



MILITARY DATA SHEET

MNLM199A-20-H REV 0BL

Original Creation Date: 08/15/95
Last Update Date: 12/20/96
Last Major Revision Date: 08/15/95

PRECISION VOLTAGE REFERENCE

Industry Part Number

LM199

NS Part Numbers

LM199AH-20/883

Prime Die

LM199

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

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vr	Reverse Breakdown Voltage	$0.5\text{mA} \leq I_r \leq 10\text{mA}$			6.8	7.1	V	1, 2, 3
Delta Vr	Reverse Breakdown Voltage Change with Current	$0.5\text{mA} \leq I_r \leq 10\text{mA}$				9.0	mV	1, 2, 3
Ihpk	Peak Heater Current	Vh = 40V, 1% Duty Cycle				200	mA	1
I1	Leakage Zener to Substrate	Vh = 40V				250	nA	1
Delta Vz/Delta T	Reverse Breakdown Temperature Coefficient	-55 C \leq TA \leq 85 C, Ir = 1mA	3			0.5	ppm/C	1
		85 C \leq TA \leq 125 C, Ir = 1mA	3			10	ppm/C	1
Zr	Reverse Dynamic Impedance	Ir = 1mA	1			1	Ohm	1
Ih	Stabilized Heater Current	Vh = 30V (tested after 5 seconds of heater turn on time)				30	mA	1
		Vh = 30V (Still air)	2			14	mA	2
			2			85	mA	3
Vf	Forward Voltage	Ir = 1mA			-1.6		V	1
	Long Term Stability	Stabilized, 22 C \leq TA \leq 28 C, 1000 Hours, Ir = 1mA \pm 0.1 percent				20	ppm	1

AC PARAMETERS

Vnrms	Zener Rms Noise Voltage	Ir = 1mA, 10Hz < Freq < 10KHz, Vh = 40V				20.0	uV	7
Vnpk	Zener Peak Noise Voltage	Ir = 1mA, 10Hz < FREQ < 10KHz, Vh = 40V				80	uV	7

Note 1: Guaranteed by "Reverse Breakdown Voltage Change with Current".

Note 2: Guaranteed parameter, not tested.

Note 3: Tested on Auto Drift test oven.