



LM385-2.5

Micropower Voltage Reference Diode

General Description

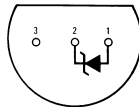
The LM385-2.5 are micropower 2-terminal band-gap voltage regulator diodes. Operating over a 20 μA to 20 mA current range, they feature exceptionally low dynamic impedance and good temperature stability. On-chip trimming is used to provide tight voltage tolerance.

Features

- ± 20 mV ($\pm 0.8\%$) max. initial tolerance (A grade)
- Operating current of 20 μA to 20 mA
- 0.6 Ω dynamic impedance (A grade)
- Low temperature coefficient
- Low voltage reference — 2.5V

Connection Diagrams

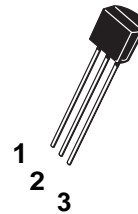
TO-92
Plastic Package



Bottom View

LM385Z-2.5

Ordering No: LM385Z-2.5



1: "-"

2: "+"

3: NC



LM385-2.5

Absolute Maximum Ratings

	Soldering Information	
	TO-92 Package (10 sec.)	260°C
Reverse Current	30 mA	
Forward Current	10 mA	
Operating Temperature Range (Note 3)		
LM385-2.5	0°C to 70°C	
Storage Temperature	-55°C to + 150°C	

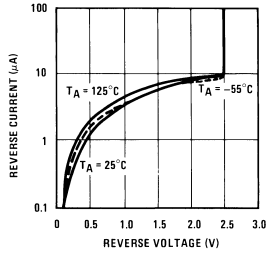
Electrical Characteristics

(Note 4)

Parameter	Conditions	Typ	LM385-2.5		Units (Limits)
			Tested Limit	Design Limit	
Reverse Breakdown Voltage	$T_A = 25^\circ\text{C}$ $20\mu\text{A} < I_{R1} < 20\text{mA}$	2.500	2.425 2.575		V(Min) V(Max)
Minimum Operating Current		13	20	30	μA (Max)
Reverse Breakdown Voltage Change with Current	$20\mu\text{A} \leq I_R \leq 1\text{mA}$		2.0	2.5	mV (Max)
	$1\text{mA} \leq I_R \leq 20\text{mA}$		20	25	mV (Max)
Reverse Dynamic Impedance	$I_R = 100\mu\text{A}$ $f = 20\text{Hz}$	1			Ω
Wideband Noise (rms)	$I_R = 100\mu\text{A}$ $10\text{Hz} \leq f \leq 10\text{kHz}$	120			μV
Long Term Stability	$I_R = 100\mu\text{A}$, $T = 1000\text{Hr}$, $T_A = 25^\circ\text{C} \pm 0.1^\circ\text{C}$	20			ppm
Average Temperature	$I_{MIN} \leq I_R \leq 20\text{mA}$			150	ppm/°C (Max)

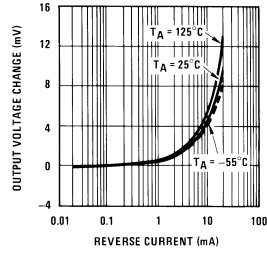
Typical Performance Characteristics

Reverse Characteristics



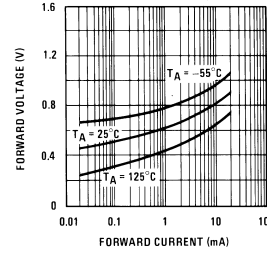
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Reverse Characteristics



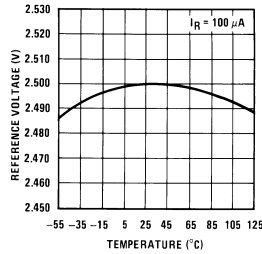
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Forward Characteristics



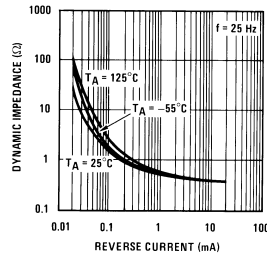
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Temperature Drift



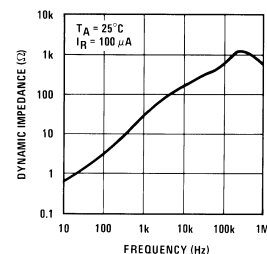
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Reverse Dynamic Impedance



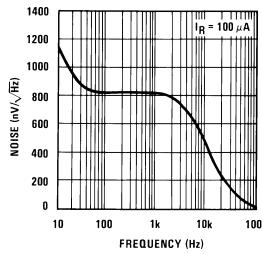
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Reverse Dynamic Impedance



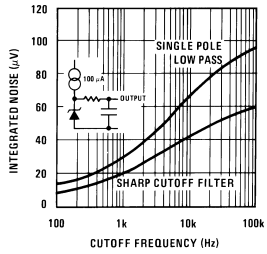
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Noise Voltage



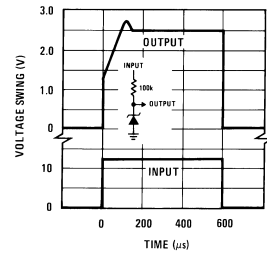
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Filtered Output Noise



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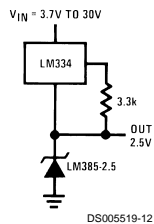
Response Time



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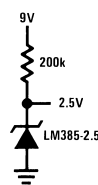
Applications

Wide Input Range Reference



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Micropower Reference from 9V Battery



LM385-2.5 Applications