

FEATURES

- **Guaranteed 20 ppm/°C Drift**
(H Package and Z Package)
- **Guaranteed 40 ppm/°C Drift (SO-8 Package)**
- **20 μ A to 20mA Operation (1.2V)**
- **Dynamic Impedance: 1 Ω**
- **7V, 100 μ A Reference**

APPLICATIONS

- Portable Meters
- Precision Regulators
- Calibrators

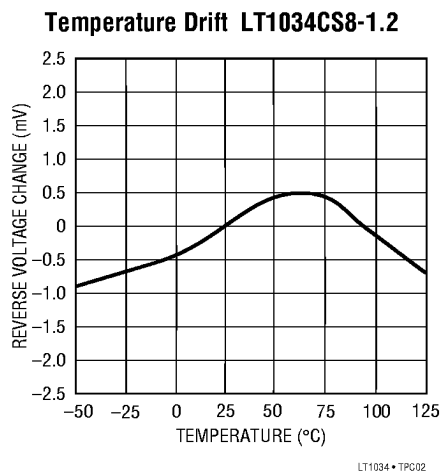
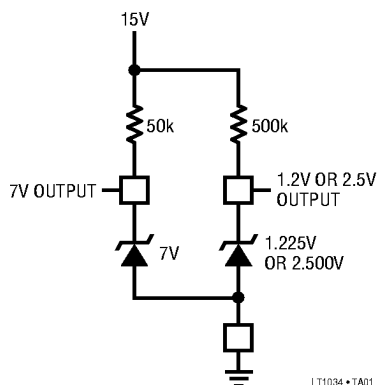
DESCRIPTION

The LT[®]1034 is a micropower, precision 1.2V/2.5V reference combined with a 7V auxiliary reference. The 1.2V/2.5V reference is a trimmed, thin-film, band-gap, voltage reference with 1% initial tolerance and guaranteed 20ppm/°C temperature drift. Operating on only 20 μ A, the LT1034 offers guaranteed drift, low temperature cycling hysteresis and good long-term stability. The low dynamic impedance makes the LT1034 easy to use from unregulated supplies. The 7V reference is a subsurface zener device for less demanding applications.

The LT1034 reference can be used as a high performance upgrade of the LM385 or LT1004, where guaranteed temperature drift is desired.

 LTC and LT are registered trademarks of Linear Technology Corporation.

TYPICAL APPLICATION AND BLOCK DIAGRAM



RELATED PARTS

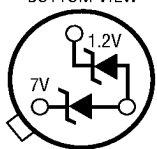
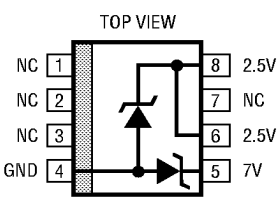
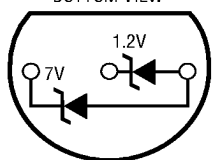
PART NUMBER	DESCRIPTION	COMMENTS
LT1004	Low Cost Precision Band-Gap	Micropower, SO-8, Industrial Temperature Options
LT1019	Precision Series or Shunt Band-Gap	Low Dropout, Multiple Output Options
LT1236	Precision Series or Shunt Buried Zener	Low Noise, Low Power, Multiple Output Options

LT1034-1.2/LT1034-2.5

ABSOLUTE MAXIMUM RATINGS

Operating Current	20mA	Operating Temperature	
Forward Current (Note 1)	20mA	Commercial	0° to 70°C
Storage Temperature Range	–65°C to 150°C	Industrial	–40°C to 85°C
Lead Temperature (Soldering, 10 sec)	300°C	Military	–55°C to 125°C

PACKAGE/ORDER INFORMATION

 H PACKAGE 3-LEAD TO-46 METAL CAN $T_{JMAX} = 150^{\circ}C$, $\theta_{JA} = 440^{\circ}C/W$, $\theta_{JC} = 80^{\circ}C/W$	ORDER PART NUMBER	 S8 PACKAGE 8-LEAD PLASTIC SO $T_{JMAX} = 175^{\circ}C$, $\theta_{JA} = 150^{\circ}C/W$	ORDER PART NUMBER
	LT1034BCH-1.2 LT1034BCH-2.5 LT1034BMH-1.2 LT1034BMH-2.5 LT1034CH-1.2 LT1034CH-2.5 LT1034MH-1.2 LT1034MH-2.5		LT1034CS8-1.2 LT1034CS8-2.5 LT1034IS8-1.2 LT1034IS8-2.5
 Z PACKAGE 3-LEAD TO-92 PLASTIC $T_{JMAX} = 100^{\circ}C$, $\theta_{JA} = 160^{\circ}C/W$	ORDER PART NUMBER	PART MARKING	
	LT1034BCZ-1.2 LT1034BCZ-2.5 LT1034BIZ-1.2 LT1034BIZ-2.5 LT1034CZ-1.2 LT1034CZ-2.5 LT1034IZ-1.2 LT1034IZ-2.5	3401 3402 34101 34102	

ELECTRICAL CHARACTERISTICS $T_A = 25^{\circ}C$, unless otherwise specified.

PARAMETER	CONDITIONS		LT1034-1.2			LT1034-2.5			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Reverse Breakdown Voltage	$I_R = 100\mu A$	●	1.210	1.225	1.240	2.46	2.5	2.54	V
			1.205	1.225	1.245	2.43	2.5	2.57	V
Reverse Breakdown Change with Current	Note 3	●		0.5	2.0		1.0	3.0	mV
		●		1.0	4.0		1.5	6.0	mV
	$2mA \leq I_R \leq 20mA$	●		4.0	8.0		6.0	16.0	mV
		●		6.0	15.0		10.0	20.0	mV
Minimum Operating Current		●		10	20		15	30	μA
Temperature Coefficient	$I_R = 100\mu A$ LT1034B	●		10	20		10	20	ppm/ $^{\circ}C$
	LT1034			20	40		20	40	ppm/ $^{\circ}C$
Reverse Dynamic Impedance (Note 2)	$I_R = 100\mu A$	●		0.25	1.0		0.5	1.5	Ω
		●		0.50	2.0		1.0	2.5	Ω
Low Frequency Noise	$I_R = 100\mu A$, $0.1Hz \leq F \leq 10Hz$	●		4			6		μV_{P-P}
Long-Term Stability	$I_R = 100\mu A$			20			20		ppm/ $\sqrt{kh}$ rs

ELECTRICAL CHARACTERISTICS

7V Reference. $T_A = 25^\circ\text{C}$, unless otherwise specified.

PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS
Reverse Breakdown Voltage	$I_R = 100\mu\text{A}$	●	6.80 6.75	7.0 7.0	7.3 7.4	V V
Reverse Breakdown Change with Current	$100\mu\text{A} \leq I_R \leq 1\text{mA}$	●		90	140	mV
	$100\mu\text{A} \leq I_R \leq 1\text{mA}$	●		100	190	mV
	$1\text{mA} \leq I_R \leq 20\text{mA}$	●		160	250	mV
	$1\text{mA} \leq I_R \leq 20\text{mA}$	●		200	350	mV
Temperature Coefficient	$I_R = 100\mu\text{A}$	●		40		ppm/ $^\circ\text{C}$
Long-Term Stability	$I_R = 100\mu\text{A}$			20		ppm/ $\sqrt{\text{hrs}}$

The ● denotes specifications which apply over the full operating temperature range.

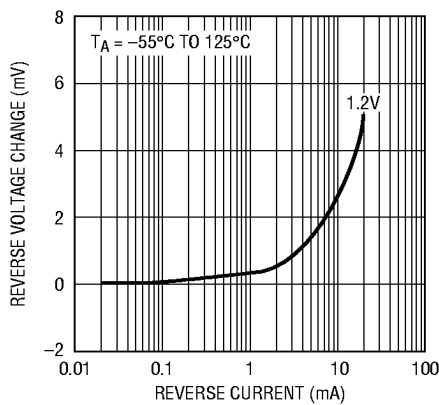
Note 1: Forward biasing either diode will affect the operation of the other diode.

Note 2: This parameter guaranteed by “reverse breakdown change with current” test.

Note 3: For the LT1034-1.2: $20\mu\text{A} \leq I_R \leq 2\text{mA}$. For the LT1034-2.5: $30\mu\text{A} \leq I_R \leq 2\text{mA}$.

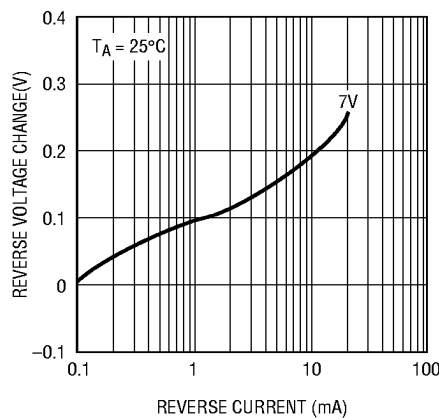
TYPICAL PERFORMANCE CHARACTERISTICS

Reverse Voltage Change 1.2V



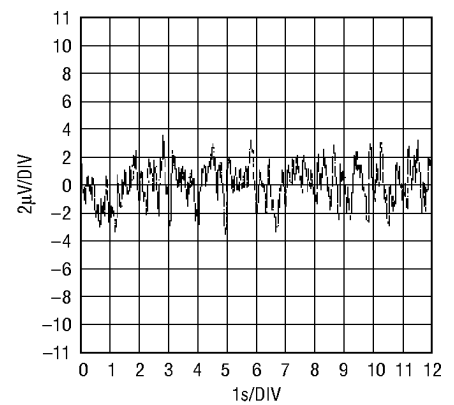
LT1034 • TPC01

Reverse Voltage Change 7V



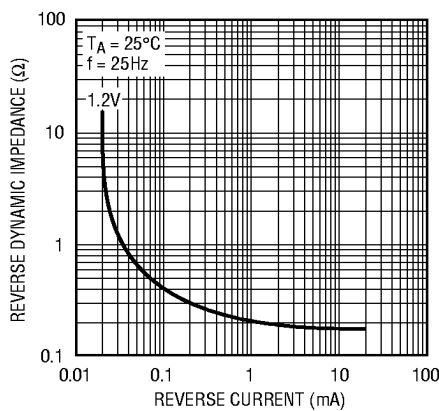
LT1034 • TPC02

0.1Hz to 10Hz Noise 1.2V



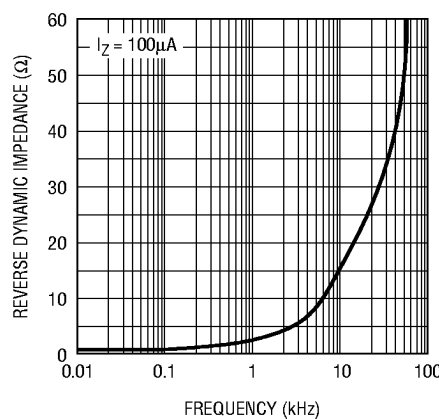
LT1034 • TPC03

Reverse Dynamic Impedance 1.2V



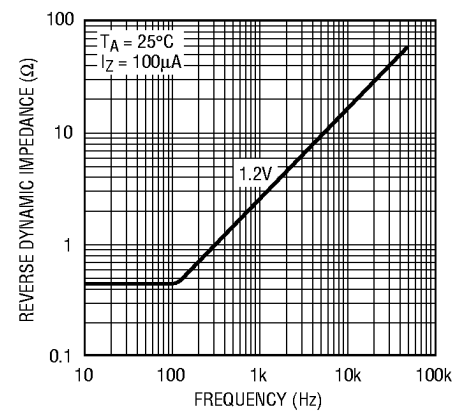
LT1034 • TPC04

Reverse Dynamic Impedance 2.5V



LT1034 • TPC05

Reverse Dynamic Impedance 7V



LT1034 • TPC06



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Dimension in inches (millimeters) unless otherwise noted.

