

LM336-5.0

产品说明书

规范修订历史:

版本	发行时间	新制/修订内容
V1.0	2019/01	新增
V1.1	2022/12	修改订单信息
V1.2	2025/02	更换新模板
V1.3	2025/03	增加应用注意事项以及整体排版

General Description

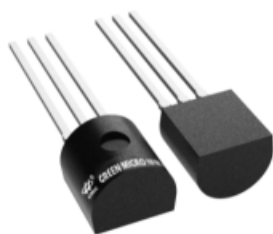
The LM336-5.0 integrated circuits is precision 5.0V shunt regulator diodes. The monolithic references operate as low-temperature-coefficient 5.0V zeners with a 0.6Ω dynamic impedance. A third terminal provided on the circuit allows the reference voltage and temperature coefficient to be easily trimmed.

The LM336-5.0 is useful as precision 5.0V low-voltage references (VZ) 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 operate as shunt regulators, and can be used as either positive or negative voltage references.

The LM336-5.0 is available in TO92 package.

Features:

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

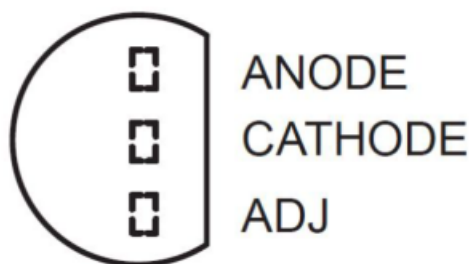


TO-92

Ordering Information

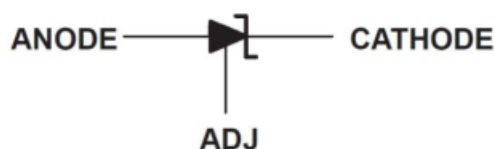
Product Model	Package Type	Marking	Packing	Packing Qty
LM336Z-5.0(GMIC)	TO-92	LM336 S	Bulk	1000PCS/BOX

Pin Configuration:

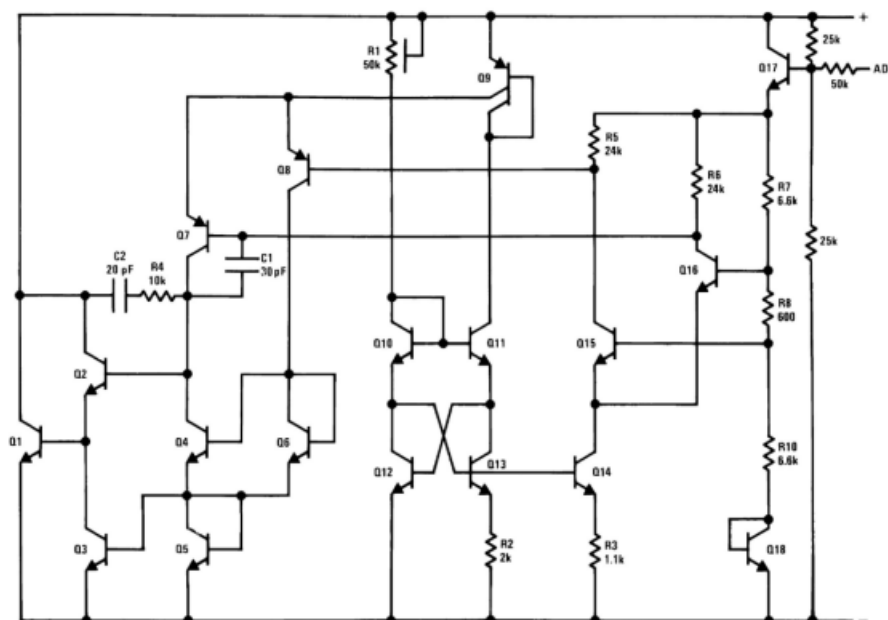


(TOP VIEW) LM336-5.0(TO92)

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

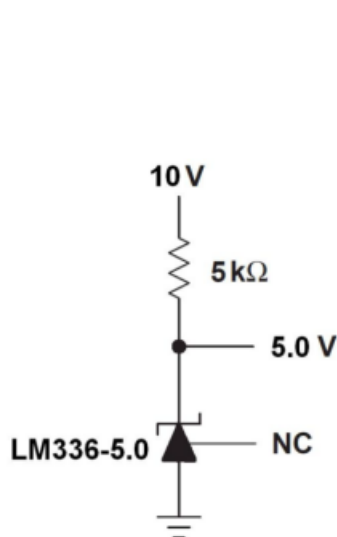


Figure1 5.0V Reference

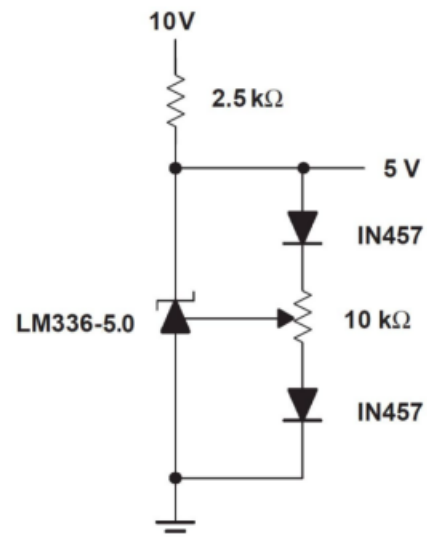


Figure2 5.0V Reference with Minimum Temperature Coefficient

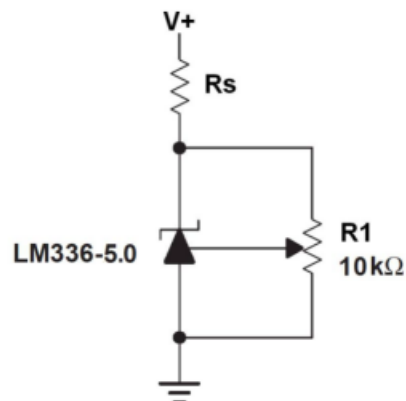
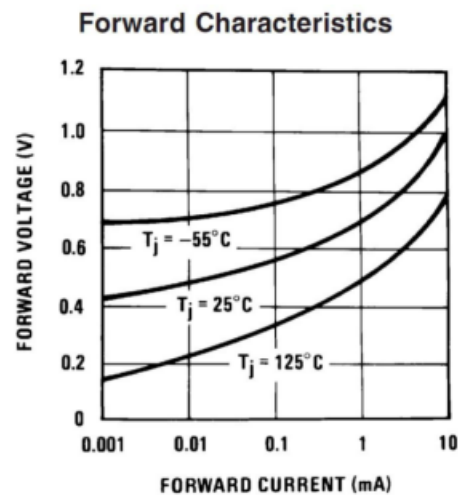
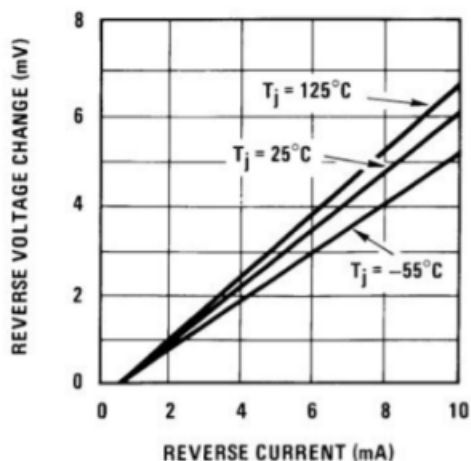


Figure3 LM336-5.0 with Pot for Adjustment of Reference Voltage (Trim Range = $\pm 1.0V$ Typical)

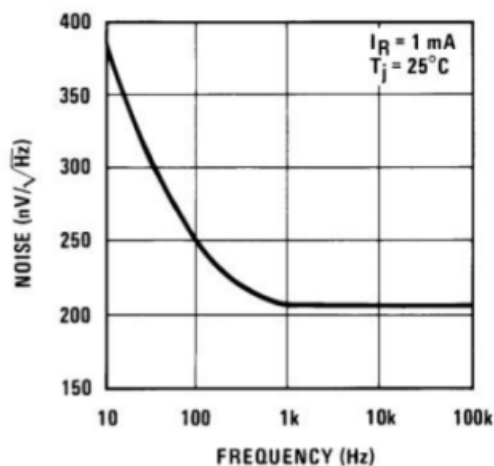
Characteristic Curves



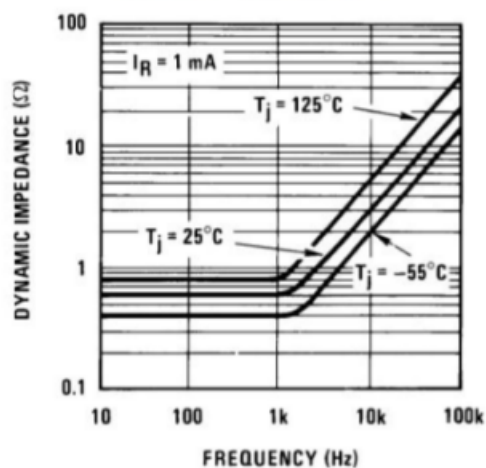
Reverse Voltage Change



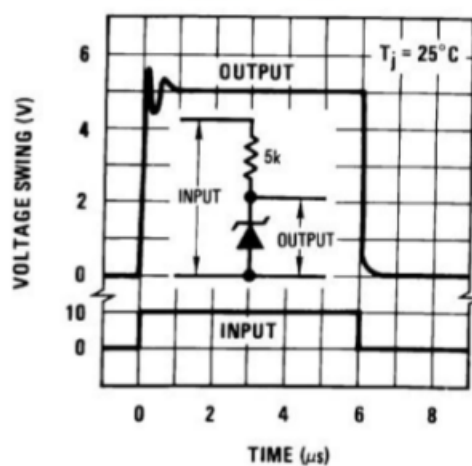
Zener Noise Voltage



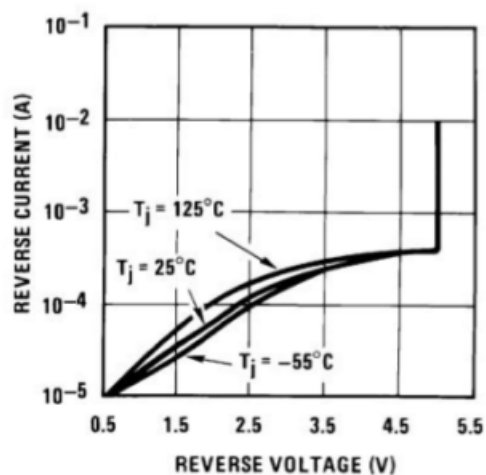
Dynamic Impedance



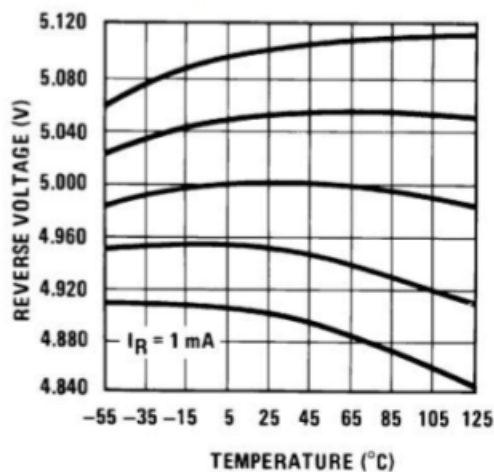
Response Time



Reverse Characteristics



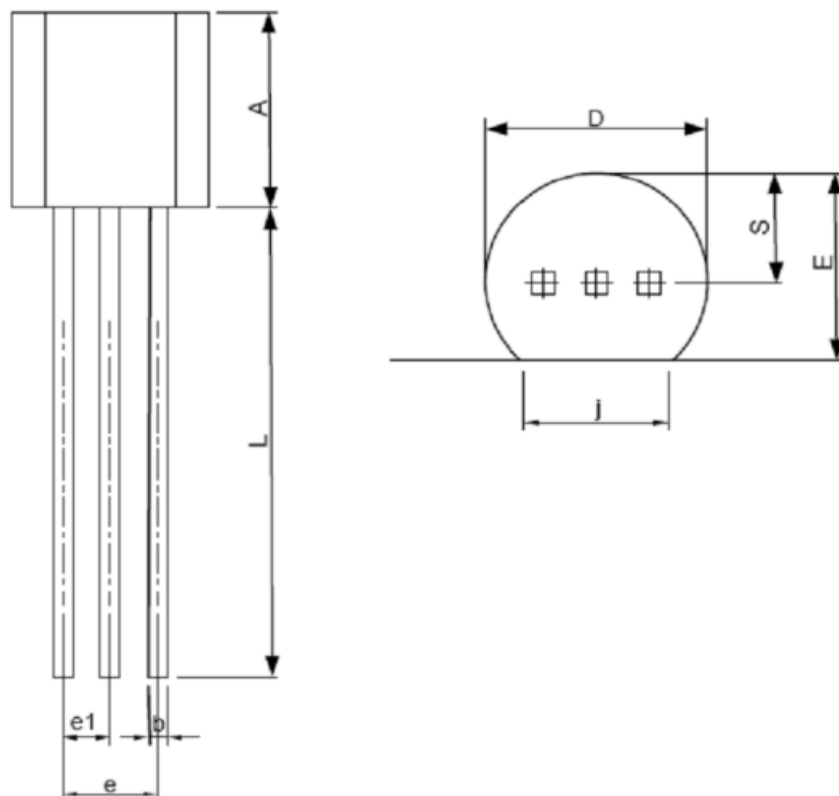
Temperature Drift



Outline Dimensions

TO-92

Unit : mm



Symbol	TO-92			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.32	5.33	0.170	0.210
b	0.41	0.53	0.016	0.021
D	4.45	5.20	0.175	0.205
E	3.18	4.19	0.125	0.165
e	2.42	2.66	0.095	0.105
e1	1.15	1.39	0.045	0.055
J	3.43	4.00	0.135	0.157
L	12.70	15.00	0.500	0.591
S	2.03	2.66	0.080	0.105

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