National Semiconductor

MILITARY DATA SHEET

MNLM143-X REV 0BL

Original Creation Date: 09/13/95
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HIGH VOLTAGE OPERATIONAL AMPLIFIER

Industry Part Number

LM143

NS Part Numbers

LM143H/883

Prime Die

LM143

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: Vcc = ± -28V, Rs = 50 Ohms

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Icc	Supply Current					4	mA	1
		Vcc = ±4.0V, Vcm = 0V				4	mA	1
		Vcc = ±40V, Vcm = 0V				4	mA	1
Vio	Input Offset Voltage	Vcm = -24V			-5	5	mV	1
					-6	6	mV	2, 3
		Vcm = +24V			-5	5	mV	1
					-6	6	mV	2, 3
		Vcm = 0V			-5	5	mV	1
					-6	6	mV	2, 3
		Vcm = -24V, Rs = 50K Ohms			-5	5	mV	1
					-6	6	mV	2, 3
		Vcm = +24V, Rs = 50K Ohms			-5	5	mV	1
					-6	6	mV	2, 3
		Vcc = ±4.0V, Vcm = 0V			-10	10	mV	1
Iio	Input Offset Current	Vcm = -24V	4		-3	3	nA	1
			4		-4.5	4.5	nA	2
			4		-7	7	nA	3
		Vcm = +24V	4		-3	3	nA	1
			4		-4.5	4.5	nA	2
			4		-7	7	nA	3
		Vcm = 0V	4		-3	3	nA	1
			4		-4.5	4.5	nA	2
			4		-7	7	nA	3
+Iib	Input Bias Current	Vcm = -24V	4			20	nA	1
			4			35	nA	2, 3
		Vcm = +24V	4			20	nA	1
			4			35	nA	2, 3
		Vcm = 0V	4			20	nA	1
			4			35	nA	2, 3

Electrical Characteristics

DC PARAMETERS:(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vcc = ± -28V, Rs = 50 Ohms

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
-Iib	Input Bias Current	Vcm = -24V	4			20	nA	1
			4			35	nA	2, 3
		Vcm = +24V	4			20	nA	1
			4			35	nA	2, 3
		Vcm = 0V	4			20	nA	1
			4			35	nA	2, 3
CMRR	Common Mode Rejection Ratio	-24V ≤ Vcm ≤ 26V	3		80		dB	1, 2, 3
PSRR	Power Supply Rejection Ratio	Vcc = ±28V to ±15V	3		80		dB	1, 2, 3
+Avs	Open Loop Voltage Gain	Rl = 100K Ohms, Vout = 0V to 10V	5		100		V/mV	1
			5		50		V/mV	2, 3
-Avs	Open Loop Voltage Gain	Rl = 100K Ohms, Vout = 0V to -10V	5		100		V/mV	1
			5		50		V/mV	2, 3
+Vout	Output Voltage Swing	Rl = 5K Ohms			22		V	1, 2, 3
		Vcc = ±36V, Rl = 5K Ohms			30		V	1
-Vout	Output Voltage Swing	Rl = 5K Ohms				-22	V	1, 2, 3
		Vcc = ±36V, Rl = 5K Ohms				-30	V	1
Vin	Input Voltage Range		1		-24	24	V	1, 2, 3
BVcc	Supply Breakdown Voltage		2		-40	40	V	1, 2, 3

Electrical Characteristics

DC PARAMETERS: DRIFT VALUES

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vcc = ± -28V, Rs = 50 Ohms. "Deltas not required on B-Level product. Deltas required for S-Level product ONLY as specified on Internal Processing Instructions (IPI)."

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vio	Input Offset Voltage	Vcm = -24V			-1	1	mV	1
		Vcm = +24V			-1	1	mV	1
		Vcm = 0V			-1	1	mV	1
		Vcm = -24V, Rs = 50K Ohms			-1	1	mV	1
		Vcm = +24V, Rs = 50K Ohms			-1	1	mV	1
Iio	Input Offset Current	Vcm = -24V			-1	1	nA	1
		Vcm = +24V			-1	1	nA	1
		Vcm = 0V			-1	1	nA	1
+Iib	Input Bias Current	Vcm = -24V			-4	4	nA	1
		Vcm = +24V			-4	4	nA	1
		Vcm = 0V			-4	4	nA	1
-Iib	Input Bias Current	Vcm = -24V			-4	4	nA	1
		Vcm = +24V			-4	4	nA	1
		Vcm = 0V			-4	4	nA	1

Note 1: Guaranteed by Vcm conditions of other parameters.
Note 2: Guaranteed parameter not tested.
Note 3: 80dB = 100uV/V.
Note 4: Rs = 50K Ohms or equivalent.
Note 5: V/mV in units column is equivalent to K in datalog.

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
H08CRE	(blank)
P000019A	8LD .200 DIA P.C. TO-99 METAL CAN (H)(PIN OUT)

See attached graphics following this page.