FAIRCHILD SEMICONDUCTOR®

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LM336-2.5/LM336B-2.5

Programmable Shunt Regulator

Features

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

Description

The LM336-2.5/LM336B-2.5 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. A third terminal on the LM336-2.5/LM336B-2.5 allows the reference voltage and temperature coefficient to be trimmed easily. LM336-2.5/LM336B-2.5 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 LM336-2.5/LM336B-2.5 operate as shunt regulators, they can be used as either a positive or negative voltage reference.

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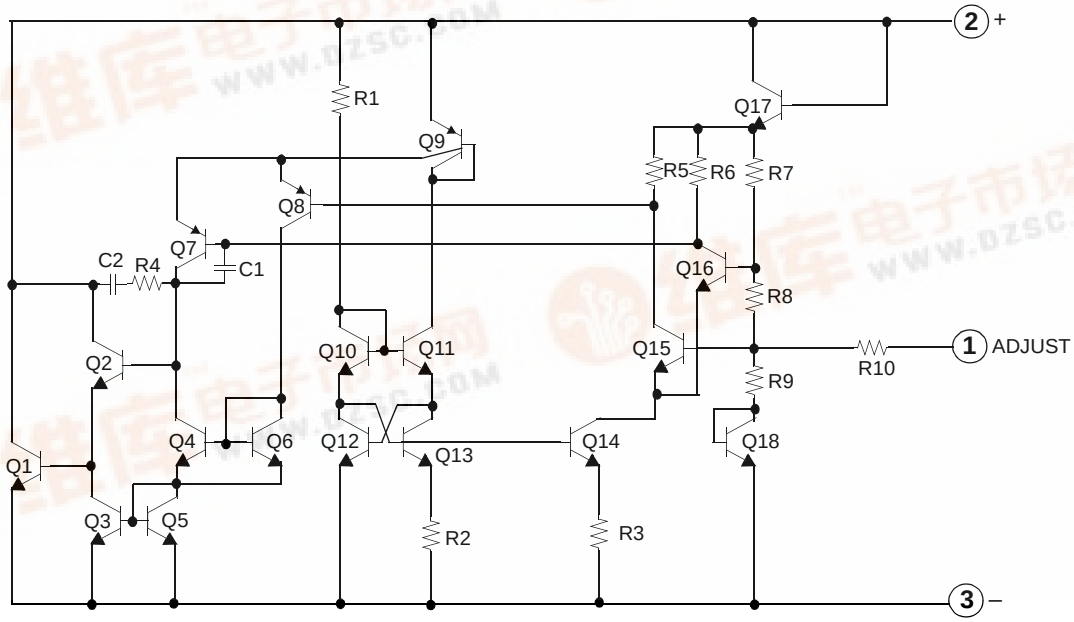
Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Reverse Current	I_R	15	mA
Forward Current	I_F	10	mA
Operating Temperature Range LM336-2.5/LM336B-2.5	T_{OPR}	0 ~ +70	°C
Storage Temperature Range	T_{STG}	- 60 ~ +150	°C

Electrical Characteristics

(0°C < T_A < +70°C, unless otherwise specified)

Parameter	Symbol	Conditions	LM336-2.5			LM336B-2.5			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Reverse Breakdown Voltage	V_R	T_A = +25°C I_R = 1mA	2.44	2.49	2.54	2.465	2.49	2.515	V
Reverse Breakdown Change with Current	$\Delta V_R/\Delta I_R$	T_A = +25°C 400uA ≤ I_R ≤ 10mA	-	2.6	10	-	2.6	6	mV
Reverse Dynamic Impedance	Z_D	T_A = +25°C I_R = 1mA	-	0.2	1	-	0.2	0.6	Ω
Temperature Stability	ST_T	I_R = 1mA	-	1.8	6	-	1.8	6	mV
Reverse Breakdown Change with Current	$\Delta V_R/\Delta I_R$	400uA ≤ I_R ≤ 10mA	-	3	12	-	3	10	mV
Reverse Dynamic Impedance	Z_D	I_R = 1mA	-	0.4	1.4	-	0.4	1.0	Ω
Long Term Stability In Reference Voltage	ST	I_R = 1mA	-	20	-	-	20	-	ppm/Khr

Typical Performance Characteristics

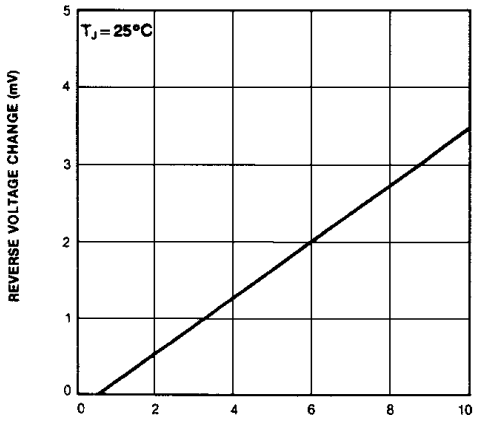


Figure 1. Reverse Voltage Change

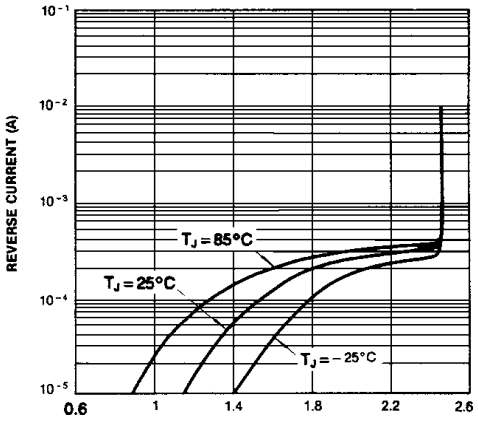


Figure 2. Reverse Characteristics

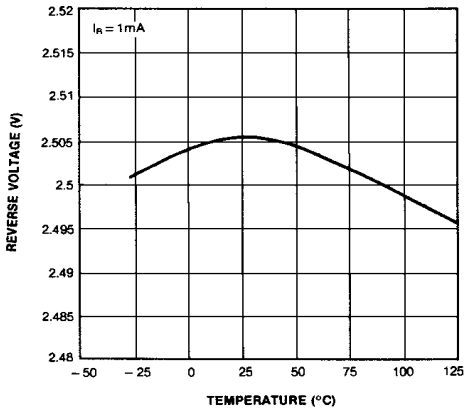


Figure 3. Temperature Drift

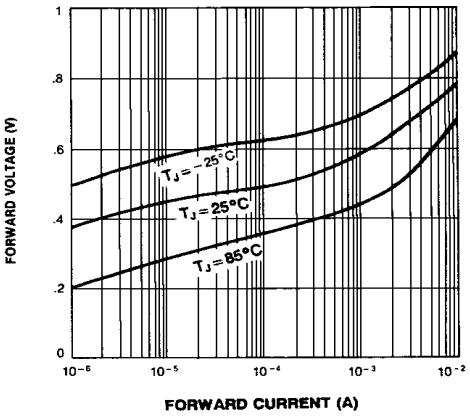


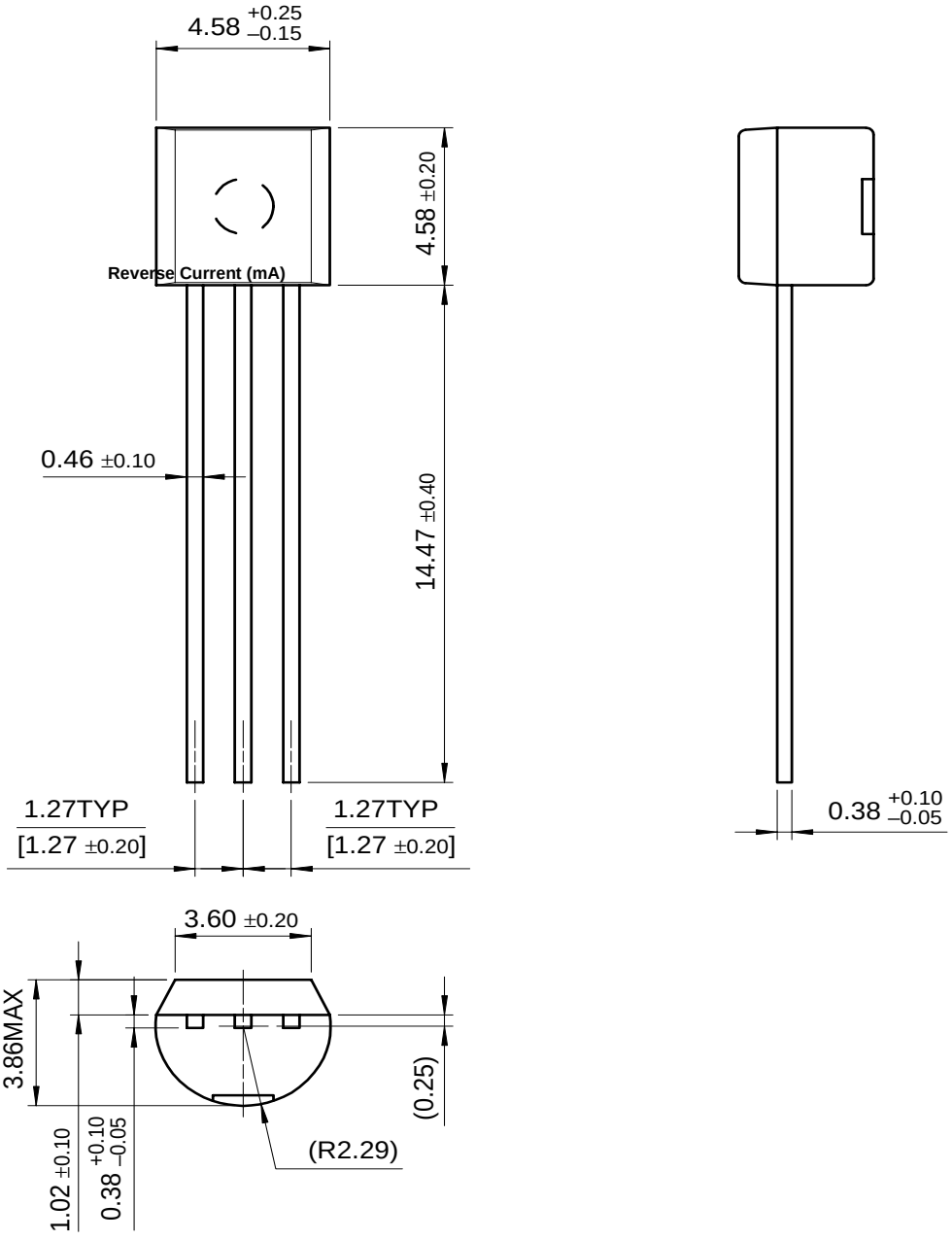
Figure 4. Forward Characteristics

Mechanical Dimensions

Package

Dimensions in millimeters

TO-92



Ordering Information

Product Number	Package	Operating Temperature
LM336Z2.5	TO-92	0°C to +70°C
LM336BZ25		