



**MILITARY DATA SHEET**

**MNLM741A-X REV OBL**

Original Creation Date: 08/07/95  
Last Update Date: 12/10/96  
Last Major Revision Date: 08/07/95

**OPERATIONAL AMPLIFIER**

**Industry Part Number**

LM741A

**NS Part Numbers**

LM741AH/883

**Prime Die**

LM741A

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**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:  $V_{cc} = \pm 20V$ ,  $R_s = 0$ ,  $V_{cm} = 0$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	Vcm = -15V			-3	3	mV	1
					-4	4	mV	2, 3
		Vcm = +15V			-3	3	mV	1
					-4	4	mV	2, 3
					-3	3	mV	1
					-4	4	mV	2, 3
+Vcc = 5V, -Vcc = -5V			-3	3	mV	1		
			-4	4	mV	2, 3		
Vio(adj)+	Adjustment for Input Offset Voltage				5		mV	1, 2, 3
Vio(adj)-	Adjustment for Input Offset Voltage					-5	mV	1, 2, 3
Iio	Input Offset Current	Vcm = -15V, Rs = 100K Ohms			-30	30	nA	1, 2
					-70	70	nA	3
		Vcm = +15V, Rs = 100K Ohms			-30	30	nA	1, 2
					-70	70	nA	3
		Rs = 100K Ohms			-30	30	nA	1, 2
					-70	70	nA	3
+Vcc = 5V, -Vcc = -5V, Rs = 100K Ohms			-30	30	nA	1, 2		
			-70	70	nA	3		
+Iib	Input Bias Current	Vcm = -15V, Rs = 100K Ohms			1	110	nA	1, 2
					1	265	nA	3
		Vcm = +15V, Rs = 100K Ohms			1	110	nA	1, 2
					1	265	nA	3
		Rs = 100K Ohms			1	110	nA	1, 2
					1	265	nA	3
+Vcc = 5V, -Vcc = -5V, Rs = 100K Ohms			1	110	nA	1, 2		
			1	265	nA	3		

## Electrical Characteristics

### DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)  
 DC:  $V_{cc} = \pm 20V$ ,  $R_s = 0$ ,  $V_{cm} = 0$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
-I <sub>ib</sub>	Input Bias Current	$V_{cm} = -15V$ , $R_s = 100K$ Ohms			1	110	nA	1, 2
					1	265	nA	3
		$V_{cm} = +15V$ , $R_s = 100K$ Ohms			1	110	nA	1, 2
					1	265	nA	3
		$R_s = 100K$ Ohms			1	110	nA	1, 2
					1	265	nA	3
$+V_{cc} = 5V$ , $-V_{cc} = -5V$ , $R_s = 100K$ Ohms			1	110	nA	1, 2		
			1	265	nA	3		
+PSRR	Power Supply Rejection Ratio	$+V_{cc} = 10V$ , $-V_{cc} = -20V$			-50	50	uV/V	1
					-100	100	uV/V	2, 3
-PSRR	Power Supply Rejection Ratio	$+V_{cc} = 20V$ , $-V_{cc} = -10V$			-50	50	uV/V	1
					-100	100	uV/V	2, 3
CMRR	Common Mode Rejection Ratio	$V_{cm} = -15V$ to $15V$			80		dB	1, 2, 3
I <sub>os+</sub>	Output Short Circuit Current	$+V_{cc} = 15V$ , $-V_{cc} = -15V$			-60		mA	1, 2, 3
I <sub>os-</sub>	Output Short Circuit Current	$+V_{cc} = 15V$ , $-V_{cc} = -15V$				60	mA	1, 2, 3
I <sub>cc</sub>	Power Supply Current	$+V_{cc} = 15V$ , $-V_{cc} = -15V$				3.8	mA	1
						3.4	mA	2
						4.2	mA	3
-A <sub>vs</sub>	Large Signal (Open Loop) Voltage Gain	$V_{out} = +15V$ , $R_l = 2K$ Ohms	1		50		V/mV	4
					1	25	V/mV	5, 6
+A <sub>vs</sub>	Large Signal (Open Loop) Voltage Gain	$V_{out} = -15V$ , $R_l = 2K$ Ohms	1		50		V/mV	4
					1	25	V/mV	5, 6
A <sub>vs</sub>	Large Signal (Open Loop) Voltage Gain	$+V_{cc} = 5V$ , $-V_{cc} = -5V$ , $V_{out} = \pm 2V$ , $R_l = 2K$ Ohms	1		10		V/mV	4, 5, 6
V <sub>opp+</sub>	Output Voltage Swing	$R_l = 10K$ Ohms			16		V	4, 5, 6
		$R_l = 2K$ Ohms			15		V	4, 5, 6

## Electrical Characteristics

### DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)  
DC:  $V_{cc} = \pm 20V$ ,  $R_s = 0$ ,  $V_{cm} = 0$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vopp-	Output Voltage Swing	Rl = 10K Ohms				-16	V	4, 5, 6
		Rl = 2K Ohms				-15	V	4, 5, 6

### AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)  
AC:  $V_{cc} = \pm 20V$ ,  $R_l = 2K$  Ohms,  $C_l = 1000pF$ ,  $A_v = 1$

TR(tr)	Rise Time	Test on LTX				800	nS	7
TR(os)	Overshoot	Test on LTX				25	%	7
Sr+	Slew Rate Rise	$V_{in} = -5V$ to $+5V$ , $A_v = 1$			0.3		V/uS	7
Sr-	Slew Rate Fall	$V_{in} = +5V$ to $-5V$ , $A_v = 1$			0.3		V/uS	7

### DC PARAMETERS: DRIFT VALUES

(The following conditions apply to all the following parameters, unless otherwise specified.)  
DC:  $V_{cc} = \pm 20V$ ,  $R_s = 0$ ,  $V_{cm} = 0$ . "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				-0.5	0.5	mV	1
+Iib	Input Bias Current	$R_s = 100K$ Ohms			-12	12	nA	1
-Iib	Input Bias Current	$R_s = 100K$ Ohms			-12	12	nA	1

Note 1: Datalog reading in K = V/mV.