

MNLM118-X REV 0AL

Original Creation Date: 06/30/95
Last Update Date: 06/30/95
Last Major Revision Date: 06/30/95

OPERATIONAL AMPLIFIER

Industry Part Number

LM118

Prime Die

LMJ118

NS Part Numbers

LM118H/883
LM118J-8/883
LM118J/883

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: $V_{CC} = \pm 15V$, $V_{CM} = 0$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	$V_{CM} = \pm 11.5V$, $R_S = 50\ \Omega$			-4	+4	mV	1
		$V_{CM} = \pm 11.5V$, $R_S = 50\ \Omega$			-6	+6	mV	2, 3
		$V_{CC} = \pm 20V$, $R_S = 50\ \Omega$			-4	+4	mV	1
		$V_{CC} = \pm 20V$, $R_S = 50\ \Omega$			-6	+6	mV	2, 3
		$V_{CC} = \pm 20V$, $V_{CM} = \pm 15V$, $R_S = 50\ \Omega$			-4	+4	mV	1
		$V_{CC} = \pm 20V$, $V_{CM} = \pm 15V$, $R_S = 50\ \Omega$			-6	+6	mV	2, 3
		$V_{CC} = \pm 5V$, $R_S = 50\ \Omega$			-4	+4	mV	1
		$V_{CC} = \pm 5V$, $R_S = 50\ \Omega$			-6	+6	mV	2, 3
Iio	Input Offset Current	$V_{CM} = \pm 11.5V$, $R_S = 10K\ \Omega$			-50	+50	nA	1
		$V_{CM} = \pm 11.5V$, $R_S = 10K\ \Omega$			-100	+100	nA	2, 3
		$V_{CC} = \pm 20V$, $R_S = 10K\ \Omega$			-50	+50	nA	1
		$V_{CC} = \pm 20V$, $R_S = 10K\ \Omega$			-100	+100	nA	2, 3
		$V_{CC} = \pm 5V$, $R_S = 10K\ \Omega$			-50	+50	nA	1
		$V_{CC} = \pm 5V$, $R_S = 10K\ \Omega$			-100	+100	nA	2, 3
Iib	Input Bias Current	$V_{CM} = \pm 11.5V$, $R_S = 10K\ \Omega$			1	250	nA	1
		$V_{CM} = \pm 11.5V$, $R_S = 10K\ \Omega$			1	500	nA	2, 3
		$V_{CC} = \pm 20V$, $R_S = 10K\ \Omega$			1	250	nA	1
		$V_{CC} = \pm 20V$, $R_S = 10K\ \Omega$			1	500	nA	2, 3
		$V_{CC} = \pm 5V$, $R_S = 10K\ \Omega$			1	250	nA	1
		$V_{CC} = \pm 5V$, $R_S = 10K\ \Omega$			1	500	nA	2, 3
PSRR	Power Supply Rejection Ratio	+Vcc = 20V to 5V, $R_S = 50\ \Omega$			70		dB	1, 2, 3
		-Vcc = -20V to -5V, $R_S = 50\ \Omega$			70		dB	1, 2, 3
CMRR	Common Mode Rejection Ratio	$V_{CC} = \pm 15V$, $V_{CM} = \pm 11.5V$, $R_S = 50\ \Omega$			80		dB	1, 2, 3
Ios+	Short Circuit Current	$t < 25mS$			-65	-5	mA	1, 2, 3
Ios-	Short Circuit Current	$t < 25mS$			5	65	mA	1, 2
					5	80	mA	3

Electrical Characteristics

DC PARAMETERS(Continued)

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

DC: $V_{CC} = \pm 15V$, $V_{CM} = 0$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
I _{CC}	Power Supply Current	$V_{CC} = \pm 20V$				8	mA	1
		$V_{CC} = \pm 20V$				7	mA	2
		$V_{CC} = \pm 20V$				11	mA	3
V _{IOAdj}	Input Offset Voltage Adjust	$V_{CC} = \pm 20V$			4	-4	mV	1
R _{IN}	Input Resistance		2		1		MΩ	1
V _{IN}	Input Voltage Range	$V_{CC} = \pm 15V$	1		-11.5	+11.5	V	1, 2, 3
A _{VS}	Large Signal Voltage Gain	$R_L = 2K \Omega$, $V_O = 0$ to $-10V$	3		50		V/mV	4
			3		25		V/mV	5, 6
		$R_L = 2K \Omega$, $V_O = 0$ to $+10V$	3		50		V/mV	4
			3		25		V/mV	5, 6
V _{OUT}	Output Voltage Swing	$R_L = 2K \Omega$			+12	-12	V	4, 5, 6

AC PARAMETERS

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

AC: $V_{CC} = \pm 15V$, $V_{CM} = 0$, $R_S = 0$, $R_L = 2K \Omega$, $C_L = 33pF$

S _r	Slew Rate	$V_{CC} = \pm 20V$, $V_{IN} = -5V$ to $+5V$, $A_V = 1$	4		50		V/μs	7
		$V_{CC} = \pm 20V$, $V_{IN} = +5V$ to $-5V$, $A_V = 1$			50		V/μs	7

Note 1: Guaranteed by CMRR.

Note 2: Guaranteed parameter not tested.

Note 3: Datalog in K = V/mV

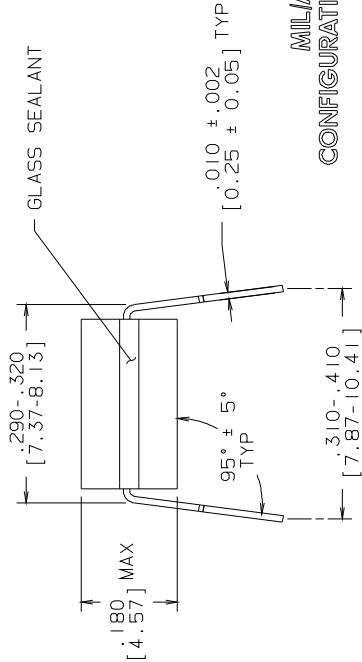
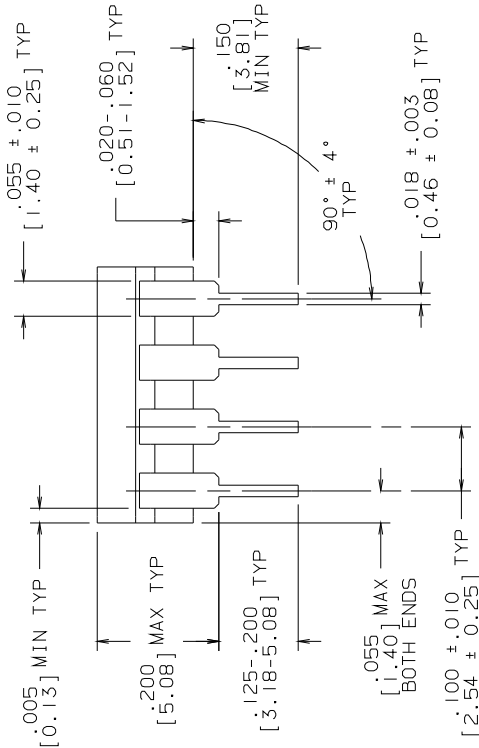
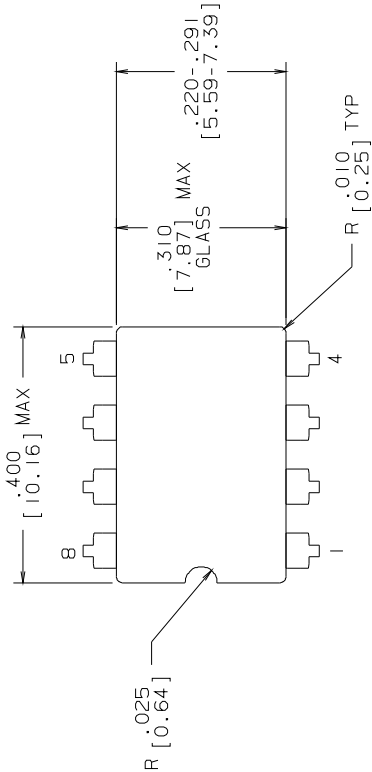
Note 4: Bench tested use TDN 25256223

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
H08CRE	(blank)
J08ARL	CERDIP (J), 8 LEAD (P/P DWG)
J14ARH	CERDIP (J), 14 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	BY/APP'D
L	REVISE PER CURRENT STD; REDRAW	10002	09/21/93	TL/

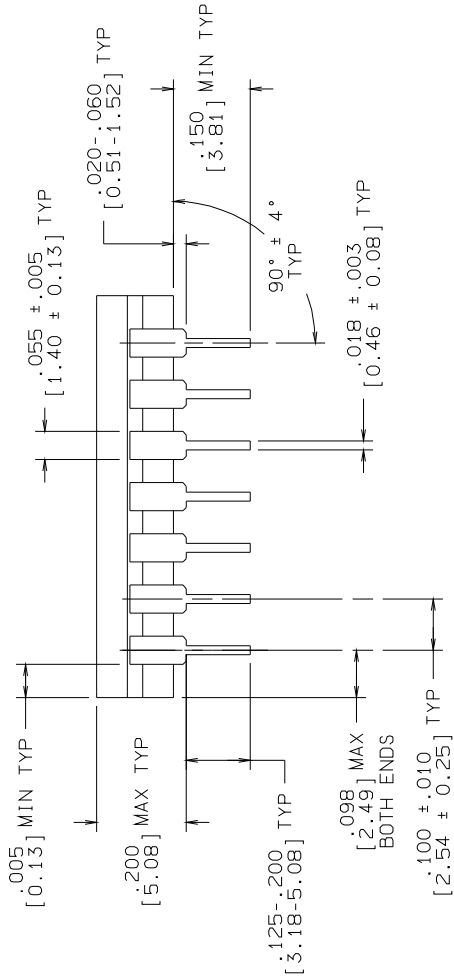
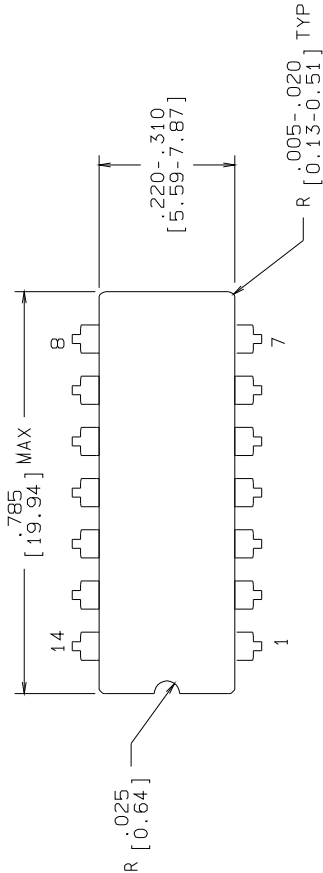


MILAERO
CONFIGURATION CONTROL
MIL-M-38510
CONFIGURATION CONTROL

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

- NOTES: UNLESS OTHERWISE SPECIFIED
1. LEAD FINISH TO BE 200 MICRONS / 5.08 MICROMETERS MINIMUM SOLDER MEASURED AT THE CREST OF THE MAJOR FLATS.
 2. JEDEC REGISTRATION MO-036, VARIATION AA, DATED 04/1981.

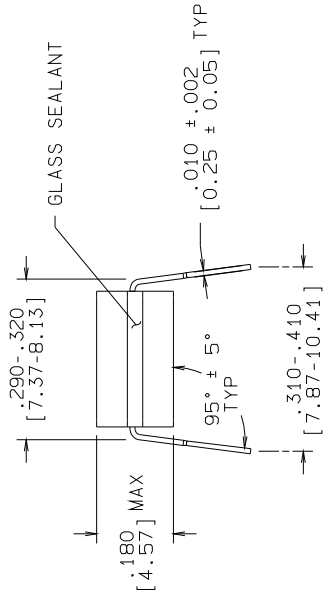
R E V I S I O N S				
LTR	DESCRIPTION	E.C.N.	DATE	BY/APP'D
H	REVISE PER CURRENT STD; REDRAW	10001	09/15/93	TL/



CONTROLLING DIMENSION: INCH

NOTES: UNLESS OTHERWISE SPECIFIED

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



MIL/AERO MIL-M-38510
CONFIGURATION CONTROL CONFIGURATION CONTROL

APPROVALS		DATE		 NATIONAL SEMICONDUCTOR CORPORATION					
DRAWN  T. LEQUANG		09/15/93		2900 Semiconductor Drive, Santa Clara, CA 95052-8090					
DFTG. CHK.									
ENGR. CHK.									
APPROVAL				CERDIP (J) , 14 LEAD ,					
 PROJECTION				SCALE	SIZE	DRAWING NUMBER		REV	
				N/A	B	MKT-J14A		H	
 INCH [MM]				DO NOT SCALE DRAWING		SHEET		1	OF
								1	