April 1999 Revised August 2005

LM336Z25 Programmable Shunt Regulator

General Description

The LM336Z25 integrated circuits are precision 2.5V shunt regulators. The monolithic IC voltage reference operates as a low temperature coefficient 2.5V zener with 0.2W dynamic impedance. The monolithic IC voltage reference operates as a low temperature coefficient 2.5V zener with 0.2W dynamic impedance. A third terminal on the LM336Z25 allows the reference voltage and temperature coefficient to be trimmed easily. LM336Z25 are useful as a precision 2.5V low voltage reference for digital voltmeters, power supplies or OP-AMP circuitry. The 2.5V makes it convenient to obtain a stable reference from low voltage supplies. Further, since the LM336Z25 operate as shunt regulators, they can be used as either a positive or negative voltage reference.

Features

- Low Temperature Coefficient
- Guaranteed Temperature Stability 4mV Typical
- 0.2W Dynamic Impedance
- 1.0% Initial Tolerance Available
- Easily Trimmed for Minimum Temperature Drift

Ordering Code:

Product Number	Package	Packing	Operating Temperature
LM336Z25		Bulk	
LM336Z25X	TO-92	Tape and Reel	0°C to +70°C
LM336Z25XA		Ammo	



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LM336Z25

Internal Block Diagram



Absolute Maximum Ratings(Note 1)

Parameter	Symbol	Value	Unit	
Reverse Current	IR	15	mA	
Forward Current	IF	10	mA	
Operating Temperature Range LM336Z25	TOPR	0 ~ +70	°C	
Storage Temperature Range	TSTG	– 60 ~ +150	°C	

Note 1: The Absolute Maximum Ratings are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the Electrical Characteristics tables are not guaranteed at the absolute maximum rating.

Electrical Characteristics ($0^{\circ}C < T_A < +70^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Reverse Breakdown Voltage	V _R	T _A = +25°C,	2.44	2.49	2.54	V
		I _R = 1mA				
Reverse Breakdown Change with Current	$\Delta V_R / \Delta I_R$	T _A = +25°C	-	2.6	10	mV
		$400 \mu A \leq I_R \leq 10 m A$				
Reverse Dynamic Impedance	Z _D	T _A = +25°C	-	0.2	1	Ω
		I _R = 1mA				
Temperature Stability	ST _T	I _R = 1mA	-	1.8	6	mV
Reverse Breakdown Change with Current	$\Delta V_R / \Delta I_R$	$400 \mu A \leq I_R \leq 10 m A$	-	3	12	mV
Reverse Dynamic Impedance	ZD	I _R = 1mA	-	0.4	1.4	Ω
Long Term Stability In Reference Voltage	ST	I _R = 1mA	-	20	-	ppm/Khr





LM336Z25



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PRODUCT STATUS DEFINITIONS

Definition of terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product develop- ment. Specifications may change in any manner without notice.
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