

LM336-5.0-XG

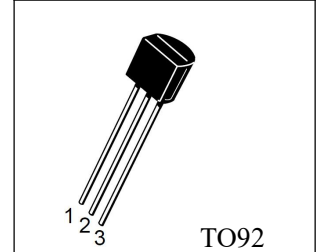
5.0V Integrated Reference Circuit

General Description

The LM336-5.0-XG integrated circuits is precision 5.0V shunt regulator diodes. The monolithic references operate as low-temperature-coefficient 5.0V zeners with a 0.6Ω dynamic impedance. A third terminal provided on the circuit allows the reference voltage and temperature coefficient to be easily trimmed.

The LM336-5.0-XG is useful as precision 5.0V low-voltage references (V_Z) for digital voltmeters, power supplies, or operational-amplifier circuitry. The 5.0V voltage reference makes it convenient to obtain a stable reference from low voltage supplies. The LM336-5.0-XG operate as shunt regulators, and can be used as either positive or negative voltage references.

The LM336-5.0-XG is available in TO92 package.



Features

- Adjustable 4V to 6V
- Low temperature coefficient
- Wide operating current of $600\mu\text{A}$ to 10mA
- 0.6Ω dynamic impedance
- $\pm 1.0\%$ initial tolerance available
- Guaranteed temperature stability
- Easily trimmed for minimum temperature drift

Package Information

Part NO.	Order NO.	Package Description	Package Marking	Package Option
LM336-5.0-XG	LM336-5.0-XG	TO92	SXXX LM336 Z-5.0	1000/Bag 2000/Tape

LM336Z-5.0:Part NO.

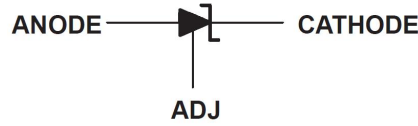
SXXX:Lot NO.

Pin Configuration

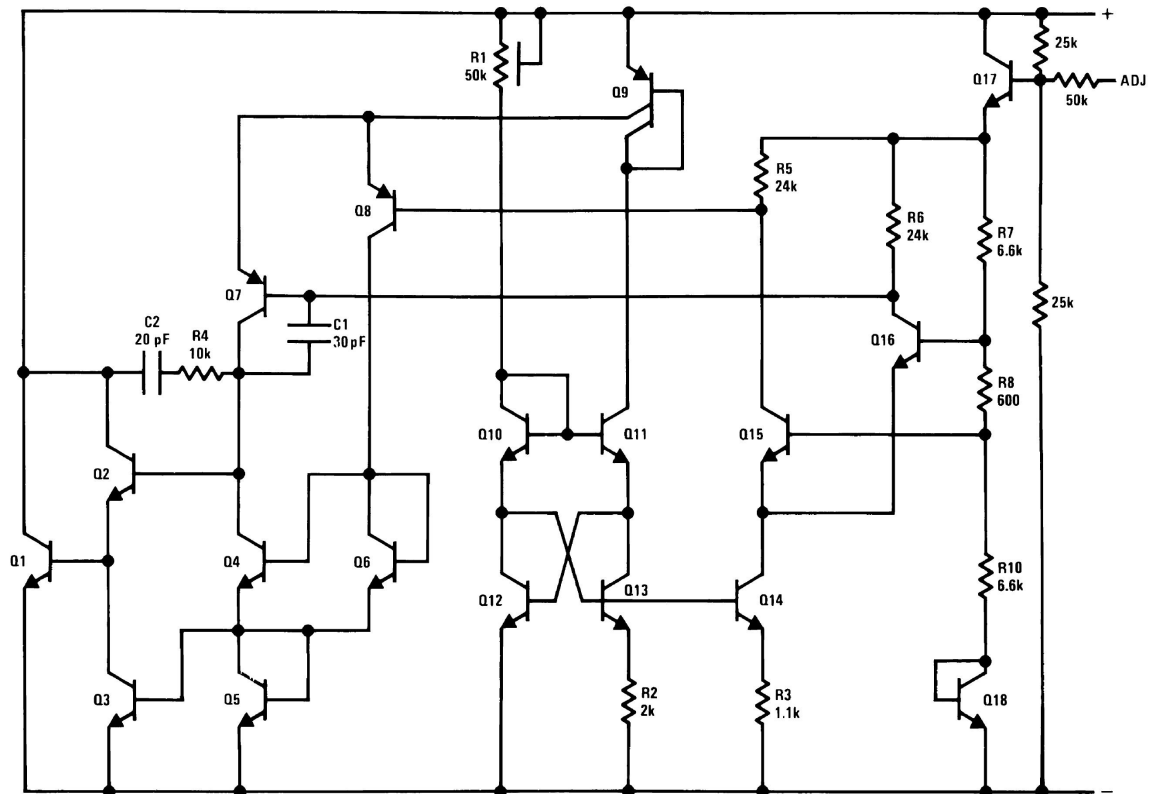


(TOP VIEW) LM336-5.0-XG(TO92)

Symbol Configuration



Functional Block Diagram



Absolute Maximum Ratings *1

Parameter	Symbol	Value	Unit
Reverse Current	I_R	20	mA
Forward Current	I_F	10	mA
Thermal Resistance Junction to Ambient	θ_{JA}	156	°C/W
Lead Temperature (10 Seconds)	T_{lead}	260	°C
Storage Temperature Range	T_{stg}	-65~150	°C

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Unit
Operating Free-air Temperature	T_A	0	70	°C

Electrical Characteristics (Unless otherwise specified, Full range is 0°C to +70°C)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
Reference Voltage	$T_A=25^{\circ}\text{C}$, $I_R=1\text{mA}$	4.8	5.0	5.2	V
Change in Reference Voltage with Current	$T_A=25^{\circ}\text{C}$, $600\mu\text{A}\leq I_R\leq 10\text{mA}$		6	20	mV
Reference Dynamic Impedance	$T_A=25^{\circ}\text{C}$, $I_R=1\text{mA}$, $f=100\text{Hz}$		0.6	2.0	Ω
Change in Reference Voltage with Temperature	V_R Adjusted 5.00V $I_R=1\text{mA}$, $0^{\circ}\text{C}\leq T_A\leq 70^{\circ}\text{C}$		4	12	mV
Adjustment Range	Circuit of Figure3		± 1		V
Long-term Change in Reference Voltage	$T_A=25^{\circ}\text{C}\pm 0.1^{\circ}\text{C}$, $I_R=1\text{mA}$, time = 1000hrs		20		ppm

Application Circuit

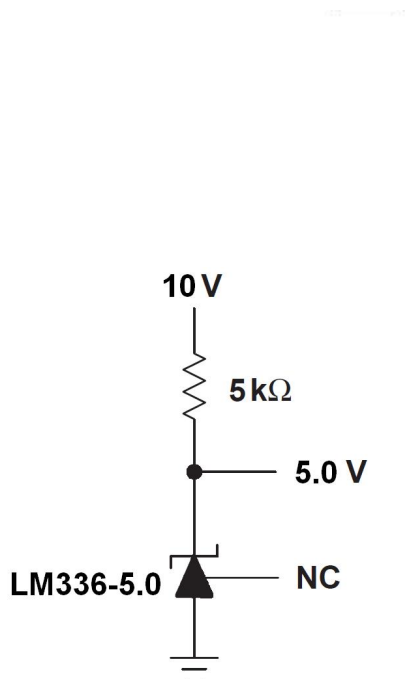


Figure1 5.0V Reference

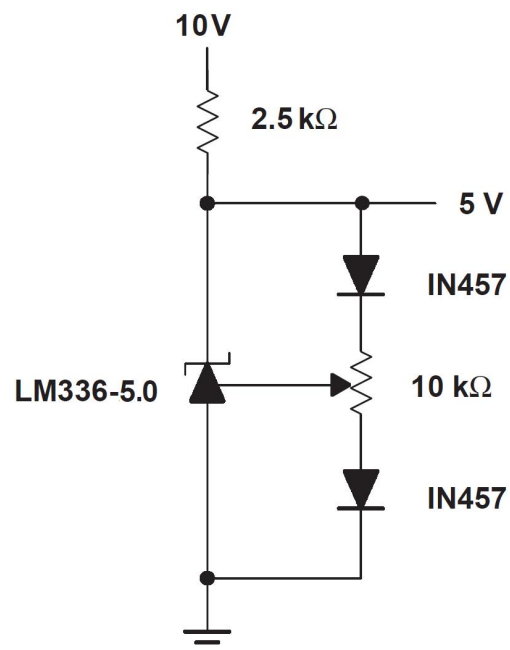


Figure2 5.0V Reference with Minimum Temperature Coefficient

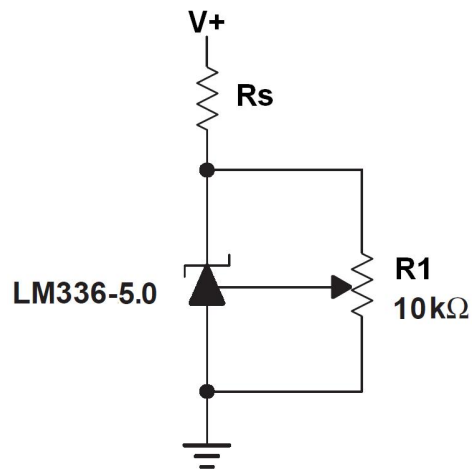
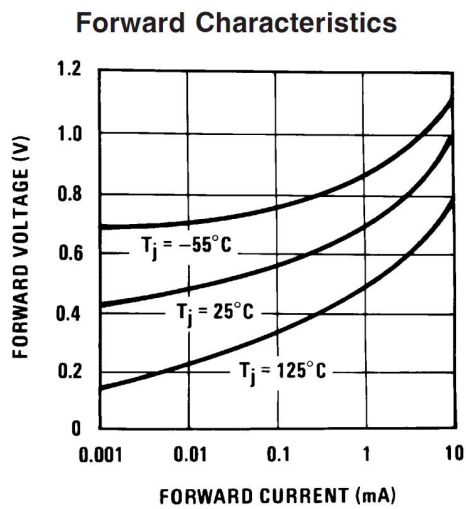
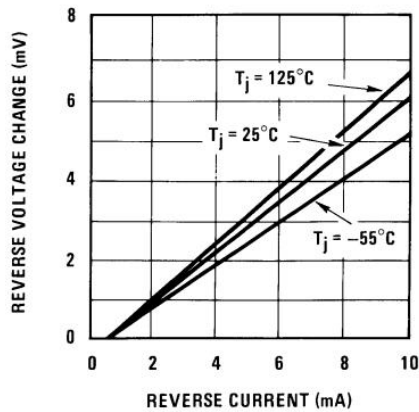


Figure3 LM336-5.0-XG with Pot for Adjustment of Reference Voltage (Trim Range = $\pm 1.0V$ Typical)

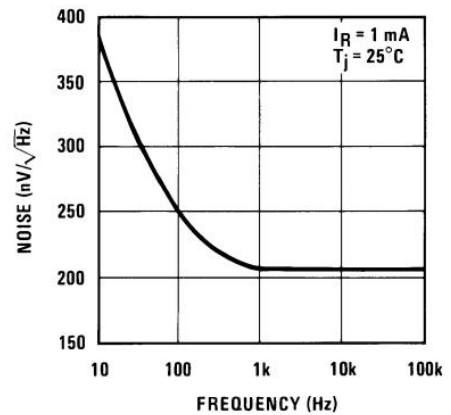
Characteristic Curves



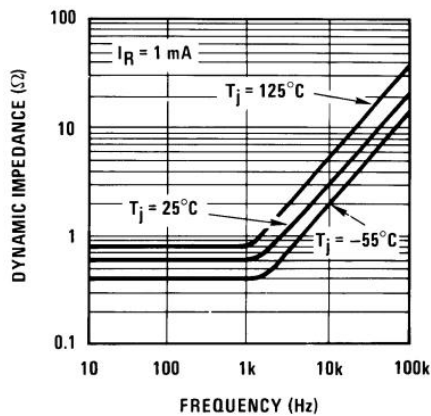
Reverse Voltage Change



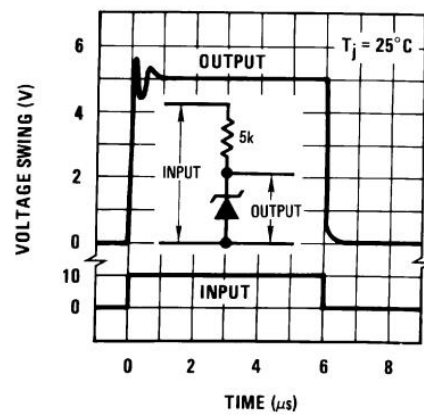
Zener Noise Voltage



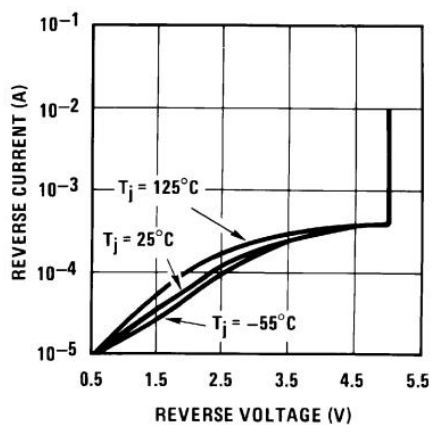
Dynamic Impedance



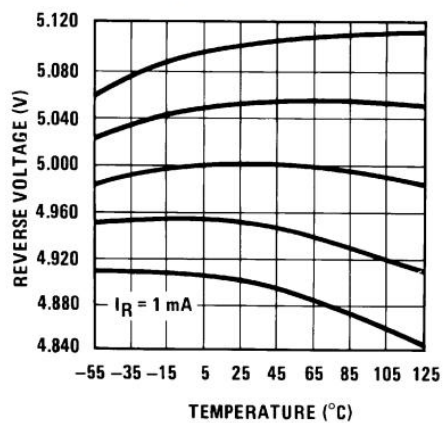
Response Time



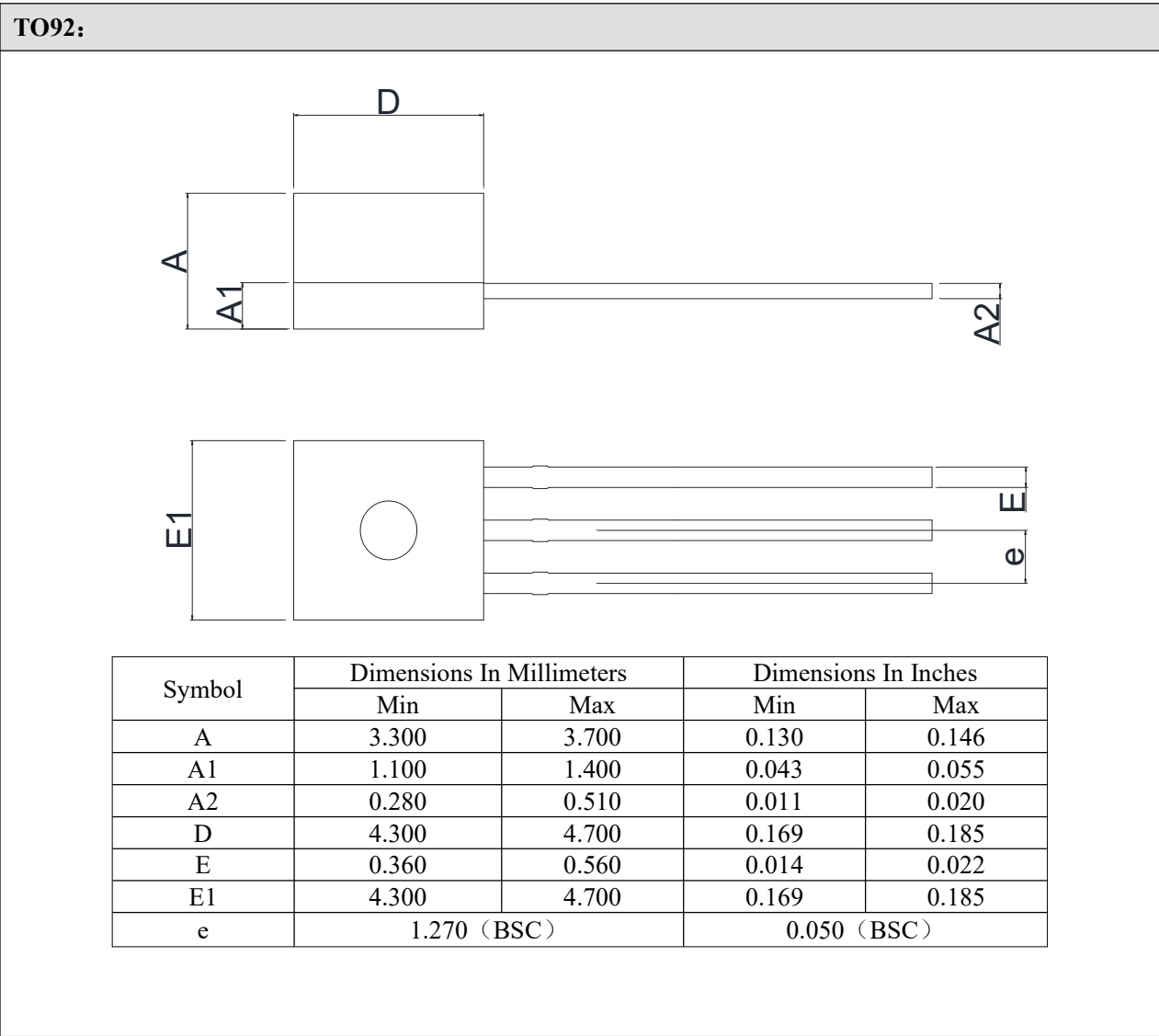
Reverse Characteristics



Temperature Drift



Outline Dimensions



Statements

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- The product upgrades without end, Silicore Technology will wholeheartedly provide customers integrated circuits that have better performance and better quality.