

MNLM10-X REV 0AL

 Original Creation Date: 06/21/95
 Last Update Date: 03/17/97
 Last Major Revision Date: 06/21/95

OPERATIONAL AMPLIFIER AND VOLTAGE REFERENCE
Industry Part Number

LM10

NS Part Numbers

LM10H/883*

Prime Die

LM10F

Controlling Document

5962-8760401GA*

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: @ room $1.2V \leq V_s \leq 45V$, $V_- \leq V_{cm} \leq V \pm 0.85V$. @ extremes $1.3V \leq V_s \leq 45V$, $V_- \leq V_{cm} \leq V \pm 1V$, extreme conditions are in ().

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	I _I = 0mA			-2	2	mV	1
					-3	3	mV	2, 3
		V _s = 1.2(1.3)V, I _I = ± 2 mA			-3	3	mV	1
		V _s = 1.2(1.3)V, I _I = ± 2 mA			-4	4	mV	2, 3
		V _s = 4V, I _I = $\pm 20(\pm 15)$ mA			-3	3	mV	1
		V _s = 4V, I _I = $\pm 20(\pm 15)$ mA			-4	4	mV	2, 3
Iio	Input Offset Current				-0.7	0.7	nA	1
					-1.5	1.5	nA	2, 3
Iib	Input Bias Current					20	nA	1
						30	nA	2, 3
CMRR	Common Mode Rejection	V _s = 45V, $-20V \leq V_{cm} \leq 24.2V$			93		dB	1
		V _s = 45V, $-20V \leq V_{cm} \leq 24.2V$			87		dB	2, 3
PSRR	Supply Voltage Rejection	V ₊ = 0.85(1)V, $-0.35(-0.3)V \geq V_- \geq -44.2V$			90		dB	1
		V ₊ = 0.85(1)V, $-0.35(-0.3)V \geq V_- \geq -44.2V$			84		dB	2, 3
		0.85 (1)V $\leq V_+ \leq 44.6V$, V ₋ = -0.35(-0.3)V			96		dB	1
		0.85 (1)V $\leq V_+ \leq 44.6V$, V ₋ = -0.35(-0.3)V			90		dB	2, 3
Vrline	Line Regulation	I _{ref} = 1mA			91		dB	1
					85		dB	2, 3
Vrload	Load Regulation	V _s = 1.2(1.3)V, $0 \leq I$ mA			60		dB	1
		V _s = 1.2(1.3)V, $0 \leq I$ mA			57		dB	2, 3
Is	Supply Current					400	uA	1
						500	uA	2, 3

Electrical Characteristics

DC PARAMETERS(Continued)

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

DC: @ room $1.2V \leq V_s \leq 45V$, $V_- \leq V_{cm} \leq V \pm 0.85V$. @ extremes $1.3V \leq V_s \leq 45V$, $V_- \leq V_{cm} \leq V \pm 1V$, extreme conditions are in ().

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Av	Large Signal Voltage Gain	$V_s = \pm 20V$, $I_{out} = 0$, $V_{out} = \pm 19.95V$			120		K	4
		$V_s = \pm 20V$, $I_{out} = 0$, $V_{out} = \pm 19.95V$			80		K	5, 6
		$V_s = \pm 2V$, $I_{out} = \pm 20(\pm 15) \text{ mA}$, $V_{out} = \pm 1.4V$			5		K	4
		$V_s = \pm 2V$, $I_{out} = \pm 20(\pm 15) \text{ mA}$, $V_{out} = \pm 1.4V$			1.5		K	5, 6
		$V_+ = 0.85(1)V$, $V_- = -0.35(-0.3)V$, $I_{out} = \pm 2\text{mA}$, $-0.15(+0.05)V \leq V_{out} \leq 0.65$, $V_{cm} = -0.25(-0.35)V$			1.5		K	4
		$V_+ = 0.85(1)V$, $V_- = -0.35(-0.3)V$, $I_{out} = \pm 2\text{mA}$, $-0.15(+0.05)V \leq V_{out} \leq 0.65$, $V_{cm} = -0.25(-0.35)V$			0.5		K	5, 6
Avsh	Shunt Gain	$1.1(1.2)V$ @ I_{out} of $-5\text{mA} \leq V_{out} \leq 6.1(6.2)V$ @ I_{out} of -0.1mA			14		K	
		$1.1(1.2)V$ @ I_{out} of $-5\text{mA} \leq V_{out} \leq 6.1(6.2)V$ @ I_{out} of -0.1mA			6		K	
		$1.4V$ @ I_{out} of $-20\text{mA} \leq V_{out} \leq 6.4V$ @ I_{out} of -0.1mA			8		K	
		$1.4V$ @ I_{out} of $-20\text{mA} \leq V_{out} \leq 6.4V$ @ I_{out} of -0.1mA			4		K	
Av	Amplifier Gain	$0.2V \leq V_{ref} \leq 35V$, $I_{ref} = 1\text{mA}$			50		K	
		$0.2V \leq V_{ref} \leq 35V$, $I_{ref} = 1\text{mA}$			23		K	
Vsense	Feedback Sense Voltage	$0.2V \leq V_{ref} \leq 35V$, $0 \leq I_{ref} \leq 1 \text{ mA}$			195	205	mV	
		$0.2V \leq V_{ref} \leq 35V$, $0 \leq I_{ref} \leq 1 \text{ mA}$			194	206	mV	
Isense	Feedback Current					50	nA	
						65	nA	
Delta Is	Supply Current Change	$0.5V \leq V_{out} \leq 25V$			-75	75	uA	
		$V_s = 5V$, $4.5V \leq V_{out} \leq 5V$			-60	60	uA	
Rin	Input Resistance		1			250	Kohms	
			1			150	Kohms	

Note 1: Guaranteed parameter, not tested.

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
05034HR	(blank)
MKT-H08ARC	(blank)

See attached graphics following this page.