General Description

The BL9198 series is a set of low voltage differential (LDO converters) with a wide voltageinput range of 2.0V to 6V, low voltage differential, low power consumption, and miniaturized packaging. The output voltage range is 1.2-3.3V, and the BL9198 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 long-term standby system equipment applications, helping to reduce standby power consumption of system equipment, effectively extending standby time and battery life.

Features

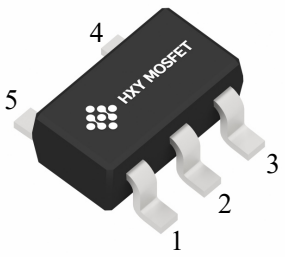
- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 6V
- Quiescent Current 75μA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 300mA

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
BL9198-12BAPRN	SOT-23-5L	1.2V	3000/Reel
BL9198-15BAPRN	SOT-23-5L	1.5V	3000/Reel
BL9198-18BAPRN	SOT-23-5L	1.8V	3000/Reel
BL9198-25BAPRN	SOT-23-5L	2.5V	3000/Reel
BL9198-28BAPRN	SOT-23-5L	2.8V	3000/Reel
BL9198-30BAPRN	SOT-23-5L	3.0V	3000/Reel
BL9198-33BAPRN	SOT-23-5L	3.3V	3000/Reel
BL9198-36BAPRN	SOT-23-5L	3.6V	3000/Reel

Absolute Maximum Ratings

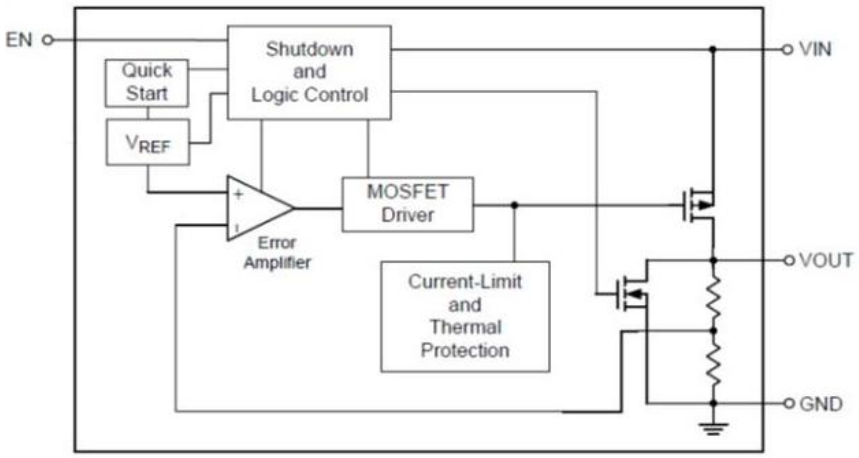
Description	Symbol	Value Range	Unit
Limit Power Voltage	V_{IN}	-0.3～+7	V
Storage Temperature Range	T_{STG}	-50～+125	°C
Operating Free-air Temperature Range	T_A	-40～+85	°C

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



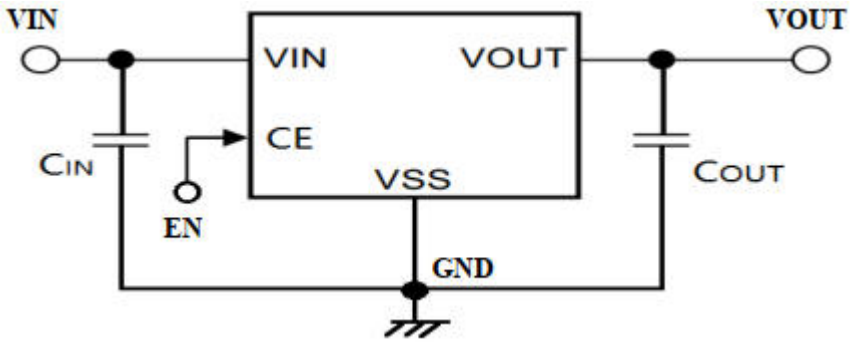
DC Characteristics (unless otherwise noted T_A= 25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Input Voltage	V_{IN}				6	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}≤6V I_{OUT}=40mA		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		μA
	V_{CEH}	V_{IN} =V_{OUT}+2.0V	1.1			V
	V_{CEL}	V_{IN} =V_{OUT}+2.0V			0.4	V
Short-circuit current	I_{SHORT}	V_{IN}=V_{OUT}+2.0V		500		mA
Temperature Coefficient	△V_{OUT}/ △T_A* V_{OUT}	V_{IN}=V_{OUT}+2.0V I_{OUT}=10mA 1mA≤I_{OUT}≤150mA		±100		ppm/°C
Output noise Resistor	V_{en}	I_{OUT} = 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

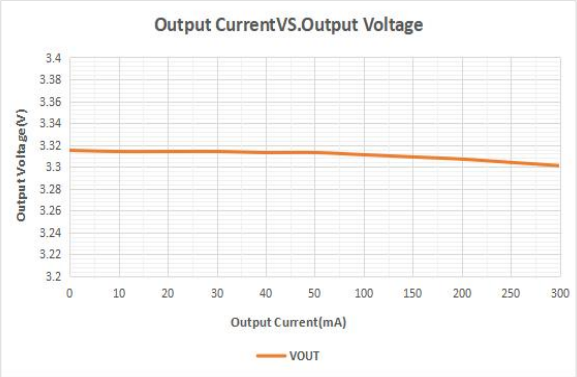
Basic Circuits

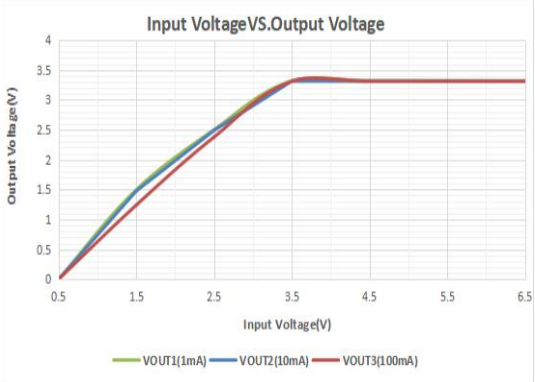


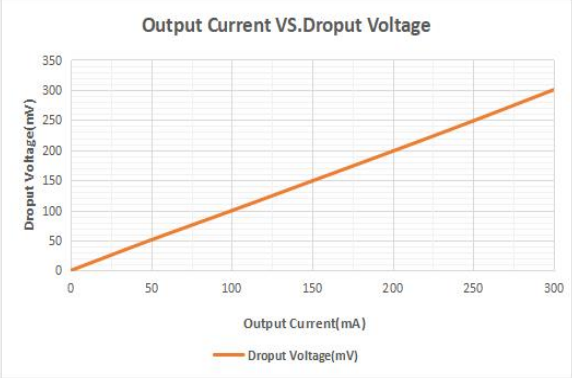
Function Description

BL9198 series are linear voltage regulator ICs withstanding 6V 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

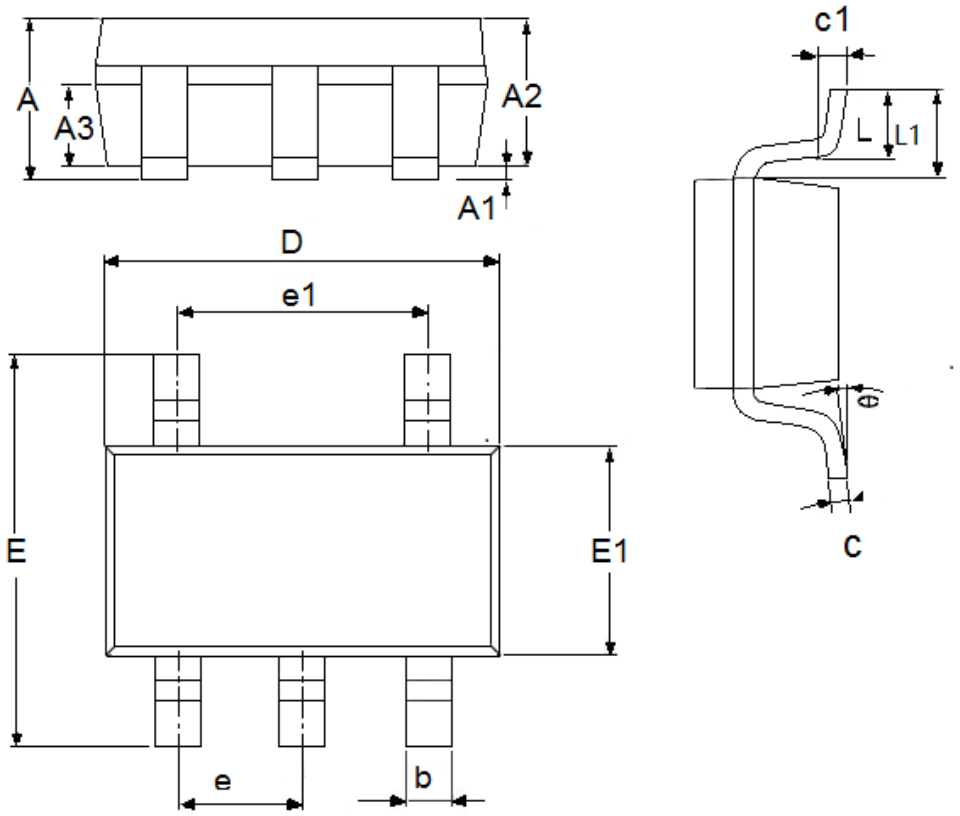






Package Outline Dimensions

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)	

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