



**MILITARY DATA SHEET**

**MNLM133-X REV 0AL**

Original Creation Date: 07/07/95  
Last Update Date: 07/07/95  
Last Major Revision Date: 07/07/95

**3-AMP ADJUSTABLE NEGATIVE REGULATOR**

**Industry Part Number**

LM133

**NS Part Numbers**

LM133K/883

**Prime Die**

LM133

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**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:  $I_L = .8\text{mA}$ ,  $V_{out} = V_{ref}$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vref	Reference Voltage	Vin = -4.25V			1.238	1.262	V	1
					1.225	1.275	V	2, 3
		Max  Vin -Vout  = 35V			1.238	1.262	V	1
					1.225	1.275	V	2, 3
Iq	Minimum Load Current	Vout = -1.7V, Vin = -4.25V			.27	2.5	mA	1, 2, 3
		Vin = -4.25V to -11.75V, Vout = -1.7V			.27	2.5	mA	1, 2, 3
		Max  Vin -Vout  = 35V, Vout = 1.7V			.27	2.5	mA	1
					1.3	5	mA	2, 3
Rline	Line Regulation	$3V \leq  V_{in} - V_{out}  \leq 35V$			-8	8	mV	1
		$3V \leq  V_{in} - V_{out}  \leq 35V$			-10	+10	mV	2, 3
Rload	Load Regulation	Vin = -6.25V, $8\text{mA} \leq I_L \leq 3\text{A}$			-6.2	6.2	mV	1
		Vin = -6.25V, $8\text{mA} \leq I_L \leq 3\text{A}$			-12.5	12.5	mV	2, 3
		Vin = -12.2V, $8\text{mA} \leq I_L \leq 3\text{A}$			-6.2	6.2	mV	1
		Vin = -12.2V, $8\text{mA} \leq I_L \leq 3\text{A}$			-12.5	12.5	mV	2, 3
		Max  Vin -Vout  = 35V, $8\text{mA} \leq I_L \leq .15\text{A}$			-6.2	6.2	mV	1
		Max  Vin -Vout  = 35V, $8\text{mA} \leq I_L \leq .15\text{A}$			-12.5	12.5	mV	2, 3
Iadj	Adjust Pin Current	Max  Vin -Vout  = 35V			50	90	uA	1
					50	100	uA	2, 3
		Vin = -4.25V			50	90	uA	1
					50	100	uA	2, 3
Delta Iadj	Adjust Pin Current Change: Change vs Line Voltage	$3V \leq  V_{in} - V_{out}  \leq 35V$			-5	5	uA	1
Delta Iadj	Adjust Pin Current Change: Change vs Load Current	Vin = -6.5V, $8\text{mA} \leq I_L \leq 3\text{A}$			-5	5	uA	1
Theta R	Thermal Regulation	Vin = -12.2V, $I_L = 3\text{A}$ , $t = 10\text{mS}$			-4.1	4.1	mV	1
		Vin = -12.2V, $I_L = 8\text{mA}$ , $t = 10\text{mS}$			-4.1	4.1	mV	1

## Electrical Characteristics

### DC PARAMETERS (Continued)

(The following conditions apply to all the following parameters, unless otherwise specified.)  
DC:  $I_l = .8\text{mA}$ ,  $V_{out} = V_{ref}$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Isc	Short Circuit Current	Max $ V_{in} - V_{out}  = 35\text{V}$			.15	1.7	A	1
					.15	1.5	A	2, 3
		Vin = -31.2V			.3	2.2	A	1
					.3	2.5	A	2, 3
		Vin = -21.2V			1.25	4.5	A	1
					1.25	5	A	2, 3
Vin = -12.25V			2.8	6	A	1, 2, 3		
Delta Isc Isc	Short Circuit Current	$12.25\text{V} \leq  V_{in} - V_{out}  \leq 35\text{V}$			.15	5.85	A	1, 2, 3
		Vin = -5V			3	6	A	1, 2, 3
Vout	Output Voltage				1.23	1.27	V	1
Rr	Ripple Rejection	$C_{adj} = 10\mu\text{F}$ , $V_{out} = 10\text{V}$ , $f = 120\text{Hz}$	1, 2		66		dB	1

Note 1: Bench test, use 70256667.

Note 2: Ripple Rejection testing required 100% at 25C, Group A at 25C.