General Description

The TPS793 series is a set of low voltage differential (LDO) converters with a wide voltage input range of 2.0V to 6.0V, low voltage differential, low power consumption, and miniaturized packaging. The output voltage range is 1.2-3.3V, and the TPS793 has low static current characteristics as low as 75uA. The circuit also has a CE enable control port, which can put the circuit into sleep mode. It is particularly suitable for battery powered and ong-term standby system equipment applications, helping to reduce standby power consumption of system equipment, effectively extending standby time and battery life.

Features

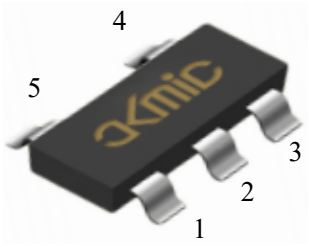
- Low Power Consumption
- Low Voltage Drop
- 1uA Max IQ in Shutdown Mode
- Withstanding Voltage 5.5V
- Quiescent Current 75uA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 300mA

Application

- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments

Pin Configuration And Descriptions

SOT-23-5L



PIN No. SOT-23-5L	Name	Functions Description
1	V_{IN}	Input
2	GND	Ground
3	CE	ON/OFF Control
4	NC	No Connect
5	V_{OUT}	Output

Order Information

Orderable Device	Package	Output Voltage	Packing Option
TPS79312DBVR	SOT-23-5L	1.2V	3000/Reel
TPS79315DBVR	SOT-23-5L	1.5V	3000/Reel
TPS79318DBVR	SOT-23-5L	1.8V	3000/Reel
TPS79325DBVR	SOT-23-5L	2.5V	3000/Reel
TPS79328DBVR	SOT-23-5L	2.8V	3000/Reel
TPS79330DBVR	SOT-23-5L	3.0V	3000/Reel
TPS79333DBVR	SOT-23-5L	3.3V	3000/Reel
TPS79336DBVR	SOT-23-5L	3.6V	3000/Reel

Absolute Maximum Ratings

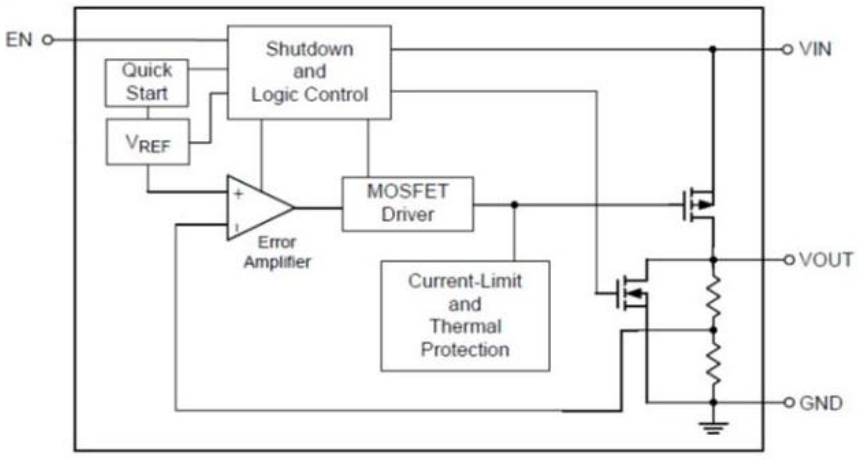
Description	Symbol	Value Range	Unit
Limit Power Voltage	V_{IN}	-0.3～+7	V
Storage Temperature Range	T_{STG}	-50～+125	°C
Operating Free-air Temperature Range	T_A	-40～+85	°C

Note:Stresses greater than those listed under "Absolute Maximum Ratingsmay" cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditionsis" not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Heat Dissipation

Description	Symbol	Package	Value Range	Unit
Thermal resistance	θ_{JA}	SOT-23-5L	500	°C/W
Power dissipation	P_W	SOT-23-5L	200	mW

Block Diagram



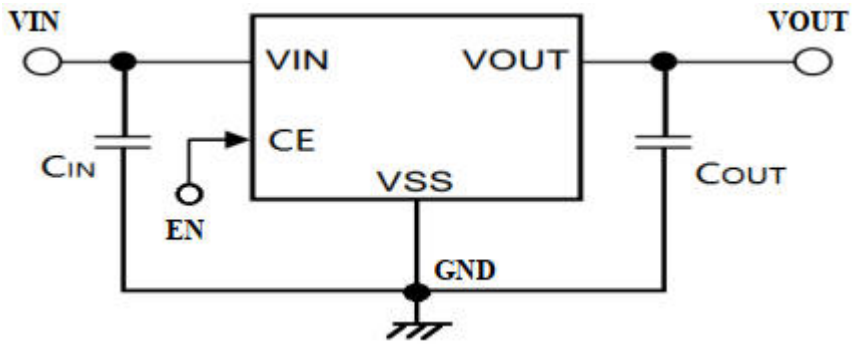
DC Characteristics (unless otherwise noted T_A= 25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Input Voltage	V_{IN}				5.5	V
Output Voltage	V_{OUT}		1.2		3.6	V
Voltage Accuracy		I_{OUT}=1mA	-2		+2	%
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V		300		mA
Load Regulation	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤100mA		100		mV
Line Regulation	△V_{OUT}/ V_{OUT}*△V_{IN}	V_{OUT}+1.0V≤V_{IN}≤18V I_{OUT}=10mA		0.05		%/V
Voltage Drop	V_{DIF}[1]	I_{OUT}=100mA,V_{OUT}=3.3V		90		mV
Quiescent Current	I_{SS}	V_{CE}=V_{IN}		75		μA
Standby Current	$I_{STANDBY}$	V_{CE}=V_{SS}		1.0		μA
	V_{CEH}		1.1			V
	V_{CEL}				0.4	V
Short-circuit current	I_{SHORT}	V_{IN}=V_{OUT}+2.0V		500		mA
Output noise Resistor	V_{en}	IOUT = 40mA, 300Hz ~ 50kHz		50		μVrms

Note: 1.When V_{IN}=V_{OUT}+2.0V,as the output voltage declined 2%,the V_{DIF}=V_{IN}-V_{OUT}.

Application Circuit

Basic Circuits

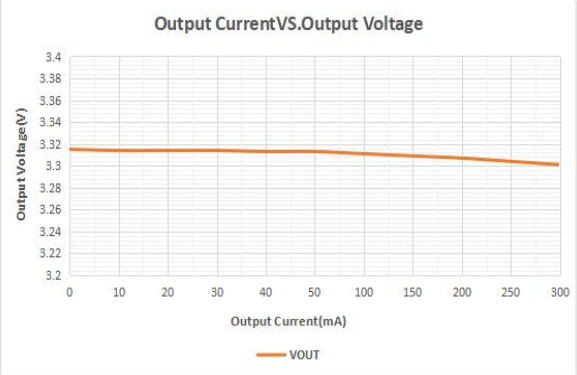


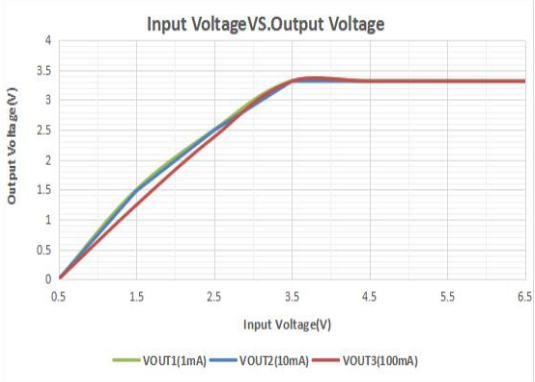
1. C_{IN} is used to stabilize the input capacitor.
2. C_{IN} eramic capacitors greater than or equal to 1pF can be used for COUT.

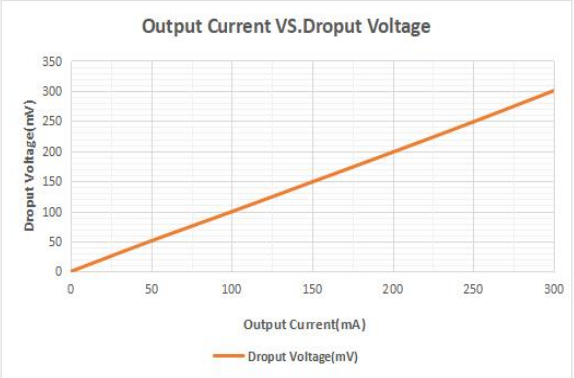
Function Description

TPS793 series are linear voltage regulator ICs withstanding 5.5V voltage. The series IC consists of a voltage reference, an error amplifier, a current limiter and a phase compensation circuit plus a driver transistor. The output stabilization capacitor is also compatible with low ESR ceramic capacitors.The over current protection circuit and the over voltage protection circuit are built-in. The protection circuit will operate wheb the output current or input voltage reaches limit level.

Typical Characteristics

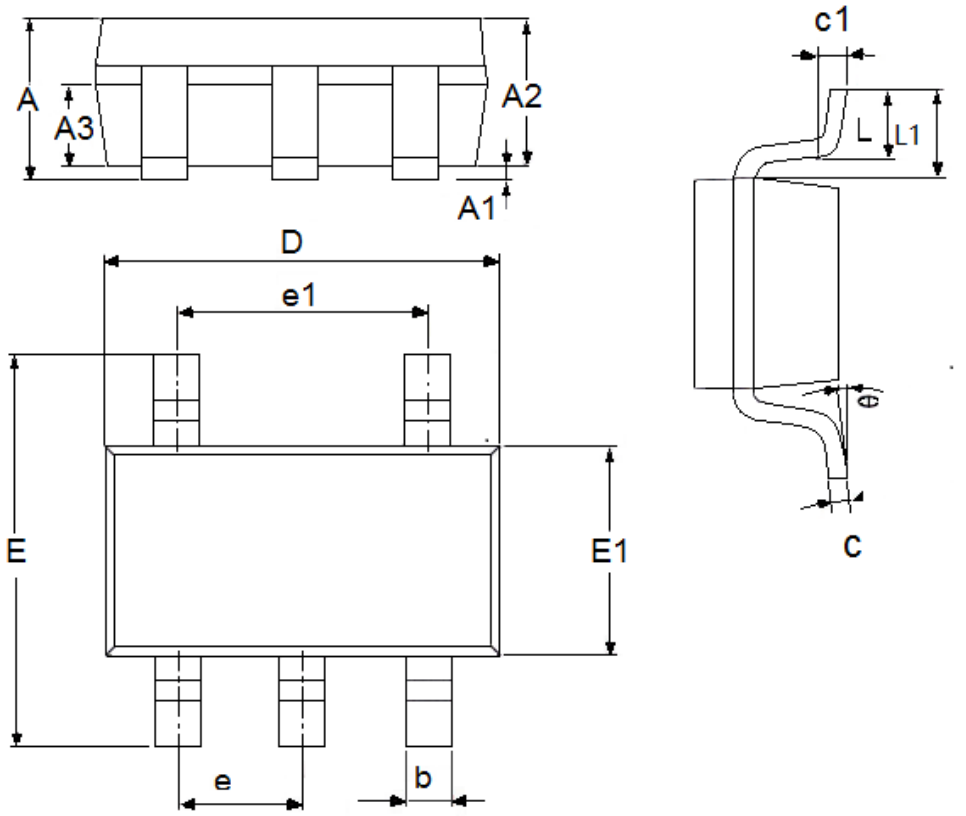






Package Outline Dimensions

SOT-23-5L



Symbol	Dimensions in Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.05	1.45	0.0413	0.0571
A1	0	0.15	0.0000	0.0059
A2	0.9	1.3	0.0354	0.0512
A3	0.6	0.7	0.0236	0.0276
b	0.25	0.5	0.0098	0.0197
c	0.1	0.23	0.0039	0.0091
D	2.82	3.05	0.1110	0.1201
e1	1.9(TYP)		0.0748(TYP)	
E	2.6	3.05	0.1024	0.1201
E1	1.5	1.75	0.0512	0.0689
e	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232(TYP)	
θ	0	8°	0.0000	8°
c1	0.2(TYP)		0.0079(TYP)	