National Semiconductor

MICROCIRCUIT DATA SHEET

MJLM109-K REV 0BL

Original Creation Date: 06/27/95
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VOLTAGE REGULATOR, +5 VOLTS AT 1.5A (MAX)

Industry Part Number

LM109

NS Part Numbers

JL109BXA
JL109BYA
JL109SXA

Prime Die

LM109

Controlling Document

38510/10701 REV C

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, 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

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vout	Output Voltage	Vin = 7V, Il = -5mA			4.7	5.4	V	1, 2, 3
		Vin = 7V, Il = -1.5A	1		4.7	5.4	V	1, 2, 3
		Vin = 18V, Il = -1.5A			4.7	5.4	V	1, 2, 3
		Vin = 25V, Il = -5mA			4.7	5.4	V	1, 2, 3
		Vin = 25V, Il = -1A			4.7	5.4	V	1, 2, 3
Vrline	Line Regulation	7V ≤ Vin ≤ 25V, Il = -5mA			-50	50	mV	1
		7V ≤ Vin ≤ 25V, Il = -5mA			-100	100	mV	2, 3
Vrload	Load Regulation	Vin = 10V, -1.5A ≤ Il ≤ -5mA			-100	100	mV	1, 2, 3
Iscd	Standby Current Drain	7V ≤ Vin ≤ 25V, Il = -5mA			-10	0.5	mA	1, 2, 3
Delta Iscd(Line)	Standby Current Drain vs Line Voltage	7V ≤ Vin ≤ 25V, Il = -5mA			-0.5	0.5	mA	1, 2, 3
Delta Iscd(Load)	Standby Current Drain vs Load Current	Vin = 10V, -1.5A ≤ Il ≤ -5mA			-0.8	0.8	mA	1, 2, 3
Ios	Output Short Circuit Current	Vin = 35V			-2.8	0.01	A	1, 2, 3
Vstart	Minimum Start Up Input Voltage	Rl = 5 Ohms ±5%	6			9	V	1, 2, 3
Delta Vout/Delta T	Average Temperature Coefficient of Output Voltage	Vin = 7V, Il = -5mA	2		-2	2	mV/ C	8A, 8B

AC PARAMETERS

No	Output Noise Voltage	Vin = 10V, Il = -100mA	3			125	uVrms	7
Delta Vout/Delta Vin	Line Transient Response	Vin = 10V, Vpulse = 3V, Il = -5mA	3, 4			45	mV	7
Delta Vout/Delta Il	Load Transient Response	Vin = 10V, Il = -100mA, Delta Il = -400mA	3, 5			800	mV	7
Delta Vin/Delta Vout	Ripple Rejection	Vin = 10V, Il = -350mA, ei = 1Vrms at f = 2400Hz	3		60		dB	4

Electrical Characteristics

DC PARAMETERS: DRIFT VALUES

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: "Delta calculations performed on JAN S and QMLV devices at group B, subgroup 5 only".

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vout	Output Voltage	Vin = 7V, Il = -5mA			-0.025	0.025	V	1
		Vin = 7V, Il = -1.5A			-0.025	0.025	V	1
		Vin = 18V, Il = -1.5A			-0.025	0.025	V	1
		Vin = 25V, Il = -5mA			-0.025	0.025	V	1
		Vin = 25V, Il = -1A			-0.025	0.025	V	1
Vrline	Line Regulation	7V $\leq$ Vin $\leq$ 25V, Il = -5mA			-10	10	mV	1
Vrload	Load Regulation	Vin = 10V, -1.5A $\leq$ Il $\leq$ -5mA			-10	10	mV	1
Iscd	Standby Current Drain	7V $\leq$ Vin $\leq$ 25V, Il = -5mA			-1	1	mA	1

Note 1: Vin = 8V at -55 C.
Note 2: Calculated parameter.
Note 3: Bench test.
Note 4: Slash Sheet limit of 15mV/V is equivalent to 45mV.
Note 5: Slash Sheet limit of 2mV/mA is equivalent to 800mV.
Note 6: Parameter tested go-no-go only.

Graphics and Diagrams

GRAPHICS#	DESCRIPTION
08346HR	(blank)
MKT-H03RB	(blank)

See attached graphics following this page.