Low Power Voltage Reference

RFVGR03

General Description

Low-cost series voltage references meets the cost advantage of shunt references and offers the power-saving advantage of series references, which traditionally cost more. Unlike conventional shunt-mode (two-terminal) references that must be biased at the load current and require an external resistor, these devices eliminate the need for an external resistor and offer a supply current that is virtually independent of the supply voltage. These low power, low-cost devices are ideal for high-volume, cost-sensitive 1.8V battery operated systems with wide variations in supply voltage that require very low power dissipation. Additionally, these devices are internally compensated and do not require an external compensation capacitor, saving valuable board area in space-critical applications.

Key Features

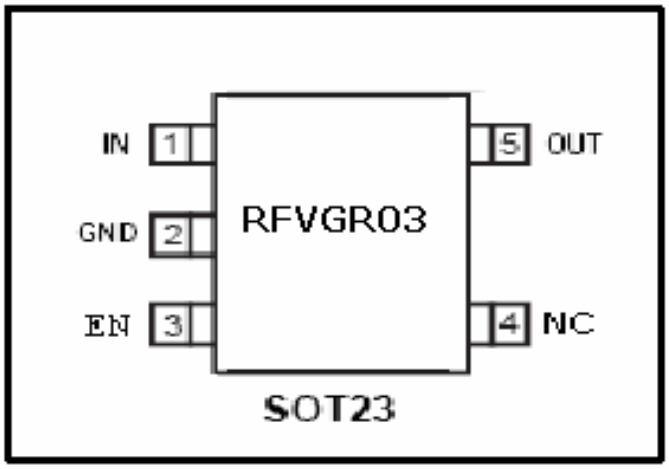
- **2.1 % Max. initial Accuracy**
- **71 ppm/°C max. temperature Coefficient**
- **Low Power Consumption**
- **Power-up and Power-down mode available**
- **No external Capacitor required**
- **Fast Settling time**
- **Low Power Dissipation**

Applications

- Portable / Battery powered Equipment
- Hard Disk Drives
- Data Acquisition Systems
- Automotives
- Cell Phones
- Notebooks Computers

Pin Configuration

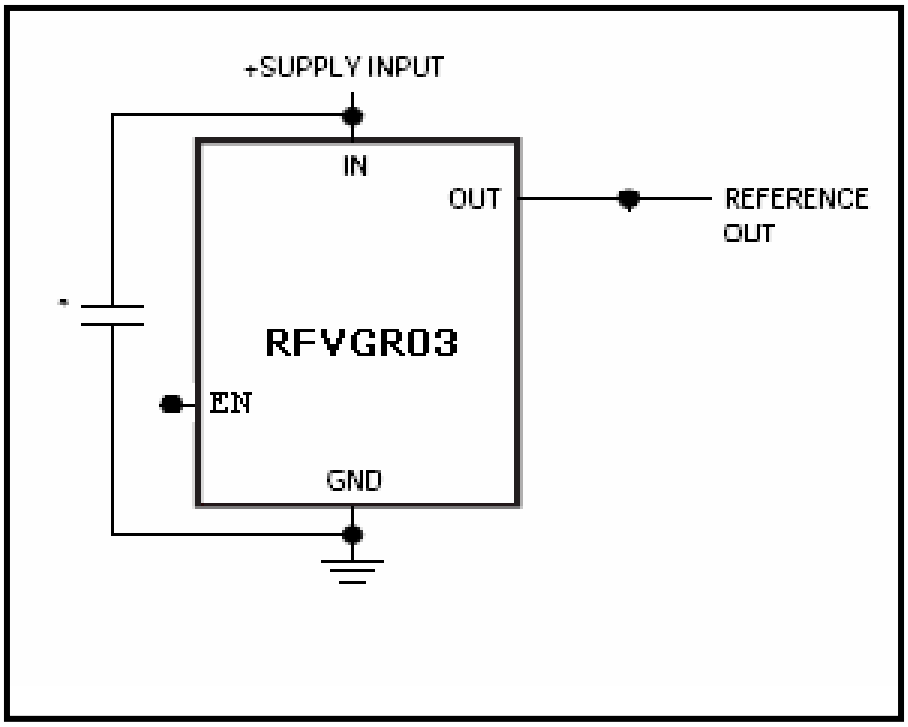
Top View



Pin Description

Pin Name	I/O	Description
IN	I	Input Voltage Unregulated
OUT	O	Output Voltage, Regulated
GND	-	Ground Connection
NC	-	NO Connection
EN	I	Power-up and power-down Control

Typical Operating Circuit



Absolute Maximum Ratings

Operating Temperature Range ..... -40 ^{0}C to +125 ^{0}C
Storage Temperature Range ..... -65 ^{0}C to 150 ^{0}C
Lead Temperature (Soldering 10 Sec) ..... +300 ^{0}C

Electrical Characteristics

(Typical values are at T_A = +25 ^{0}C)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Supply Voltage	V_{supply}		1.6	1.8	1.98	V
Output Voltage	V_{OUT}	T_A = +25 ^{0}C		1.22		V
Temperature Coefficient	TCV_{OUT}	-40 ^{0}C < T_A < +125 ^{0}C			71.9	ppm/^{0}C
Initial Accuracy Error					11	mV
Line Regulation	V_{OUT} / V_{supply}	T_A = +25 ^{0}C			13	mV
Turn-on Settling Time	T_R	T_A = +125 ^{0}C			15	uS
Current Consumption	I_{OUT}	T_A = +125 ^{0}C			50	uA
Switching Current	I_{SW}	T_A = -40 ^{0}C	1.46			mA
Power Dissipation @Power up	PD_{PWR-UP}	T_A = +125 ^{0}C			2	mW
Power Dissipation @DC	PD_{DC}	T_A = +125 ^{0}C			97.2	uW
Power Dissipation @Power down	PD_{PWR-DN}	T_A = +125 ^{0}C			2.5	mW
Power Dissipation @standby mode	PD_{ST}	T_A = +125 ^{0}C			389	pW
Accuracy					2.10%	

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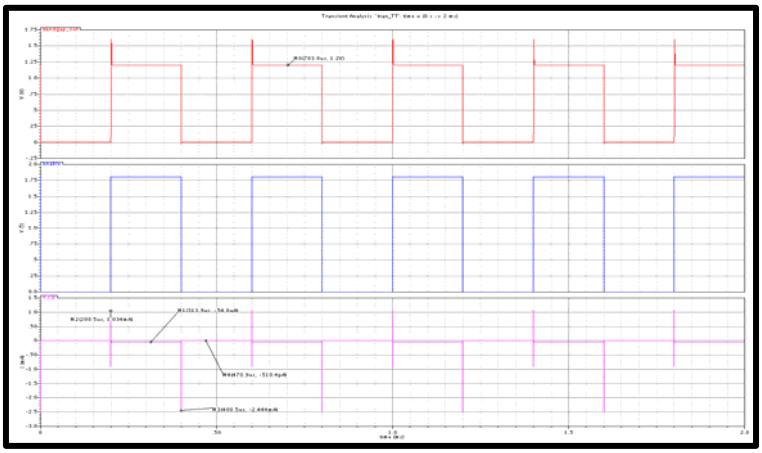
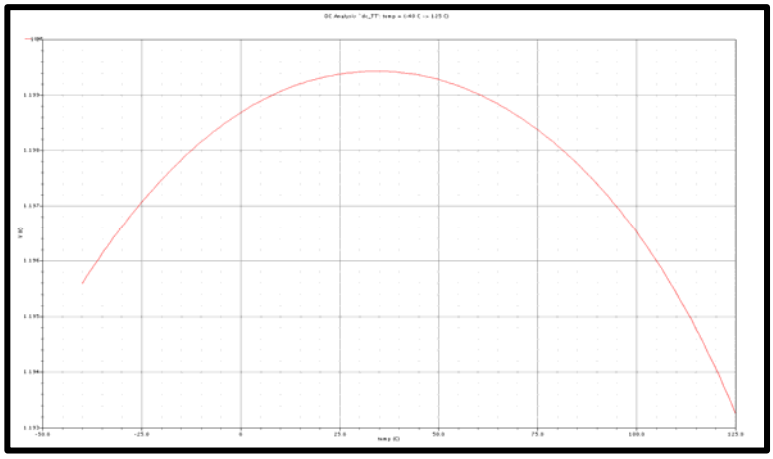
Typical Operating Characteristics

Transient Simulation



Temperature Drift



Turn- on Time