April 1999
Revised August 2005

LM336Z25
Programmable Shunt Regulator

General Description

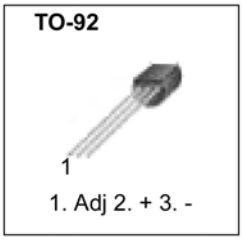
The LM336Z25 integrated circuits are precision 2.5V shunt regulators. The monolithic IC voltage reference operates as a low temperature coefficient 2.5V zener with 0.2W dynamic impedance. The monolithic IC voltage reference operates as a low temperature coefficient 2.5V zener with 0.2W dynamic impedance. 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

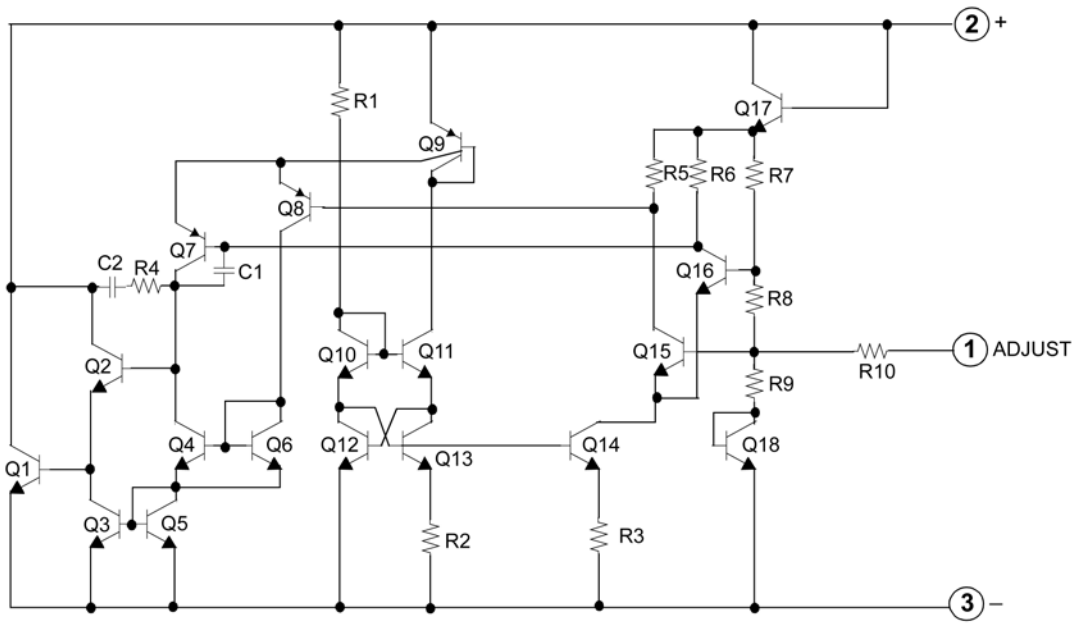
- Low Temperature Coefficient
- Guaranteed Temperature Stability 4mV Typical
- 0.2W Dynamic Impedance
- 1.0% Initial Tolerance Available
- Easily Trimmed for Minimum Temperature Drift

Ordering Code:

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



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°C < T_A < +70°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_R	T_A = +25°C, I_R = 1mA	2.44	2.49	2.54	V
Reverse Breakdown Change with Current	$\Delta V_R/\Delta I_R$	T_A = +25°C 400μA ≤ I_R ≤ 10mA	-	2.6	10	mV
Reverse Dynamic Impedance	Z_D	T_A = +25°C I_R = 1mA	-	0.2	1	Ω
Temperature Stability	ST_T	I_R = 1mA	-	1.8	6	mV
Reverse Breakdown Change with Current	$\Delta V_R/\Delta I_R$	400μA ≤ I_R ≤ 10mA	-	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

Typical Performance Characteristics

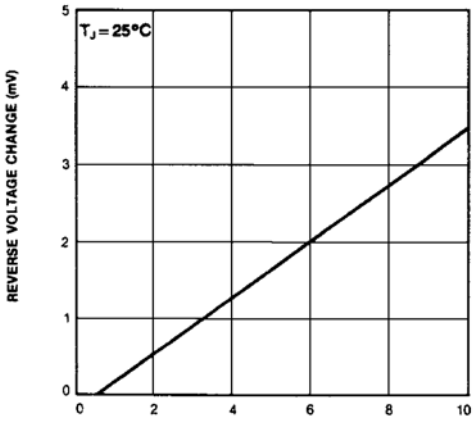


FIGURE 1. Reverse Voltage Change

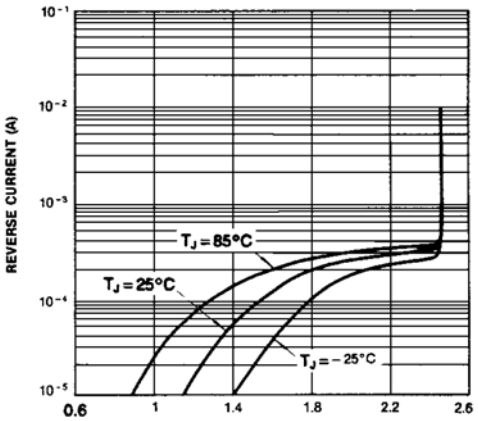


FIGURE 2. Reverse Characteristics

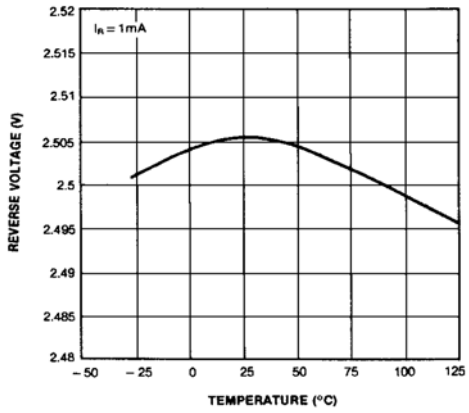


FIGURE 3. Temperature (°C)

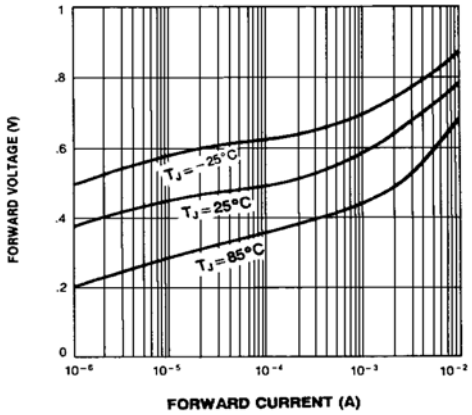


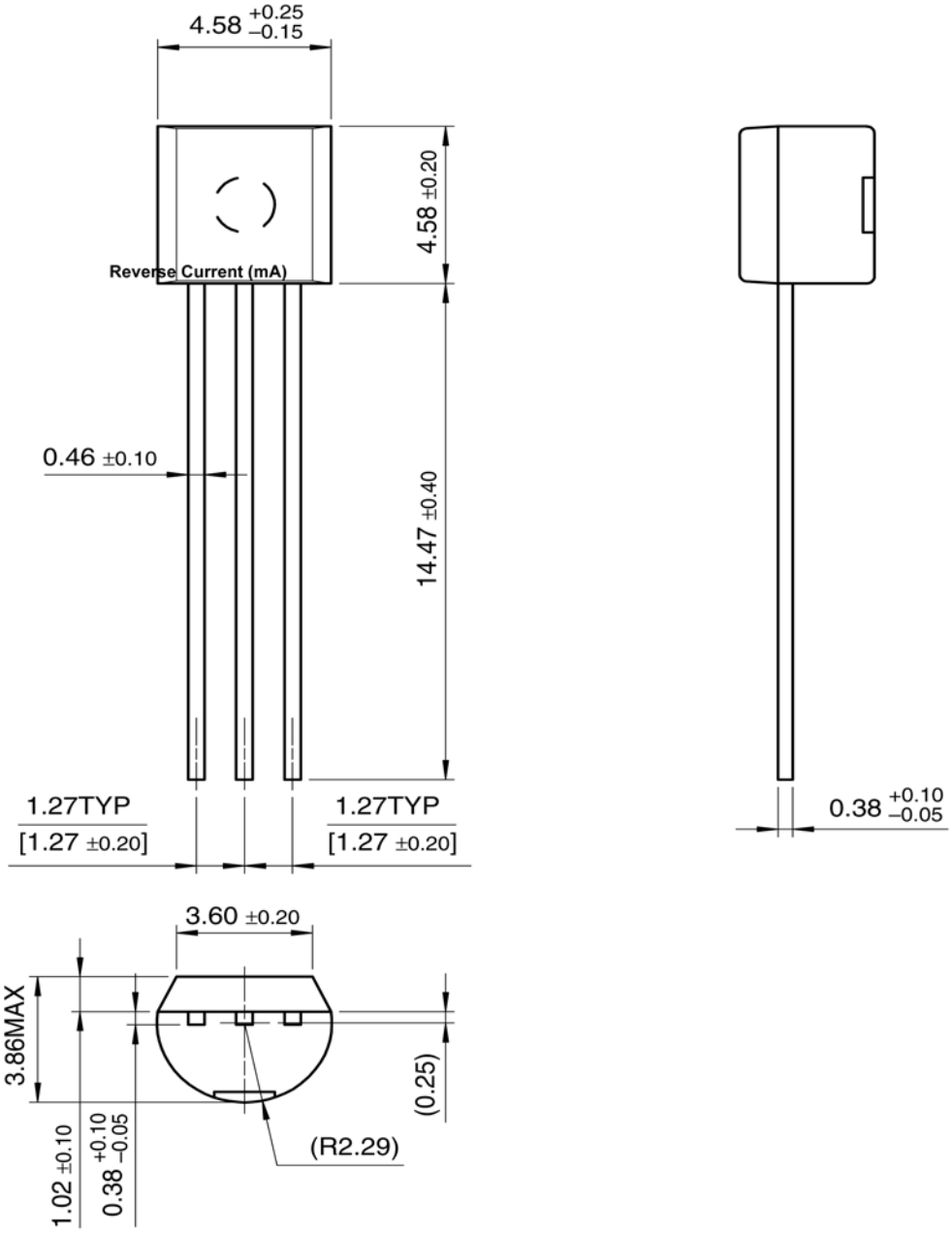
FIGURE 4. Forward Characteristics

Physical Dimensions inches (millimeters) unless otherwise noted

Package

Dimensions in millimeters

TO-92



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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 development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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