100mA Low Dropout Voltage Regulator LM2950G

FEATURES

- High accuracy output voltage
- Guaranteed 100 mA output
- Very low quiescent current
- Low dropout voltage
- Extremely tight load and line regulation
- Very low temperature coefficient
- Needs Output low-ESR ceramic capacitor for stability
- Logic-controlled electronic shutdown

APPLICATION

- Battery-powered systems
- Cordless telephones
- Radio-control systems
- Portable / Palm-top / Notebook computers
- Portable consumer equipment
- Portable instrumentation
- Avionics
- Automotive electronics
- SMPS post-regulator
- Voltage reference

Pin Description

TO-92 PKG

SC-70-5L PKG

ORDERING INFORMATION

Device	Package
LM2950G-X.X	TO-92 (Bulk)
LM2950GTA-X.X	TO-92 (Tape)
LM2950GTF5-X.X	SC-70-5L

X.X = Output Voltage = 3.3V, 5.0V

DESCRIPTION

The LM2950G is a low power voltage regulator. This device is an excellent choice for use in battery-powered application such as cordless telephones, radio-control systems, and portable computers.

The LM2950G features a very low quiescent current (75uA typ.) and a very low drop output voltage (typ. 40mV at a light load and 380mV at 100mA).

Furthermore, a tight initial Output voltage tolerance of 0.5% Typ., an extremely good load and line regulation of 0.05% Typ., and a very low output temperature coefficient – all that makes the LM2950G very useful as a low-power voltage reference.

ABSOLUTE MAXIMUM RATINGS

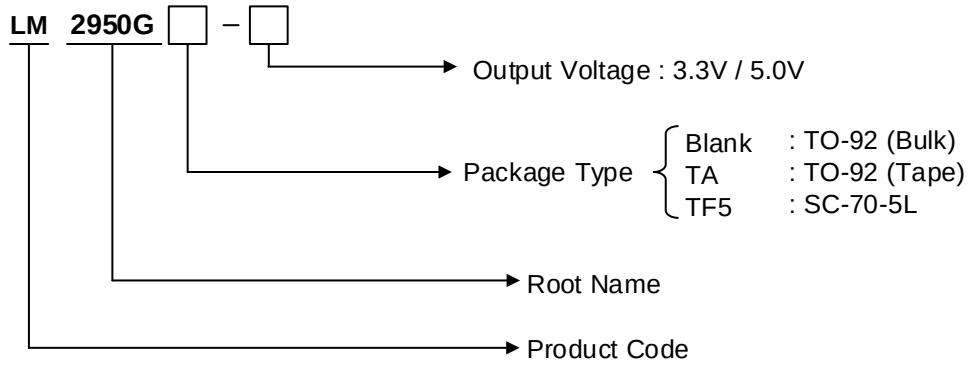
CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Lead Temperature	T_{SOL}	-	260	℃
Storage Temperature Range	T_{STG}	-65	150	℃
Operating Junction Temperature Range	T_{JOPR}	-40	125	℃
Input Supply Voltage	V_{IN}	-0.3	30	V

RECOMMENDED OPERATING CONDITIONS

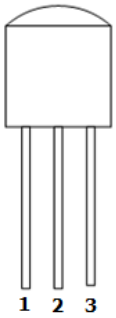
CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Maximum Input Voltage	V_{IN_MAX}	-	30	V
Junction Temperature	T_J	-25	85	℃

ORDERING INFORMATION

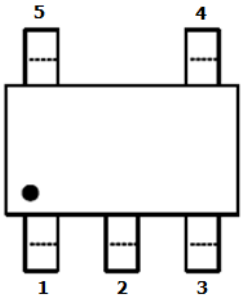
V_{OUT}	Package	Order No.	Supplied As	Status
3.3	TO-92	LM2950G-3.3	Bulk	Contact Us
3.3	TO-92	LM2950GTA-3.3	Tape	Contact Us
3.3	SC-70-5L	LM2950GTF5-3.3	Reel	Contact Us
5.0	TO-92	LM2950G-5.0	Bulk	Contact Us
5.0	TO-92	LM2950GTA-5.0	Tape	Contact Us
5.0	SC-70-5L	LM2950GTF5-5.0	Reel	Contact Us



PIN DESCRIPTION



TO-92



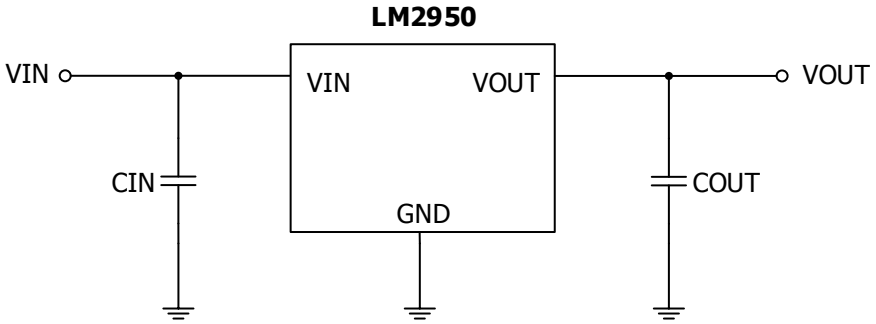
SC-70-5L

PIN CONFIGURATION

Pin No.	TO-92	SC-70-5L
	Pin Name	
1	VOUT	VIN
2	GND	GND
3	VIN	N.C
4	-	N.C
5	-	VOUT

* N.C : No connection

TYPICAL CIRCUIT



ELECTRICAL CHARACTERISTICS (at Ta=25℃, VIN=VOUT+1V, IOUT=100uA, unless otherwise noted)

Parameters	Condition	Min.	Typ.	Max.	Unit
Output Voltage	TJ=25℃	0.990|VO|	VO	1.010|VO|	V
	-25℃ ≤ TJ ≤ 85℃	0.985|VO|		1.015|VO|	V
	Full Operating Temperature	0.980|VO|		1.020|VO|	V
	100uA ≤ IOUT ≤ 100mA, TJ ≤ TJMAX	0.976|VO|	VO	1.024|VO|	V
Output Voltage Temperature Coefficient	(Note 1)		50	150	ppm/℃
Line Regulation	(VOUT+1V) ≤ VIN ≤ 30V		0.04	0.2	%
Load Regulation (Note 2)	100uA ≤ IOUT ≤ 100mA		0.1	0.3	%
Dropout Voltage (Note 3)	IOUT=100uA		50	80	mV
	IOUT=100mA		380	450	mV
Ground Current	IOUT=100uA		75	120	uA
	IOUT=100mA		3	12	mA
Dropout Ground Current	VIN=VOUT-0.5V, IOUT=100uA		110	170	uA
Current Limit	VOUT=0V		160		mA
Thermal Regulation			0.05	0.2	%/W
Output Noise, (10Hz to 100KHz)	COUT=1uF		430		uVrms
	COUT=200uF		160		
	COUT=3.3uF		100		
Over Temperature Protection			165		℃

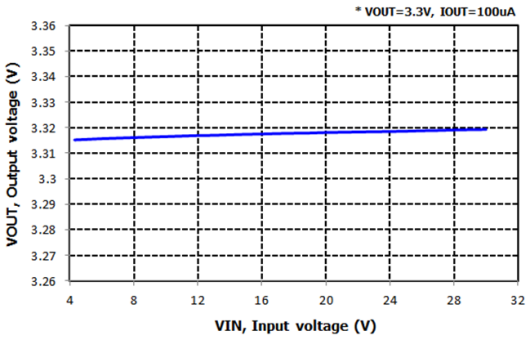
Note 1 : Output temperature coefficient is defined as the worst case voltage change divided by the total temperature range.

Note 2 : The regulation is measured at a constant junction temperature using pulse testing with a low duty cycle. Changes in the output voltage due to heating effects are covered under the specification for thermal regulation.

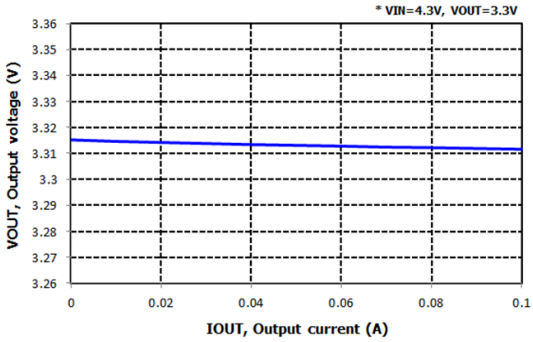
Note 3 : The dropout voltage is defined as the input-to-output differential, at which the output voltage drops 100mV below its nominal value measured at 1V differential. At very low values of a programmed output voltage, the minimum input supply voltage 2V (2.3V over temperature) must be taken into account.

TYPICAL OPERATING CHARACTERISTICS

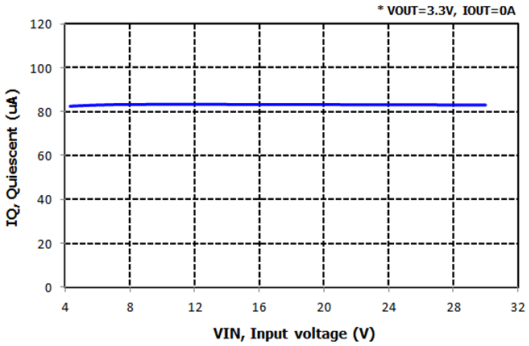
- VOUT vs. VIN



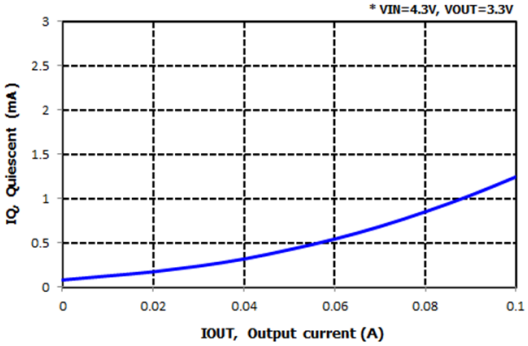
- VOUT vs. IOUT



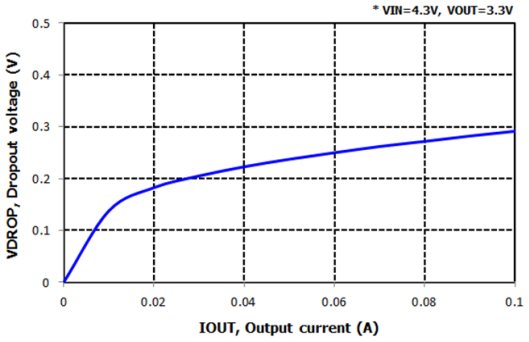
- IQ vs. VIN



- IQ vs. IOUT



- VDROP vs. IOUT



REVISION NOTICE

The version of this document is including preliminary information. Thus the description in this datasheet can be revised without any notice to describe its electrical characteristics properly. Its version also can be changed to a production level. Please contact us to get the latest version of datasheet.