

General Description

The TPS7B69 is a high voltage, low quiescent current, low dropout regulator with 250mA output driving capacity. The TPS7B69, which operates over an input range up to 40V, is stable with any capacitors, whose capacitance is larger than 1 μ F, and suitable for

powering battery-management ICs because of the virtue of its low quiescent current consumption and low dropout voltage.

The TPS7B69 is available in SOT23-5

Features

- Up to 40V input voltage range
- 250mA output current driving capacity
- Ultra low quiescent current (typical 1.5 μ A)
- 400mV typical dropout at $I_{OUT} = 100\text{ mA}$
- Thermal shutdown protection
- Short circuit protection
- Stable with 1 μ F output capacitor
- Pin to pin TPS7B6950DBVR and TPS7B6933DBVR

Applications

- E-meters, Water Meters and Gas Meters
- Appliances and White Goods

Ordering Information

TPS7B6933DBVR-TP

TP: TECH PUBLIC

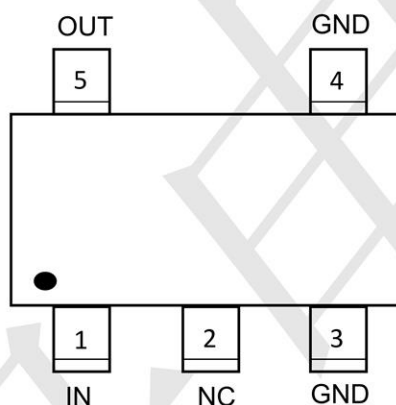
DBVR:SOT23-5

Output voltage: 3.3=3.3V
5.0=5.0V

Packaging Information

Product ID.	Package	Vout	Marking	Packing
TPS7B6933DBVR-TP	SOT23-5	3.3V	ZBFY	Tape & Reel 3Kpcs
TPS7B6950DBVR-TP	SOT23-5	5.0V	ZA5T	

Pin Configuration

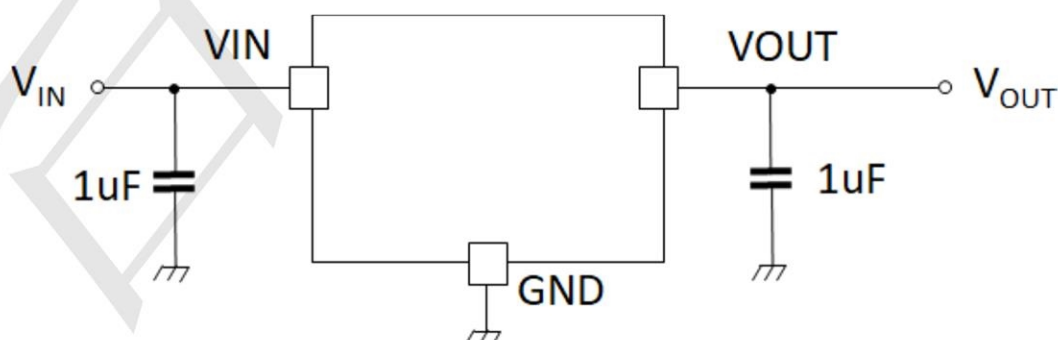


SOT-23-5

Pin Definition:

- 1. Input
- 2. Nc
- 3. Ground
- 4. Ground
- 5. Output

Typical Application circuit



Absolute Maximum Ratings

V_{IN} , Range	-0.3V to 45V	Junction Temperature (T_J)	125°C
Storage Temperature Range	-65°C to 150°C	Lead Temperature(Soldering, 10 sec.)	260°C
		ESD Rating	
		Human Body Model	2KV

Recommended Operating Conditions (Note 1, 2)

Supply Voltage	2.7V to 40V	Operating Temperature Range	-40°C to 85°C
----------------------	-------------	-----------------------------------	---------------

Electrical Characteristics

$V_{IN}=12V$, $I_{OUT}=1mA$, $C_{IN}=C_{OUT}=1\mu F$, $T_a = 25^\circ C$, unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Input Voltage	V_{IN}		2.7		40	V
Output Voltage	V_{OUT}		-2%		2%	V
Line Regulation	ΔV_{LINE}	$V_{IN}=V_{OUT} + 1V$ to 40V,		0.1		%
Load Regulation	ΔV_{LOAD}	$I_{OUT}= 1mA$ to 100mA		0.5		%
Dropout Voltage	V_{DROP}	$I_{OUT}=50mA$		220	380	mV
		$I_{OUT}=100mA$		400		mV
		$I_{OUT}=250mA$		1200		mV
Quiescent Current	I_Q	$T_a= 25^\circ C$		1.5	4.0	μA
Current Limit	I_{CL}		270	340		mA
Thermal Shutdown	T_{SD}			140		$^\circ C$
Thermal Shutdown Hysteresis	T_{HY}			20		$^\circ C$
Power-supply rejection ratio	PSRR	$f = 1kHz$		80		dB
		$f = 10kHz$		60		dB

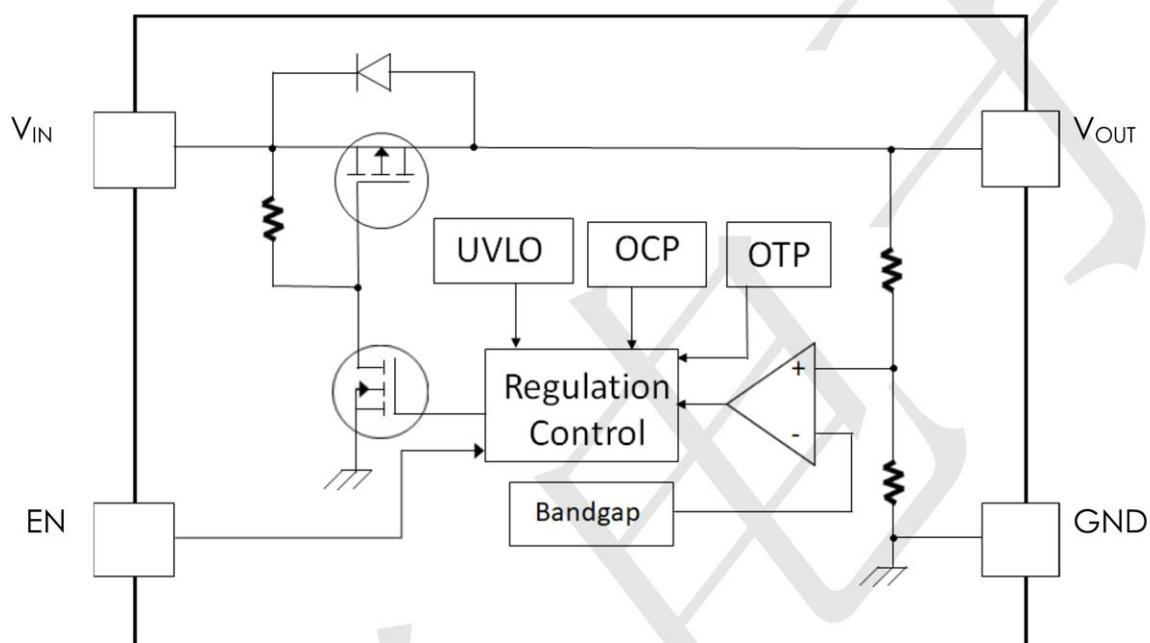
Note 1: Absolute Maximum ratings indicate limits beyond which damage may occur. Electrical specifications do not apply when operating the device outside of its rated operating conditions.

Note 2: All voltages are with respect to the potential at the ground pin.

Note 3: θ_{JA} is measured in the natural convection at $T_J=25^\circ C$ on a high effective thermal conductivity test board (2 layers, 250P).

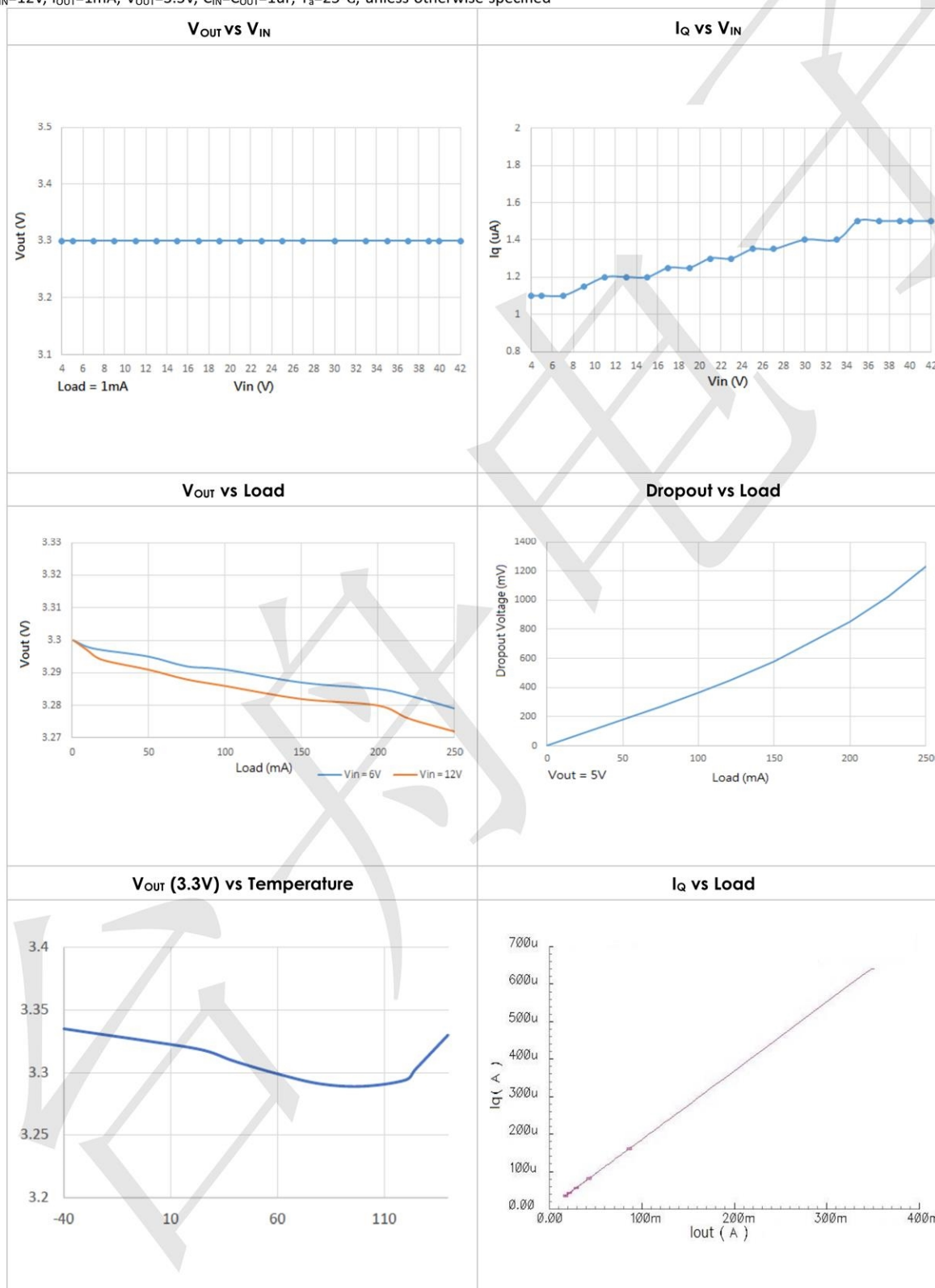
Note 4: θ_{JC} represents the resistance to the heat flows the chip to package top case.

Functional Block Diagram



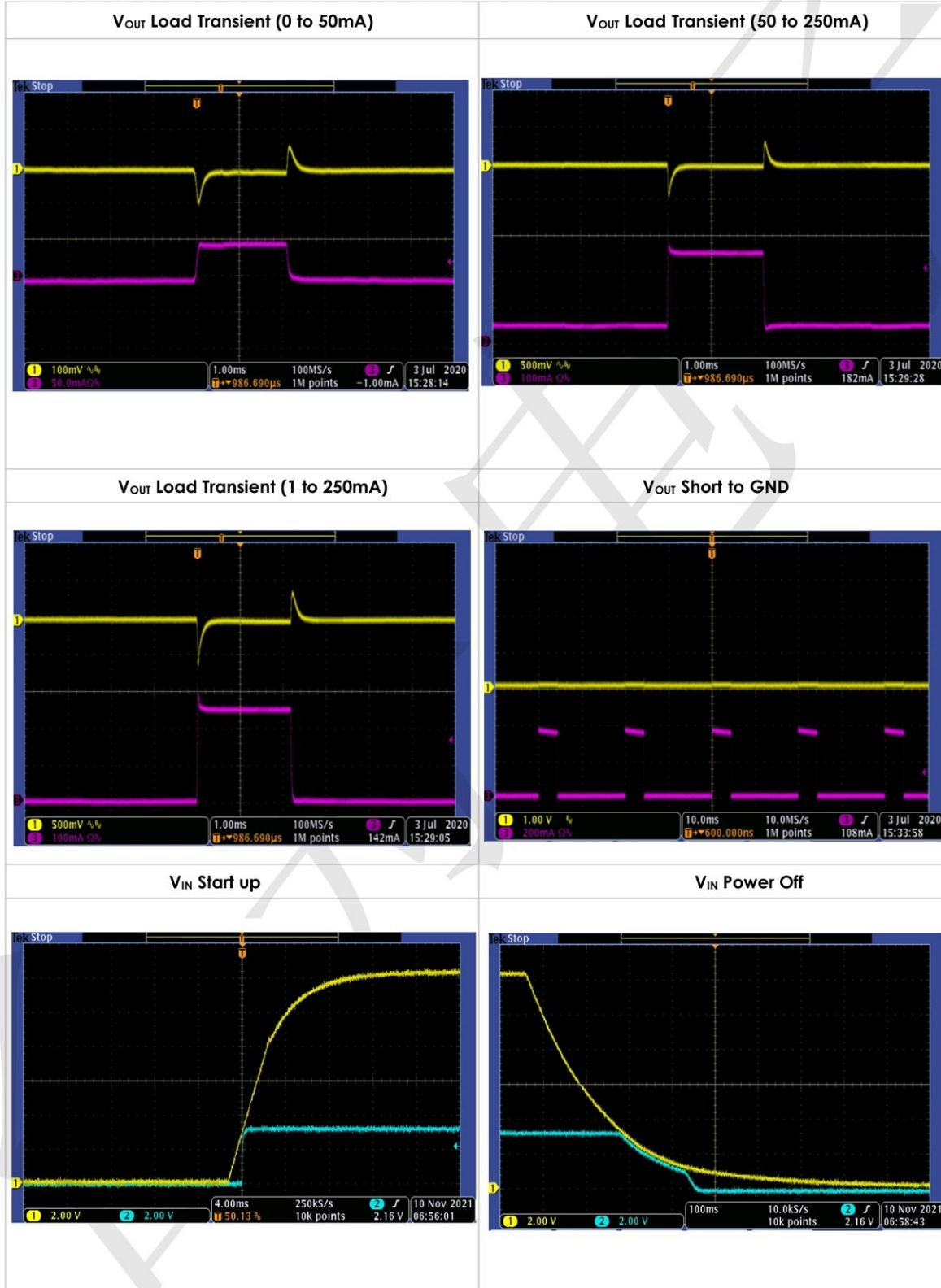
Typical Performance Characteristics

$V_{IN}=12V$, $I_{OUT}=1mA$, $V_{OUT}=3.3V$, $C_{IN}=C_{OUT}=1\mu F$, $T_a=25^\circ C$, unless otherwise specified



Typical Performance Characteristics(cont.)

$V_{IN}=12V$, $I_{OUT}=1mA$, $V_{OUT}=3.3V$, $C_{IN}=C_{OUT}=1\mu F$, $T_J=25^{\circ}C$, unless otherwise specified





TECH PUBLIC

—台丹电子—

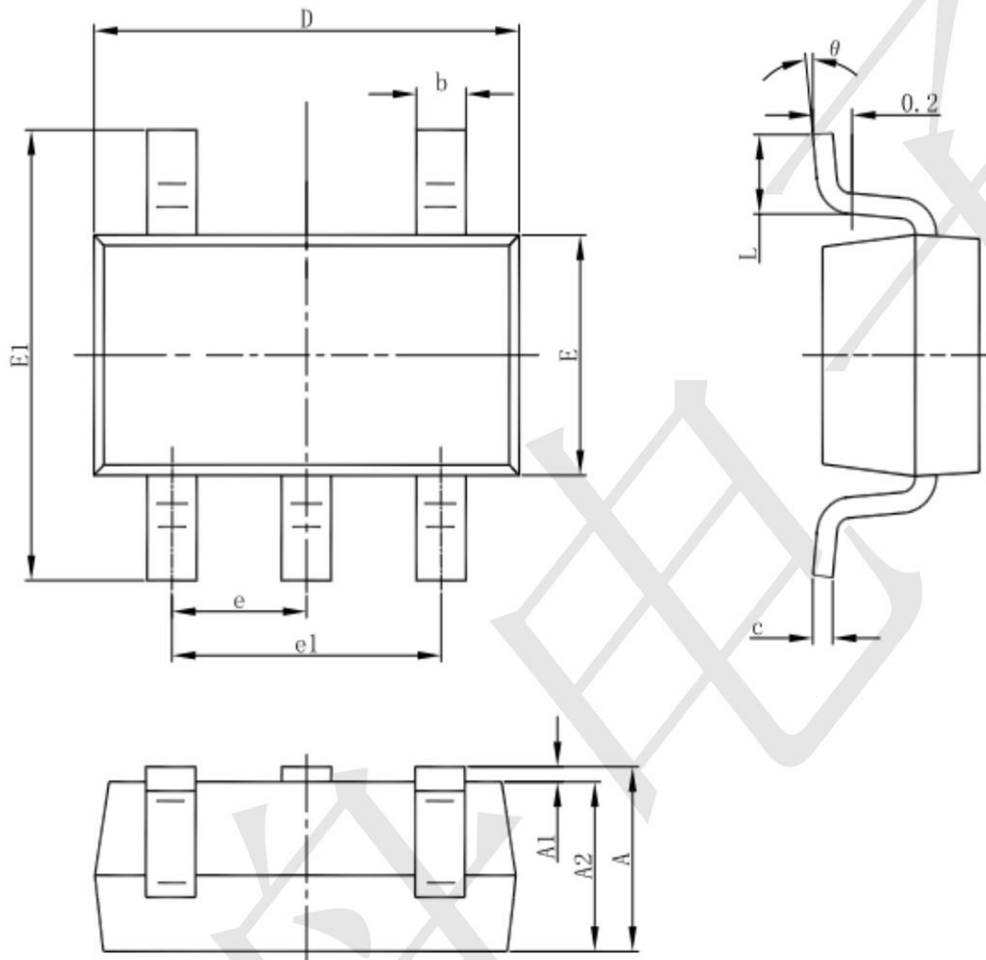
TPS7B69 Series

250mA,40V Ultralo-Quiescent-Current LDO

www.sot23.com.tw

Package information

SOT23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°