



MICROCIRCUIT DATA SHEET

MNLM747A-X REV 0BL

Original Creation Date: 08/07/95
Last Update Date: 11/12/98
Last Major Revision Date: 08/07/95

DUAL OPERATIONAL AMPLIFIER

Industry Part Number

LM747A

NS Part Numbers

LM747AH-MIL
LM747AJ-MIL

Prime Die

LMJ747

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: $V_{cc} = \pm 20V$, $V_{cm} = 0$, $R_s = 50 \text{ Ohms}$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	Rl = 2K			-3	3	mV	1
					-4	4	mV	2, 3
		$V_{cc} = \pm 5V$, Rl = 2K			-3	3	mV	1
		$V_{cc} = \pm 5V$, Rl = 2K			-4	4	mV	2, 3
Iio	Input Offset Current				-30	30	nA	1
					-70	70	nA	2, 3
		$V_{cc} = \pm 5V$			-30	30	nA	1
		$V_{cc} = \pm 5V$			-70	70	nA	2, 3
Iib+	Input Bias Current					80	nA	1
						210	nA	2, 3
		$V_{cc} = \pm 5V$				80	nA	1
		$V_{cc} = \pm 5V$				210	nA	2, 3
Iib-	Input Bias Current					80	nA	1
						210	nA	2, 3
		$V_{cc} = \pm 5V$				80	nA	1
		$V_{cc} = \pm 5V$				210	nA	2, 3
Viadj+	Input Offset Voltage Adjustment Range		3		6		mV	1, 2, 3
Viadj-	Input Offset Voltage Adjustment Range		3		-6		mV	1, 2, 3
PSRR+	Power Supply Rejection Ratio	$+V_{cc} = 20V \text{ to } 10V$, $-V_{cc} = -20V$				50	$\mu V/V$	1
						100	$\mu V/V$	2, 3
PSRR-	Power Supply Rejection Ratio	$-V_{cc} = -20V \text{ to } -10V$, $+V_{cc} = 20V$				50	$\mu V/V$	1
						100	$\mu V/V$	2, 3
CMRR	Common Mode Rejection Ratio	$V_{cm} = \pm 15V$			80		dB	1, 2, 3

Electrical Characteristics

DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
 DC: $V_{cc} = \pm 20V$, $V_{cm} = 0$, $R_s = 50 \text{ Ohms}$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Ios+	Output Short Circuit Current	Vout = -20V			-40	-9	mA	1
					-45	-9	mA	2
					-50	-9	mA	3
		Vout = -5V, Vcc = $\pm 5V$			-40	-9	mA	1
		Vout = -5V, Vcc = $\pm 5V$			-45	-9	mA	2
		Vout = -5V, Vcc = $\pm 5V$			-50	-9	mA	3
Ios-	Output Short Circuit Current	Vout = 20V			9	40	mA	1
					9	45	mA	2
					9	50	mA	3
		Vout = 5V, Vcc = $\pm 5V$			9	40	mA	1
		Vout = 5V, Vcc = $\pm 5V$			9	45	mA	2
		Vout = 5V, Vcc = $\pm 5V$			9	50	mA	3
Icc	Supply Current	Vout = 0				5.6	mA	1
						5.0	mA	2
						6.6	mA	3
Rin	Input Resistance				1.0		MOhms	1
					0.5		MOhms	2
Vop+	Output Voltage Swing	Rl = 10K Ohms			16		V	1, 2, 3
		Rl = 2K Ohms			15		V	1, 2, 3
		Vcc = $\pm 15V$, Rl = 10K Ohms			12		V	1, 2, 3
		Vcc = $\pm 15V$, Rl = 2K Ohms			10		V	1, 2, 3
Vop-	Output Voltage Swing	Rl = 10K Ohms				-16	V	1, 2, 3
		Rl = 2K Ohms				-15	V	1, 2, 3
		Vcc = $\pm 15V$, Rl = 10K Ohms				-12	V	1, 2, 3
		Vcc = $\pm 15V$, Rl = 2K Ohms				-10	V	1, 2, 3

Electrical Characteristics

DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: $V_{cc} = \pm 20V$, $V_{cm} = 0$, $R_s = 50 \text{ Ohms}$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Avs+	Open Loop Voltage Gain	Vout = 0 to +15V, Rl = 2K Ohms	4		50		V/mV	1
			4		32		V/mV	2, 3
		$V_{cc} = \pm 5V$, Vout = 0 to 2V, Rl = 2K			10		V/mV	1, 2, 3
Avs-	Open Loop Voltage Gain	Vout = 0 to -15V, Rl = 2K Ohms	4		50		V/mV	1
			4		32		V/mV	2, 3
		$V_{cc} = \pm 5V$, Vout = 0 to -2V, Rl = 2K			10		V/mV	1, 2, 3
Vin	Input Voltage Range		1		-15	15	V	1, 2, 3
Vopp	Output Voltage Swing	$V_{cc} = \pm 5V$	2		-2	2	V	1, 2, 3
Cs	Channel Separation	Vin = $\pm 10V$, CH A to B			100		dB	1, 2, 3
		Vin = $\pm 10V$, CH B to A			100		dB	1, 2, 3
Pc	Power Consumption (Total)		5			300	mW	1
			5			270	mW	2
			5			330	mW	3

AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: $V_{cc} = \pm 20V$, $V_{cm} = 0$, $R_s = 50 \text{ Ohms}$

Sr+	Slew Rate	Av = 1, Vin = -5V to +5V, Rl = 2K Ohms			0.3		V/uS	9
Sr-	Slew Rate	Av = 1, Vin = +5V to -5V, Rl = 2K Ohms			0.3		V/uS	9
Gbw	Gain Bandwidth	Vin = 50mV, f = 20Khz, Rl = 2K Ohms			0.25		Mhz	9
tr	Rise Time	Vin = 50mV, Rl = 2K, Av = 1, Cl = 100pF	6			800	nS	9
os	Overshoot	Vin = 50mV, Rl = 2K, Av = 1, Cl = 100pF	6			25	%	9

- Note 1: Parameter tested go-no-go only.
 Note 2: Guaranteed by Gain test.
 Note 3: Tested for Dips and FPacks ONLY.
 Note 4: Datalog reading in K = V/mV for Teradyne J-273 ONLY.
 Note 5: Guaranteed by Icc Test: Pc = 40XIcc.
 Note 6: Periodic Group C Test.

Revision History

Rev	ECN #	Rel Date	Originator	Changes
OBL	M0001705	11/12/98	Barbara Lopez	Changed: MNLM747A-X Rev. 0AL to MNLM747A-X Rev. 0BL.