

MNLM4250-X REV 0CL

 Original Creation Date: 08/15/95
 Last Update Date: 09/03/97
 Last Major Revision Date: 08/15/95

PROGRAMMABLE OPERATIONAL AMPLIFIER
Industry Part Number

LM4250

NS Part Numbers

 LM4250H-MIL
 LM4250J-MIL

Prime Die

LM4250

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	+85
3	Static tests at	-25
4	Dynamic tests at	+25
5	Dynamic tests at	+85
6	Dynamic tests at	-25
7	Functional tests at	+25
8A	Functional tests at	+85
8B	Functional tests at	-25
9	Switching tests at	+25
10	Switching tests at	+85
11	Switching tests at	-25

Electrical Characteristics

DC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: $I_{set} = 10\mu A$, $R_s = 100K\ \Omega$, $V_{cm} = 0V$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Is	Supply Current	$V_{cc} = \pm 18V$, $R_s = 0\ \Omega$				120	μA	1
		$V_{cc} = \pm 18V$, $R_s = 0\ \Omega$				150	μA	2, 3
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$				90	μA	1
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$				100	μA	2, 3
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				20	μA	1
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				22	μA	2, 3
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$				80	μA	1
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$				90	μA	2, 3
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				15	μA	1
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				16	μA	2, 3
Pd	Power Dissipation	$V_{cc} = \pm 18V$, $R_s = 0\ \Omega$				4.32	mW	1
		$V_{cc} = \pm 18V$, $R_s = 0\ \Omega$				5.4	mW	2, 3
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$				2.7	mW	1
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$				3	mW	2, 3
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				600	μW	1
		$V_{cc} = \pm 15V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				660	μW	2, 3
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$				560	μW	1
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$				630	μW	2, 3
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				105	μW	1
		$V_{cc} = \pm 3.5V$, $R_s = 0\ \Omega$, $I_{set} = 2\mu A$				112	μW	2, 3

Electrical Characteristics

DC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: Iset = 10uA, Rs = 100K Ohms, Vcm = 0V

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	Vcc = $\pm 3.5V$, Iset = 2uA			-3	3	mV	1
		Vcc = $\pm 3.5V$, Iset = 2uA			-4	4	mV	2, 3
		Vcc = $\pm 15V$, Iset = 2uA			-3	3	mV	1
		Vcc = $\pm 15V$, Iset = 2uA			-4	4	mV	2, 3
		Vcc = $\pm 3.5V$			-5	5	mV	1
		Vcc = $\pm 3.5V$			-6	6	mV	2, 3
		Vcc = $\pm 3.5V$, Vcm = 0.7V			-5	5	mV	1
		Vcc = $\pm 3.5V$, Vcm = 0.7V			-6	6	mV	2, 3
		Vcc = $\pm 3.5V$, Vcm = -0.7V			-5	5	mV	1
		Vcc = $\pm 3.5V$, Vcm = -0.7V			-6	6	mV	2, 3
		Vcc = $\pm 15V$			-5	5	mV	1
		Vcc = $\pm 15V$			-6	6	mV	2, 3
		Vcc = $\pm 15V$, Vcm = -13.5V			-5	5	mV	1
		Vcc = $\pm 15V$, Vcm = -13.5V			-6	6	mV	2, 3
		Vcc = $\pm 15V$, Vcm = 13.5V			-5	5	mV	1
		Vcc = $\pm 15V$, Vcm = 13.5V			-6	6	mV	2, 3
Iio	Input Offset Current	Vcc = $\pm 3.5V$, Iset = 2uA			-6	6	nA	1, 2, 3
		Vcc = $\pm 15V$, Iset = 2uA			-6	6	nA	1, 2, 3
		Vcc = $\pm 3.5V$			-10	10	nA	1, 2, 3
		Vcc = $\pm 3.5V$, Vcm = 0.7V			-10	10	nA	1, 2, 3
		Vcc = $\pm 3.5V$, Vcm = -0.7V			-10	10	nA	1, 2, 3
		Vcc = $\pm 15V$			-10	10	nA	1, 2, 3
		Vcc = $\pm 15V$, Vcm = 13.5V			-10	10	nA	1, 2, 3
		Vcc = $\pm 15V$, Vcm = -13.5V			-10	10	nA	1, 2, 3

Electrical Characteristics

DC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: Iset = 10uA, Rs = 100K Ohms, Vcm = 0V

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Iib	Input Bias Current	Vcc = $\pm 3.5V$, Iset = 2uA				15	nA	1, 2, 3
		Vcc = $\pm 15V$, Iset = 2uA				15	nA	1, 2, 3
		Vcc = $\pm 3.5V$				50	nA	1, 2, 3
		Vcc = $\pm 3.5V$, Vcm = 0.7V				50	nA	1, 2, 3
		Vcc = $\pm 3.5V$, Vcm = -0.7V				50	nA	1, 2, 3
		Vcc = $\pm 15V$				50	nA	1, 2, 3
		Vcc = $\pm 15V$, Vcm = 13.5V				50	nA	1, 2, 3
		Vcc = $\pm 15V$, Vcm = -13.5V				50	nA	1, 2, 3
PSRR	Power Supply Rejection Ratio	Vcc = $\pm 4V$ to $\pm 14V$, Rs = 10K Ohms			76		dB	1, 2, 3
		Vcc = $\pm 3V$ to $\pm 4V$, Rs=10K Ohms, Iset=2uA			76		dB	1, 2, 3
CMRR	Common Mode Rejection Ratio	Vcc = $\pm 3.5V$, Iset=2uA, Rs=10K Ohms, Vcm = -0.7V to 0.7V			70		dB	1, 2, 3
		Vcc = $\pm 15V$, Rs=10K Ohms, Vcm = -13.5V to 13.5V			70		dB	1, 2, 3
-Avs	Voltage Gain	Vcc = $\pm 15V$, Rl=10K Ohms, Vo=0 to -10V, Rs=0V			100		K	1
		Vcc = $\pm 15V$, Rl=10K Ohms, Vo=0 to -10V, Rs=0V			50		K	2, 3
		Vcc = $\pm 15V$, Iset=2uA, Vo = 0 to -10V, Rs=0V			100		K	1
		Vcc = $\pm 15V$, Iset=2uA, Vo = 0 to -10V, Rs=0V			50		K	2, 3
+Avs	Voltage Gain	Vcc = $\pm 15V$, Rl=10K Ohms, Vo=0 to 10V, Rs=0V			100		K	1
		Vcc = $\pm 15V$, Rl=10K Ohms, Vo=0 to 10V, Rs=0V			50		K	2, 3
		Vcc = $\pm 15V$, Iset=2uA, Vo = 0 to 10V, Rs=0V			100		K	1
		Vcc = $\pm 15V$, Iset=2uA, Vo = 0 to 10V, Rs=0V			50		K	2, 3

Electrical Characteristics

DC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: Iset = 10uA, Rs = 100K Ohms, Vcm = 0V

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
+Vio	Offset Null	Vcc = $\pm 15V$, Rs = 0K Ohms			6		mV	1, 2, 3
-Vio	Offset Null	Vcc = $\pm 15V$, Rs = 0K Ohms				-6	mV	1, 2, 3
+Ios	Short Circuit Current	Vcc = $\pm 15V$, Vin = -100mV, Vout = -14V			-25		mA	1, 2, 3
-Ios	Short Circuit Current	Vcc = $\pm 15V$, Vin = 100mV, Vout = 14V				25	mA	1, 2, 3
+Vout	Output Voltage Swing	Vcc = $\pm 15V$, Rl = 10K Ohms			12		V	1, 2, 3
		Vcc = $\pm 15V$, Iset=2uA, Rl=0K Ohms			12		V	1, 2, 3
		Vcc = $\pm 3.5V$, Iset=2uA, Rl=0K Ohms			2.5		V	1, 2, 3
		Vcc = $\pm 3.5V$, Rl=10K Ohms			2.5		V	1, 2, 3
-Vout	Output Voltage Swing	Vcc = $\pm 15V$, Rl = 10K Ohms				-12	V	1, 2, 3
		Vcc = $\pm 15V$, Iset=2uA, Rl=0K Ohms				-12	V	1, 2, 3
		Vcc = $\pm 3.5V$, Iset=2uA, Rl=0K Ohms				-2.5	V	1, 2, 3
		Vcc = $\pm 3.5V$, Rl=10K Ohms				-2.5	V	1, 2, 3

DC PARAMETERS: DRIFT VALUES

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: Iset = 10uA, Rs = 100K Ohms, Vcm = 0V. "Deltas not required on B-Level product. Deltas required for S-Level product ONLY as specified on Internal Processing Instructions (IPI)."

Vio	Input Offset Voltage	Vcc = $\pm 15V$			-1	1	mV	1
Iio	Input Offset Current	Vcc = $\pm 15V$			-2	2	nA	1
Iib	Input Bias Current	Vcc = $\pm 15V$			-10	10	nA	1

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
See attached graphics following this page.	

Graphics and Diagrams (Continued)

GRAPHICS#	DESCRIPTION
H08CRE	(blank)
J08	(blank)

See attached graphics following this page.

Revision History

Rev	ECN #	Rel Date	Originator	Changes
0CL	M0002130	09/03/97	Barbara Lopez	Changed MDS: MNLM4250-X Rev. 0BL to MNLM4250-X Rev. 0CL. Corrected Typo on Main Table to read +25 C, +85 C, -25 C from +25 C, +125 C, -55 C.