



MILITARY DATA SHEET

MNLM109-K REV 0AL

Original Creation Date: 06/29/95
Last Update Date: 12/10/96
Last Major Revision Date: 06/29/95

5 VOLT REGULATOR

Industry Part Number

LM109

NS Part Numbers

LM109K/883

Prime Die

LM109

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/AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)

DC: $I_L = 5\text{mA}$. Pre-Burn-In Stress Test per (SG) RPI-3-371.

AC: $I_L = 5\text{mA}$. Pre-Burn-In Stress Test per (SG) RPI-3-371.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vstart	Start Up Input Voltage	$V_{out} \geq 4.706\text{V}$, $R_L = 5\ \Omega$	1			9	V	1
Iq	Quiescent Current	$V_{in} = 7\text{V}$			-10		mA	1, 2, 3
		$V_{in} = 7.2\text{V}$, $I_L = 1.5\text{A}$	2		-10		mA	1, 2, 3
		$V_{in} = 25\text{V}$			-10		mA	1, 2, 3
		$V_{in} = 25\text{V}$, $I_L = 1.5\text{A}$ ($t_{pw} \leq 10\text{ms}$)	2		-10		mA	1, 2, 3
		$V_{in} = 35\text{V}$			-10		mA	1, 2, 3
Delta Iq	Quiescent Current Change	$7\text{V} \leq V_{in} \leq 25\text{V}$			-0.5	0.5	mA	1, 2, 3
		$V_{in} = 7.2\text{V}$, $5\text{mA} \leq I_L \leq 1.5\text{A}$	2		-0.8	0.8	mA	1, 2, 3
Vrline	Line Regulation	$7\text{V} \leq V_{in} \leq 25\text{V}$			-50	50	mV	1
		$7\text{V} \leq V_{in} \leq 25\text{V}$			-100	100	mV	2, 3
Vrload	Load Regulation	$V_{in} = 7.2\text{V}$, $5\text{mA} \leq I_L \leq 1.5\text{A}$	2		-100	100	mV	1
		$V_{in} = 7.2\text{V}$, $5\text{mA} \leq I_L \leq 1.5\text{A}$	2		-200	200	mV	2, 3
		$V_{in} = 10\text{V}$, $5\text{mA} \leq I_L \leq 1.5\text{A}$			-100	100	mV	1
		$V_{in} = 10\text{V}$, $5\text{mA} \leq I_L \leq 1.5\text{A}$			-200	200	mV	2, 3
		$V_{in} = 25\text{V}$, $1\text{A} \leq I_L \leq 20\text{mA}$, ($t_{pw} < 10\text{ms}$)	2		-50	50	mV	1
Vout	Output Voltage	$V_{in} = 7\text{V}$, $P_L \leq 20\text{W}$			4.6	5.4	V	1, 2, 3
		$V_{in} = 7.2\text{V}$, $I_L = 1.5\text{A}$, $P \leq 20\text{W}$			4.6	5.4	V	1, 2, 3
		$V_{in} = 10\text{V}$, $I_L = 500\text{mA}$, $P \leq 20\text{W}$	2		4.7	5.3	V	1
		$V_{in} = 25\text{V}$, $I_L = 20\text{mA}$, $P \leq 20\text{W}$			4.6	5.4	V	1
		$V_{in} = 25\text{V}$, $I_L = 1\text{A}$, $P \leq 20\text{W}$, ($t_{pw} \leq 10\text{ms}$)			4.6	5.4	V	1, 2, 3
		$V_{in} = 25\text{V}$, $P \leq 20\text{W}$	2		4.6	5.4	V	1, 2, 3
Ios	Short Circuit Current	$V_{in} = 35\text{V}$				2.8	A	1
Rr	Ripple Rejection	$f \leq 120\text{Hz}$, $e_{in}=1\text{V(rms)}$, $I_L=500\text{mA}$	5		50		dB	4

Electrical Characteristics

DC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: $I_L = 5\text{mA}$. Pre-Burn-In Stress Test per (SG) RPI-3-371.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vn	Output Noise Voltage	$10\text{Hz} \leq f \leq 100\text{KHz}$	3			200	μV	7
Delta Vout/Delta T	Long Term Stability		3			10	mV	8

Note 1: This test is performed by shifting the input voltage in 50 mV increments until output reaches 4.706V.

Note 2: At -55 C & 125 C, $I_L = 1\text{A}$ rather than 1.5A.

Note 3: Guaranteed parameter not tested.

Note 4: Pre-Burn-In Stress Test per (SG) RPI-3-371.

Note 5: Bench test, use 70256655.

Graphics and Diagrams

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

See attached graphics following this page.