

LM336-2.5/LM336B-2.5

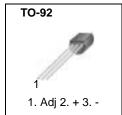
Programmable Shunt Regulator

Features

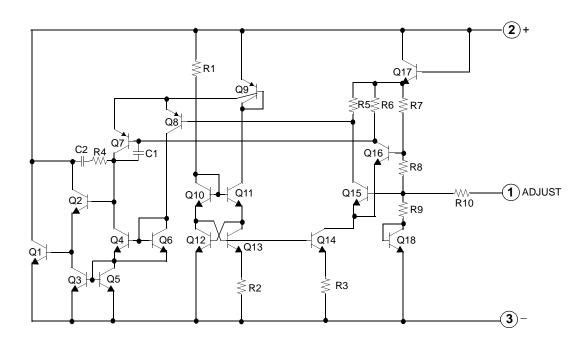
- Low Temperature Coefficient
- Guaranteed Temperature Stability 4mV Typical
- 0.2Ω Dynamic Impedance
- ±1.0% Initial Tolerance Available
- Easily Trimmed for Minimum Temperature Drift

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.



Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Reverse Current	IR	15	mA
Forward Current	lF	10	mA
Operating Temperature Range LM336-2.5/LM336B-2.5	TOPR	0 ~ +70	°C
Storage Temperature Range	TSTG	- 60 ~ +150	°C

Electrical Characteristics

 $(0^{\circ}C < TA < +70^{\circ}C, \text{ unless otherwise specified})$

Parameter	Symbol Conditions	LM336-2.5		LM336B-2.5			Unit		
		Conditions	Min.	Тур.	Max.	Min.	Тур.	Max.	Uill
Reverse Breakdown Voltage	VR	$T_A = +25^{\circ}C$ $I_R = 1mA$	2.44	2.49	2.54	2.465	2.49	2.515	V
Reverse Breakdown Change with Current	ΔVR/ΔIR	$T_A = +25$ °C 400 uA $\leq I_R \leq 10$ mA	-	2.6	10	-	2.6	6	mV
Reverse Dynamic Impedance	ZD	$T_A = +25^{\circ}C$ $I_R = 1mA$	-	0.2	1	-	0.2	0.6	Ω
Temperature Stability	STT	I _R = 1mA	-	1.8	6	-	1.8	6	mV
Reverse Breakdown Change with Current	ΔV _R /ΔI _R	$400uA \le I_R \le 10mA$	-	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

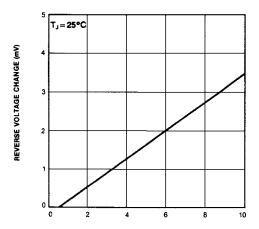


Figure 1. Reverse Voltage Change

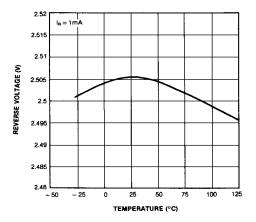


Figure 3. Temperature Drift

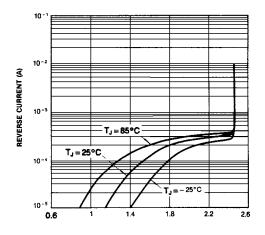


Figure 2. Reverse Characteristics

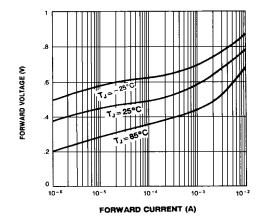


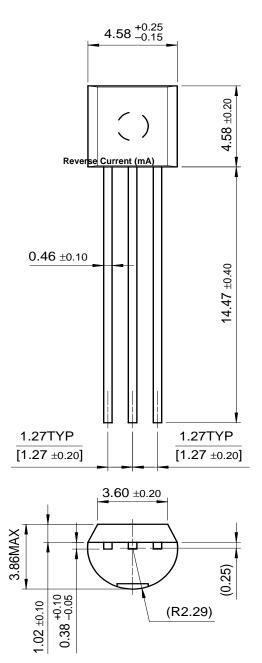
Figure 4. Forward Characteristics

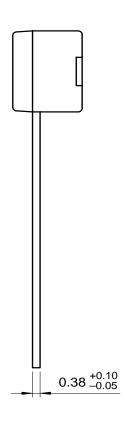
Mechanical Dimensions

Package

Dimensions in millimeters

TO-92





Ordering Information

Product Number	Package	Operating Temperature			
LM336Z2.5	TO-92	0°C to +70°C			
LM336BZ25	10-92	0 0 10 +70 0			

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
- A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

www.fairchildsemi.com