



**MILITARY DATA SHEET**

**MNLMC6061-X REV 0AL**

Original Creation Date: 08/16/95  
Last Update Date: 08/16/95  
Last Major Revision Date: 08/16/95

**PRECISION CMOS DUAL MICROPOWER OPERATIONAL AMPLIFIER**

**Industry Part Number**

LMC6061

**NS Part Numbers**

LMC6061AMJ/883

**Prime Die**

LMC6061

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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:  $V_+ = 5V$ ,  $V_{cm} = 1.5V$ ,  $V_- = 0V$ ,  $V_o = 2.5V$ ,  $R_l > 1M$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS	
Vio	Input Offset Voltage					350	uV	1	
							750	uV	2, 3
Iib	Input Bias Current					25	pA	1	
							100	pA	2, 3
Iio	Input Offset Current					25	pA	1	
							100	pA	2, 3
CMRR	Common Mode Rejection Ratio	$0V \leq V_{cm} \leq 12.0V$ , $V_+ = 15V$				75	dB	1	
							70	dB	2, 3
+PSRR	Positive Power Supply Rejection Ratio	$5V \leq V_+ \leq 15V$ , $V_o = 2.5V$				75	dB	1	
							70	dB	2, 3
-PSRR	Negative Power Supply Rejection Ratio	$-10V \leq V_- \leq 0V$ , $V_o = 2.5V$				84	dB	1	
							70	dB	2, 3
Vcm	Input Common-Mode Voltage Range	$V_+ = 5V$ and $15V$ for $CMRR \geq 60$ dB			$V_+ - 2.3$	-0.1	V	1	
					$V_+ - 2.6$	0	V	2, 3	
Io	Output Current	Sourcing, $V_o = 0V$				16	mA	1	
							8	mA	2, 3
		Sinking, $V_o = 5V$				16	mA	1	
							7	mA	2, 3
		$V_+ = 15V$ , Sourcing, $V_o = 0V$				15	mA	1	
							9	mA	2, 3
$V_+ = 15V$ , Sinking, $V_o = 13V$			1		24	mA	1		
			1		7	mA	2, 3		
Icc	Supply Current	$V_+ = +5V$ , $V_o = 1.5V$				24	uA	1	
							35	uA	2, 3
		$V_+ = +15V$ , $V_o = 7.5V$					30	uA	1
							40	uA	2, 3

## Electrical Characteristics

### DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)  
DC:  $V_+ = 5V$ ,  $V_{cm} = 1.5$ ,  $V_- = 0V$ ,  $V_o = 2.5V$ ,  $R_l > 1M$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS		
Avs	Large Signal Voltage Gain	Rl = 100K Ohms, Sourcing	2		400		V/mV	4		
			2		200		V/mV	5, 6		
		Rl = 100K Ohms, Sinking	2		180		V/mV	4		
			2		70		V/mV	5, 6		
		Rl = 25 K Ohms, Sourcing	2		400		V/mV	4		
			2		150		V/mV	5, 6		
		Rl = 25 K Ohms, Sinking	2		100		V/mV	4		
			2		35		V/mV	5, 6		
		Vop	Output Swing	Rl = 100K Ohms to 2.5V			4.990	.010	V	4
							4.970	.030	V	5, 6
Rl = 25K Ohms to 2.5V					4.975	.020	V	4		
					4.955	.045	V	5, 6		
V+ = 15V Rl=100K Ohms to 7.5V					14.975	.025	V	1		
					14.955	.050	V	2, 3		
V+ = 15V Rl=25K Ohms to 7.5V					14.900	.050	V	1		
					14.800	.200	V	2, 3		

### AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)  
AC:  $V_+ = 5V$ ,  $V_{cm} = 1.5$ ,  $V_- = 0V$ ,  $V_o = 2.5V$ ,  $R_l > 1M$

Sr	Slew Rate	V+ = 15V	3		20		V/mS	7
			3		8		V/mS	8A, 8B
Gbw	Gain-Bandwidth				80		KHz	7
					75		KHz	8A, 8B

Note 1: Do not short circuit output to  $V_+$ , when  $V_+$  is greater than 13V or reliability will be adversely affected.

Note 2:  $V_+=15V, V_{cm}=7.5V$  and  $R_l$  connected to 7.5V. For Sourcing tests,  $7.5V \leq V_o \leq 11.5V$ . For Sinking tests,  $2.5V \leq V_o \leq 7.5V$ .

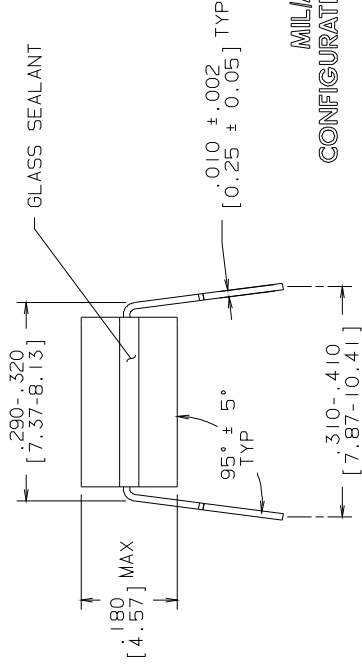
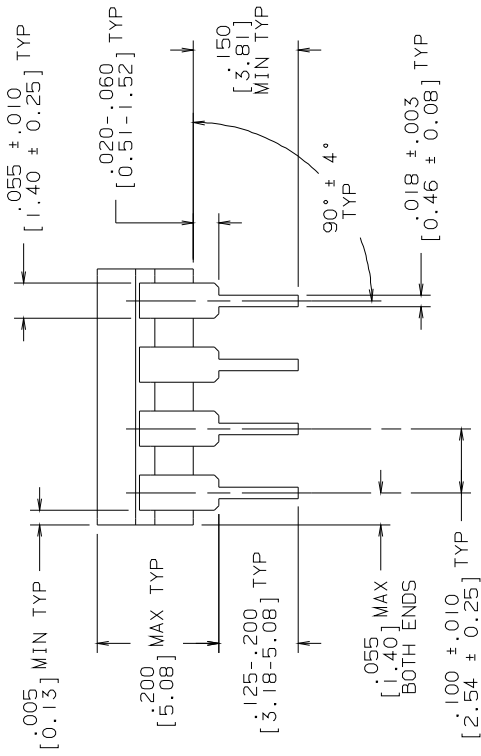
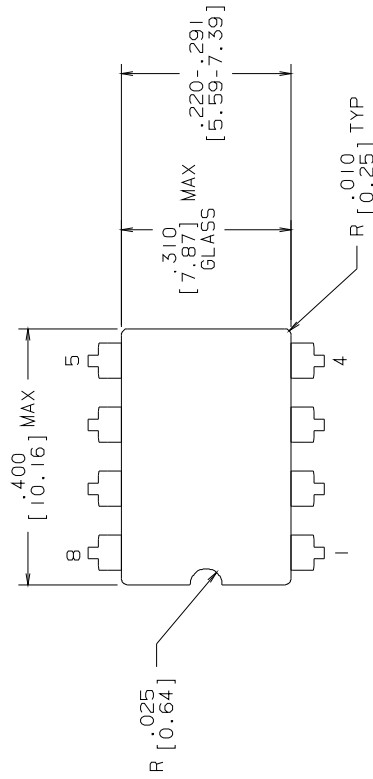
Note 3: Configure for voltage follower, 0 to 10V input step. For +Slew, is measured between 5.5V and 8.0V. For -Slew, is measured between 6.0V and 3.5V.

### Graphics and Diagrams

GRAPHICS#	DESCRIPTION
06275HR	(blank)
J08ARL	CERDIP (J), 8 LEAD (P/P DWG)

See attached graphics following this page.

R E V I S I O N S			
LTR	DESCRIPTION	E. C. N.	DATE
L	REVISE PER CURRENT STD; REDRAW	10002	09/21/93
			TL/



MILAERO  
 CONFIGURATION CONTROL  
 MIL-M-38510  
 CONFIGURATION CONTROL

CONTROLLING DIMENSION: INCH	
APPROVALS	DATE
DRAWN: <b>T. LEQUANG</b>	09/21/93
DFTG. CHK.	
ENGR. CHK.	
APPROVAL	
 PROJECTION INCH [MM]	
SCALE	DRAWING NUMBER
N/A	B MKT-J08A
DO NOT SCALE DRAWING	SHEET 1 OF 1
NATIONAL SEMICONDUCTOR CORPORATION 2900 Semiconductor Drive, Santa Clara, CA 95052-8090	
CERDIP (J), 8 LEAD	
REV	L

NOTES: UNLESS OTHERWISE SPECIFIED

- LEAD FINISH TO BE 200 MICROMETERS / 5.08 MICROMETERS MINIMUM SOLDER MEASURED AT THE CREST OF THE MAJOR FLATS.
- JEDEC REGISTRATION MO-036, VARIATION AA, DATED 04/1981.