National Semiconductor

MICROCIRCUIT DATA SHEET

MNLM150-X REV 0BL

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

3-AMP ADJUSTABLE REGULATORS

Industry Part Number

LM150

NS Part Numbers

LM150K STEEL
LM150K/883*

Prime Die

LM150

Controlling Document

5962-8767501XA*

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5004

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/AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vdf = 5V, Vout = Vref, Iout = 1.5A. Pre Burn-In stress tests per RPI-5-024.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vref	Reference Voltage				1.2	1.3	V	1, 2, 3
		Vdf = 3.0V, Il = 10mA			1.2	1.3	V	1, 2, 3
		Vdf = 3.0V, Il = 3.0A			1.2	1.3	V	1, 2, 3
		Vdf = 35V, IL = 10mA			1.2	1.3	V	1, 2, 3
		Vdf = 10V, IL = 3.0A	6		1.2	1.3	V	1, 2, 3
		Vdf = 30V, IL = 300mA	6		1.2	1.3	V	1, 2, 3
Vline	Line Regulation	3V<= Vdf <= 35V, Iload = 10mA	3		-3.8	3.8	mV	1
			3		-19.0	19.0	mV	2, 3
Vload	Load Regulation	10mA <= Il <=3A, Vout = Vref	2, 7		-3.6	3.6	mV	1
			2, 7		-12.0	12.0	mV	2, 3
		Vdf = 30V, 10mA <= Il <= 300mA			-2.0	2.0	mV	1
					-5.0	5.0	mV	2, 3
		10mA <= Il <= 3A, Vout = 5.0V	2, 4		-15.0	15.0	mV	1
			2, 4		-50.0	50.0	mV	2, 3
tREG	Thermal Regulation	t = 20mS	5		-9.75	9.75	mV	1
Iadj	Adjust Pin Current					100	uA	1, 2, 3
		Vdf = 35V, Iout = 10mA				100	uA	1, 2, 3
Iq	Quiesent Current					5.0	mA	1, 2, 3
		Vdf = 35V				5.0	mA	1, 2, 3
Delta Iadj	Delta Adjustment Current	3V <= Vdf <= 35V Iout = 10mA			-5.0	5.0	uA	1, 2, 3
		10mA <= Il <= 3A			-5.0	5.0	uA	1, 2, 3
		Vdf = 30V, 10mA <= Il <= 300mA			-5.0	5.0	uA	1, 2, 3

Electrical Characteristics

DC/AC PARAMETERS(Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vdf = 5V, Vout = Vref, Iout = 1.5A. Pre Burn-In stress tests per RPI-5-024.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
	Current Limit	Vdif = 10V			3.0		A	1, 2, 3
		Vdif = 30V			0.3		A	1, 2, 3
Delta Vout/Delta t	Long Term Stability	TA = +125 C, t = 1000 Hrs, Vdf = 3.0V, Il = 10mA	1			1.0	%/Vout	2
Vdrop	Voltage Dropout	Vdf = 2.9V, Il = 3A			-100	100	mV	1, 2, 3
Rr	Ripple Rejection	f = 120 Hz, ei = 1Vrms, Cadj = 10uf, Vout = 10V			66		dB	4, 5, 6

Note 1: Peridoic Group C testing.
Note 2: These Vout conditions are worst case.
Note 3: Limits = 0.01% of Vout at 25 C, 0.05% at -55 C, +125 C per volt of Vdf change at Vout = Vref.
Note 4: Limits = 0.3% of Vout at 25 C, 1.0% at -55 C, +125C at Vout = 5.0V.
Note 5: Limits =0.01% of Vout at 25C per Watt of power dissipation at Pd=7.5W.
Note 6: Represents worst case power dissipation of 30W.
Note 7: Limits are equivalent to 15mV at 25 C and 50mV at -55 C, +125 C at Vout = 5.0V.

Revision History

Rev	ECN #	Rel Date	Originator	Changes
0BL	M0001687	11/18/98	Barbara Lopez	Changed: MNLM150-X Rev. 0AL to MNLM150-X Rev. 0BL.