National Semiconductor

MICROCIRCUIT DATA SHEET

MNLF411M-X REV 0BL

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

LOW OFFSET, LOW DRIFT JFET INPUT OPERATIONAL AMPLIFIER

Industry Part Number

LF411

NS Part Numbers

LF411MH/883

Prime Die

LF411

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-833, Method 5005

Subgrp	Description	Temp (^{O}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: Vs = ±15V, Vcm = 0, Rs = 0

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	Rs = 10K Ohms			-2	2	mV	1
					-3.7	3.7	mV	2
					-3.3	3.3	mV	3
Iio	Input Offset Current		3		-0.1	0.1	nA	1
			3		-25	25	nA	2
Iib+	Input Bias Current		3		-0.2	0.2	nA	1
			3		-50	50	nA	2
Iib-	Input Bias Current		3		-0.2	0.2	nA	1
			3		-50	-50	nA	2
Vcm	Input Common Mode Voltage Range		1		±9		V	1, 2, 3
CMRR	Common Mode Rejection Ratio	Rs ≤ 10K Ohms, Vcm = ±9V			70		dB	1, 2, 3
+PSRR	Supply Voltage Rejection Ratio	+Vs = 6V, -Vs = -15V			70		dB	1, 2, 3
-PSRR	Supply Voltage Rejection Ratio	+Vs = 15V, -Vs = -6V			70		dB	1, 2, 3
Is	Supply Current					3.4	mA	1, 2, 3
-Ios	Output Short Circuit Current	+Vin = -11V, -Vin = 11V, Rs = 10K Ohms			13	45	mA	1
					6	45	mA	2, 3
+Ios	Output Short Circuit Current	+Vin = 11V, -Vin = -11V, Rs = 10K Ohms			-45	-13	mA	1
					-45	-6	mA	2, 3
+Vioadj	Input Offset Voltage Adjustment				8		mV	1
-Vioadj	Input Offset Voltage Adjustment					-8	mV	1
+Avs	Large Signal Voltage Gain	Vo = 0 to 10V, Rl = 2K Ohms	2		25		V/mV	4
			2		15		V/mV	5, 6
-Avs	Large Signal Voltage Gain	Vo = 0 to -10V, Rl = 2K Ohms	2		25		V/mV	4
			2		15		V/mV	5, 6
Vo+	Output Voltage Swing	Rl = 10K Ohms, +Vin = 11V, -Vin = -11V, Rs = 10K Ohms			12		V	4, 5, 6

Electrical Characteristics

DC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vs = ±15V, Vcm = 0, Rs = 0

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vo-	Output Voltage Swing	Rl = 10K Ohms, +Vin = -11V, -Vin = 11V, Rs = 10K Ohms		`		-12	V	4, 5, 6

AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: Vs = ±15V, Vcm = 0, Rs = 0

Sr+	Slew Rate	Vout = -5V to 5V			8		V/uS	7
Sr-	Slew Rate	Vout = 5V to -5V			8		V/uS	7
Gbw	Gain Bandwidth Product	No Subgroups			2.7		MHz	

Note 1: Parameter tested go-no-go only.
Note 2: Datalog in K = V/mV.
Note 3: Rs = 10K Ohms at +125 C.

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
09749HR	(blank)
MKT-H08CRE	(blank)
MKT-J08ARL	(blank)

See attached graphics following this page.