

#### **General Description**

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 6V
- Quiescent Current 75uA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 250mA

### **Application**

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

### Pin Configuration And Descriptions



PIN No.	Nama	Functions Description
SOT-23-5L	Name	Functions Description
1	Vin	Input
2	GND	Ground
3	CE	ON/OFF Control
4	NC	No Connect
5	Vоит	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**

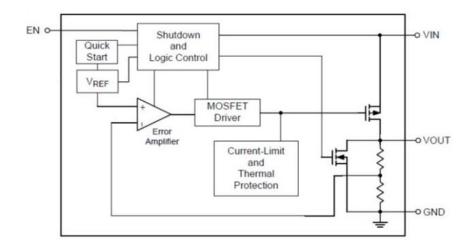
Description	Symbol	Value Range	Unit
Limit Power Voltage	Vin	-0.3∼+7	V
Storage Temperature Range	Тѕтс	-50∼+125	°C
Operating Free-air Temperature Range	TA	-40~+85	°C

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	JA	SOT-23-5L	500	°C/W
Power dissipation	Pw	SOT-23-5L	200	mW

### **Block Diagram**





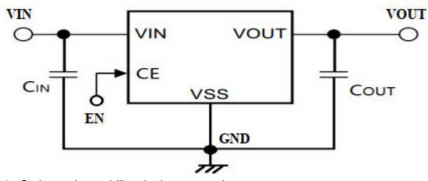
#### DC Characteristics (unless otherwise noted TA= 25°C)

Parameter	Symbol	Test Condition	Min	Тур	Max	Unit
Input Voltage	Vin				6.0	V
Output Voltage	Vouт		1.2		3.6	V
Voltage Accuracy		Іоит=1mA	-2		+2	%
Output Current	Іоит	VIN=VOUT+2.0V		250		mA
Load Regulation	∆Vоит	VIN=VOUT+2.0V 1mA≤IouT≤100mA		100		mV
Line Regulation	△Vout/ Vout*△Vin	Vout+1.0V≤VIN≤18V Iout=10mA		0.05		%/V
Voltage Drop	V <sub>DIF</sub> <sup>1</sup>	Іоит=100mA,Vоит=3.3V		90		mV
Quiescent Current	Iss	Vce=Vin		75		μA
Standby Current	ISTANDBY	Vce=Vss		1.0		μA
	Vсен		1.1			V
	Vcel				0.4	V
Short-circuit current	Ishort	VIN=VOUT+2.0V		500		mA
Output noise Resistor	Ven	IOUT = 40mA, 300Hz ~ 50kHz		50		μVrms

Note: 1.When VIN=VOUT+2.0V, as the output voltage declined 2%, the VDIF=VIN-VOUT.

## **Application Circuit**

#### **Basic Circuits**



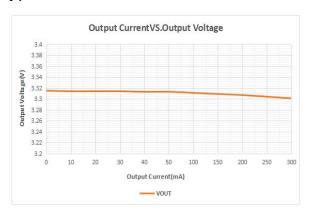
- 1.  $C_{\text{IN}}$  is used to stabilize the input capacitor.
- 2.  $\ensuremath{\text{C{\tiny IN}}}$  eramic capacitors greater than or equal to 1pF can be used for COUT.

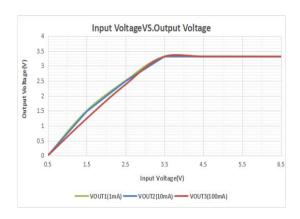


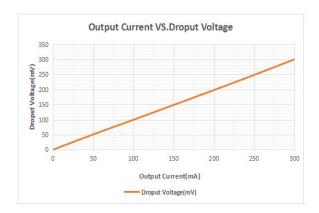
## **Function Description**

TPS793 series are linear voltage regulator ICs withstanding 6.0V 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**

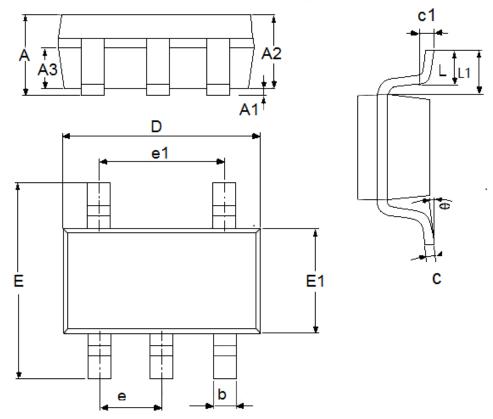








# Package Outline Dimensions SOT-23-5L



Ol	Dimensions i	n Millimeters	Dimensions In Inches	
Symbol	Min	Max	Min	Max
А	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
С	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
е	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232	2(TYP)
θ	0	8°	0.0000	8°
c1	0.2(TYP)		0.0079	O(TYP)



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