Last Major Revision Date: 08/08/95

HIGH PERFORMANCE OPERATIONAL AMPLIFIER

Industry Part Number

LM7709

NS Part Numbers

LM7709H-MIL

Prime Die

LM7709

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp	Description	Temp (°C)
1	Static tests at	+25
2	Static tests at	+125
3	Static tests at	-55
4	Dynamic tests at	+25
5	Dynamic tests at	+125
6	Dynamic tests at	-55
7	Functional tests at	+25
8A	Functional tests at	+125
8B	Functional tests at	-55
9	Switching tests at	+25
10	Switching tests at	+125
11	Switching tests at	-55

Electrical Characteristics

DC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vcc = ±15V, Vcm = 0V, Rs = 50 Ohms

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage				-5	5	mA	1
					-6	6	mA	2, 3
		Rs = 10K Ohms			-5	5	mA	1
					-6	6	mA	2, 3
		Vcc = ±9V			-5	5	mA	1
		Vcc = ±9V			-6	6	mA	2, 3
		Vcc = ±9V, Rs = 10K Ohms			-5	5	mA	1
		Vcc = ±9V, Rs = 10K Ohms			-6	6	mA	2, 3
Iio	Input Offset Current				-200	200	nA	1, 2
					-500	500	nA	3
		Vcc = ±9V			-200	200	nA	1, 2
		Vcc = ±9V			-500	500	nA	3
Iib+	Input Bias Current					340	nA	1
						950	nA	3
		Vcc = ±9V				500	nA	1
		Vcc = ±9V				600	nA	3
Iib-	Input Bias Current					340	nA	1
						950	nA	3
		Vcc = ±9V				500	nA	1
		Vcc = ±9V				600	nA	3
Rin	Input Resistance				150		KOhms	1
					40		KOhms	3
Idiff	Differential Leakage Current	Delta Vin = -5V			-1		uA	1
		Delta Vin = 5V			-1		uA	1
PSRR+	Power Supply Rejection Ratio	+Vcc = 18V to 9V, -Vcc = -18V, Rs = 10K Ohms	1			150	uV/V	1, 2, 3
PSRR-	Power Supply Rejection Ratio	-Vcc = -18V to -9V, +Vcc = 18V, Rs = 10K Ohms	1			150	uV/V	1, 2, 3
CMRR	Common Mode Rejection Ratio	-8V ≤ Vcm ≤ 8V			70		dB	1, 2, 3
		-8V ≤ Vcm ≤ 8V, Rs = 10K Ohms			70		dB	1, 2, 3

Electrical Characteristics

DC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vcc = ±15V, Vcm = 0V, Rs = 50 Ohms

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Icc	Power Supply Current	Vout = 0V				5.5	mA	1
Vin	Input Voltage Range		2		-8	8	V	1, 2, 3
Pc	Power Consumption		3			165	mW	1
Vop+	Output Voltage Swing	Rl = 10K Ohms			12		V	4, 5, 6
		Rl = 2K Ohms			10		V	4, 5, 6
Vop-	Output Voltage Swing	Rl = 10K Ohms				-12	V	4, 5, 6
		Rl = 2K Ohms				-10	V	4, 5, 6
Avs+	Large Signal Voltage Gain	Rl = 2K, Vo = 10V			25	70	V/mV	4, 5, 6
Avs-	Large Signal Voltage Gain	Rl = 2K, Vo = -10V			25	70	V/mV	4, 5, 6

AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: Vcc = ±15V

tr	Rise Time	Vi = 20mV, Rl = 2K Ohms, Av = 1, Cl = 100pF				1	uS	7
os	Overshoot	Vi = 20mV, Rl = 2K Ohms, Av = 1, Cl = 100pF				30	%	7

Note 1: Datalog in uV = uV/V.
Note 2: Guaranteed by CMRR tests.
Note 3: Guaranteed by Icc test: Pc = 30Icc.

Revision History

Rev	ECN #	Rel Date	Originator	Changes
0BL	M0002518	10/23/97	Barbara Lopez	Update MDS: MNLM7709-X Rev. 0AL to MNLM7709-X Rev. 0BL for Lifetime Buy.