100mA Low Dropout Voltage Regulator TJ2950

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
TJ2950G-X.X	TO-92 (Bulk)
TJ2950GTA-X.X	TO-92 (Tape)
TJ2950GTF5-X.X	SC-70-5L

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

DESCRIPTION

The TJ2950 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 TJ2950 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 TJ2950 very useful as a low-power voltage reference.

ABSOLUTE MAXIMUM RATINGS

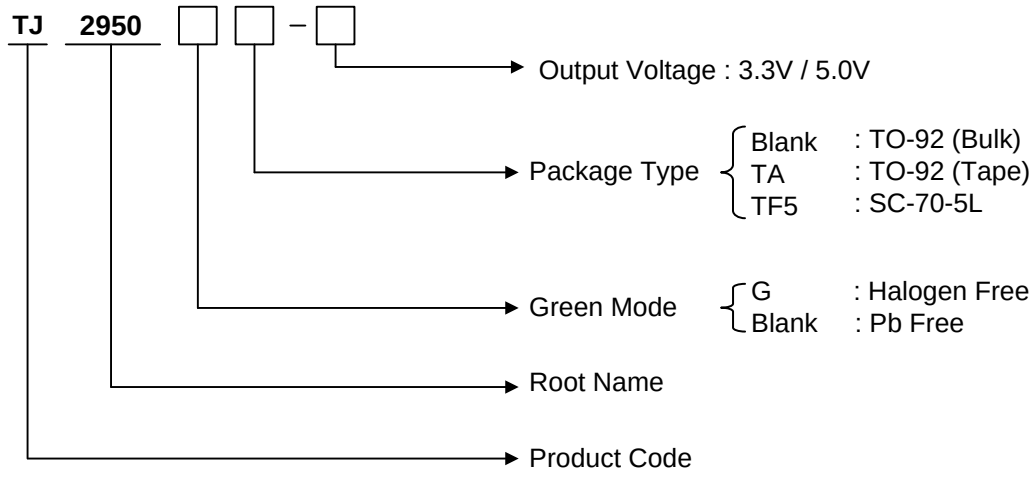
CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Lead Temperature	T_{SOL}	-	260	℃
Storage Temperature Range	T_{STG}	-65	150	℃
Operating Junction Temperature Range	T_{JOPR}	-40	125	℃
Input Supply Voltage	V_{IN}	-0.3	30	V

RECOMMENDED OPERATING CONDITIONS

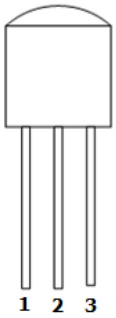
CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Maximum Input Voltage	V_{IN_MAX}	-	30	V
Junction Temperature	T_J	-25	85	℃

ORDERING INFORMATION

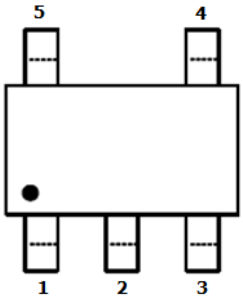
V_{OUT}	Package	Order No.	Supplied As	Status
3.3	TO-92	TJ2950G-3.3	Bulk	Contact Us
3.3	TO-92	TJ2950GTA-3.3	Tape	Contact Us
3.3	SC-70-5L	TJ2950GTF5-3.3	Reel	Active
5.0	TO-92	TJ2950G-5.0	Bulk	Contact Us
5.0	TO-92	TJ2950GTA-5.0	Tape	Contact Us
5.0	SC-70-5L	TJ2950GTF5-5.0	Reel	Contact Us



PIN DESCRIPTION



TO-92



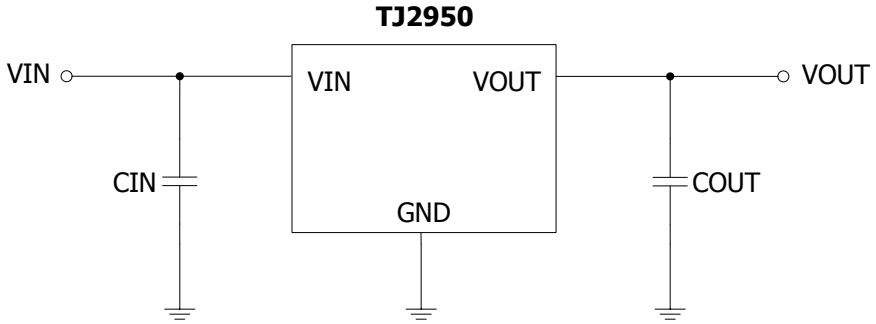
SC-70-5L

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		℃

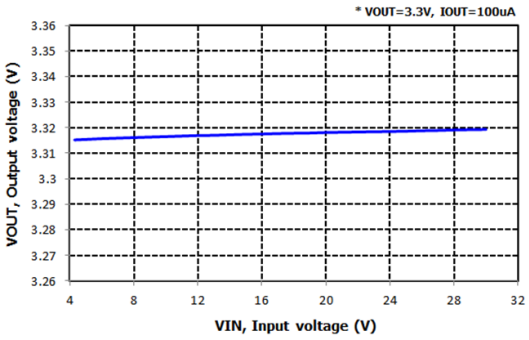
Note 1 : Output temperature coefficient is defined as the worst case voltage change divided by the total temperature range.

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.

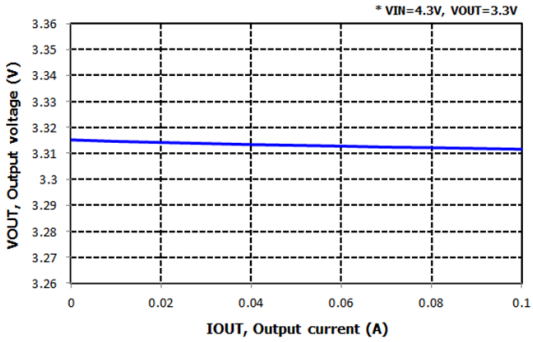
Note 3 : The dropout voltage is defined as the input-to-output differential, at which the output voltage drops 100mV below its nominal value measured at 1V differential. At very low values of a programmed output voltage, the minimum input supply voltage 2V (2.3V over temperature) must be taken into account.

TYPICAL OPERATING CHARACTERISTICS

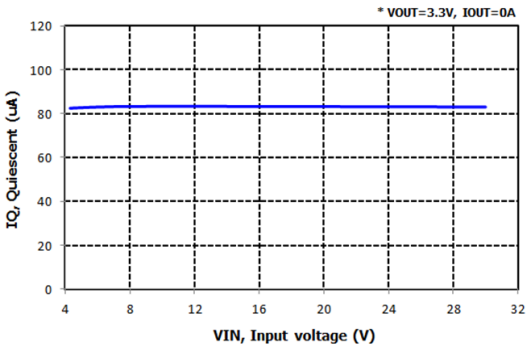
- VOUT vs. VIN



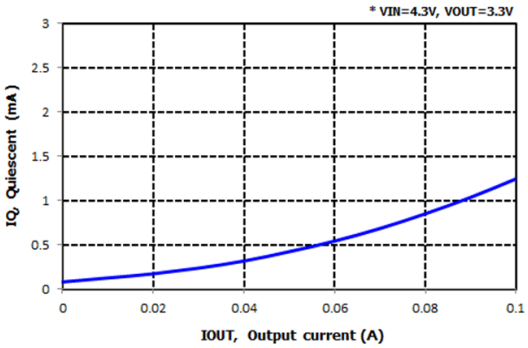
- VOUT vs. IOUT



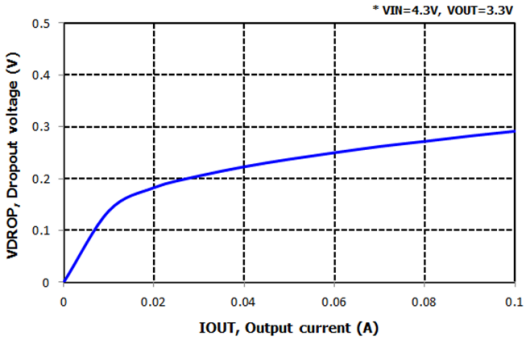
- IQ vs. VIN



- IQ vs. IOUT



- VDROP vs. IOUT



REVISION NOTICE

The description in this datasheet can be revised without any notice to describe its electrical characteristics properly.