

Product Summary

The GPL7750 series are a group of positive voltage regulators manufactured by CMOS technologies with ultra-low power consumption and low dropout voltage, which provide large output currents even when the difference of the input-output voltage is small. The GPL7750 series can deliver 500mA output current and allow an input voltage as high as 8V. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

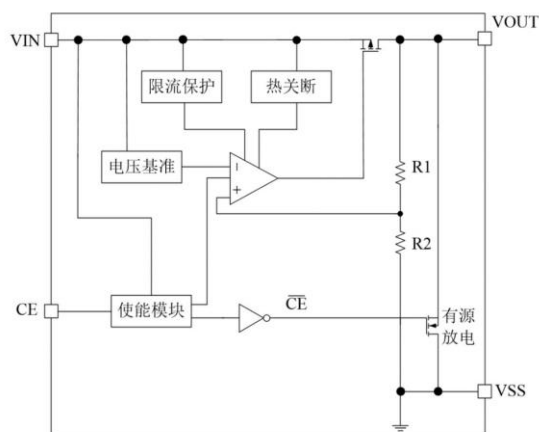
Features

- Low Quiescent Current: 40 μ A
- Input Voltage Up To: 8V
- Output Current: 500mA
- Output Voltage: 1.2~3.3V
- High Accuracy: $\pm 1\%$
- High Power Supply Rejection Ratio: 80dB@1kHz

Applications

- Portable consumer equipments
- Radio control systems
- Laptop, Palmtops and PDAs
- Wireless Communication Equipments
- Portable Audio Video Equipments
- Ultra-low Power Microcontroller

Block Diagram



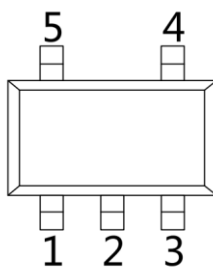
Order Information

GPL7750V①②

Designator	Description
①	Output Voltage e.g. 1.8V=①:V, ②:1, ③:8
②	Package: SOT-23-5L=K5

Pin Configuration

SOT-23-5L



SOT-23-5L

Pin Number	Pin Name	Function
SOT-23-5L		
1	V _{IN}	Power input
2	G _{ND}	Ground
3	EN	Chip Enable Pin
4	NC	No Connection
5	V _{OUT}	Output

Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Parameter	Symbol	Ratings	Units
Input Voltage	V _{IN}	-0.3~8	V
Output Voltage	V _{OUT}	-0.3~5	V
EN Pin Withstand Voltage	V _{EN}	-0.3~V _{IN} +0.3	V
Output Current	I _{OUT}	500	mA
Power Dissipation	SOT-23-5L	500	mW
	DFN1X1-4L	530	mW
Storage Temperature	T _{STG}	-65~+150	°C
ESD	HBM	+4000	V
	CDM	+1500	V

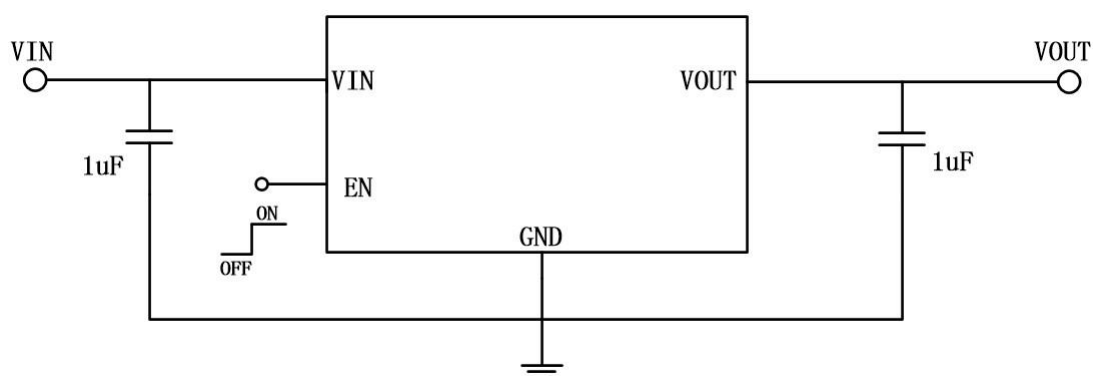
Recommended Operating Conditions

Parameter	Min.	Nom.	Max.	Units
Supply voltage at V _{IN}	2		7	V
Operating junction temperature range, T _J		150		°C

Electrical Characteristics ($V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^{\circ}C$, unless otherwise specified)

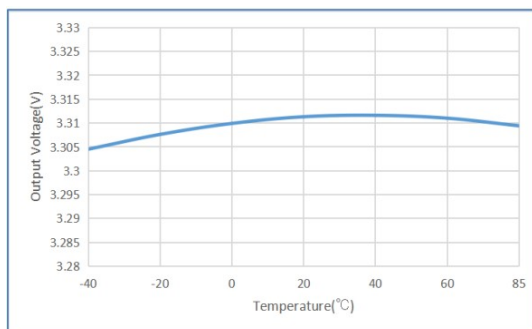
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Input Voltage	V_{IN}		2		7	V
Output Voltage Range	V_{OUT}		$V_{OUT} \times 0.99$		$V_{OUT} \times 1.01$	V
Dropout Voltage	V_{DROP}	$I_{OUT} = 100mA$		100	120	mV
		$I_{OUT} = 500mA$		650	700	mV
Supply Current	I_{SS}	Non-Loaded		40	50	μA
Shutdown Current	I_{ST}	EN=GND		0.01	0.05	μA
Enable The Low Threshold	V_{ENL}				0.4	V
Enable The High Threshold	V_{ENH}		1.2			V
Load Adjustment Degree	ΔV_{OUT}	$1mA \leq I_{OUT} \leq 100mA$		20	35	mV
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT} = 10mA$ $V_{OUT} + 1V \leq V_{IN} \leq 7V$		0.03	0.1	%/V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	$I_{OUT} = 30mA$, $0^{\circ}C \leq T_A \leq 70^{\circ}C$		± 100		ppm
Power Supply Rejection Ratio	PSRR	$V_{IN} = 5V$, $I_{OUT} = 10mA$ $V_{OUT} = 3.3V$ $f = 1KHz$		80		dB
		$f = 10KHz$		70		dB
Thermal Turn-Off Temperature	T_{SD}	Rise In Temperature		150		$^{\circ}C$
Thermal Disconnection Is Delayed	ΔT_{SD}	Temperature Drop		20		$^{\circ}C$

Typical Application

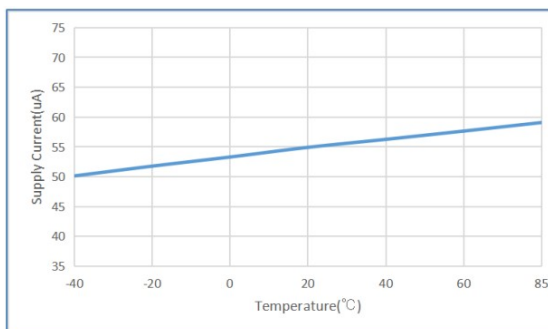


Typical Performance Characteristics

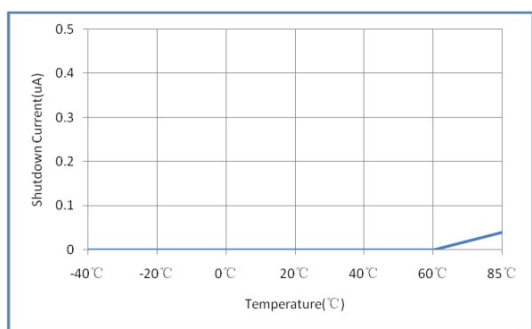
($V_{IN}=4.3V$; $I_{OUT}=1mA$, $V_{OUT}=3.3V$, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^{\circ}C$)



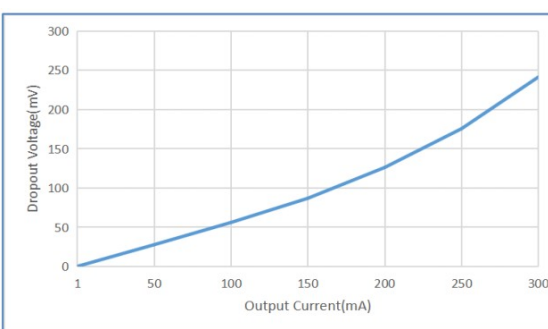
输出电压与温度的关系



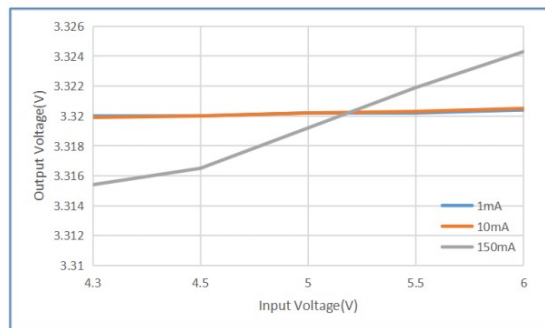
电源电流与温度



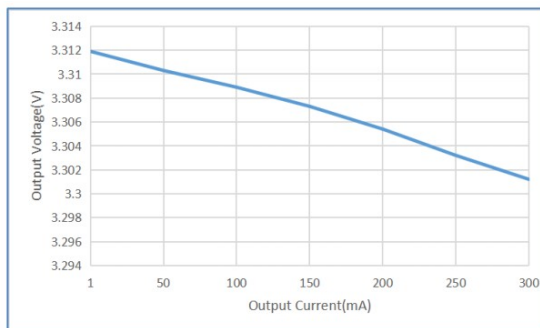
关闭电流与温度



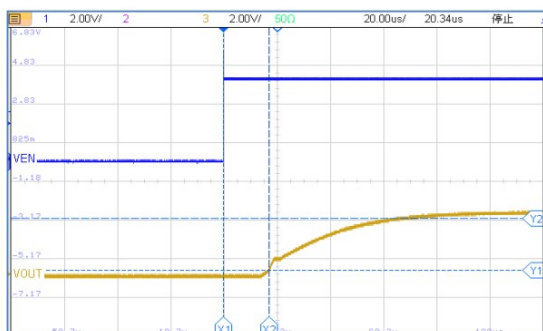
输出电压与输出电流的关系



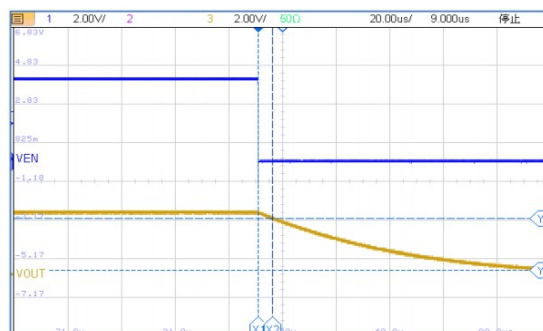
输出电压与输入电压



输出电压与输出电流

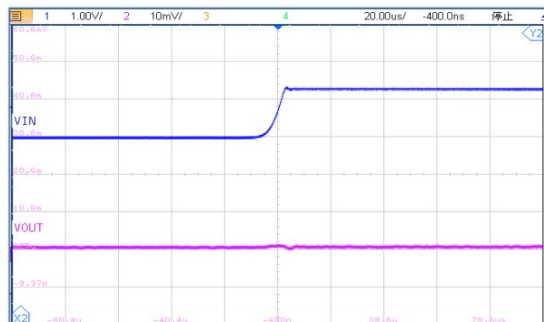


开启速度 VS EN 电压 ($I_{OUT}=30mA$)



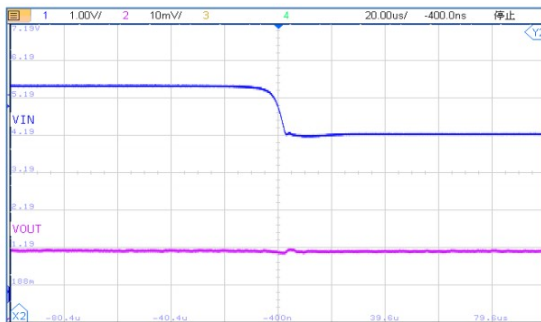
关闭速度与 EN 电压 ($I_{OUT}=30mA$)

Typical Performance Characteristics



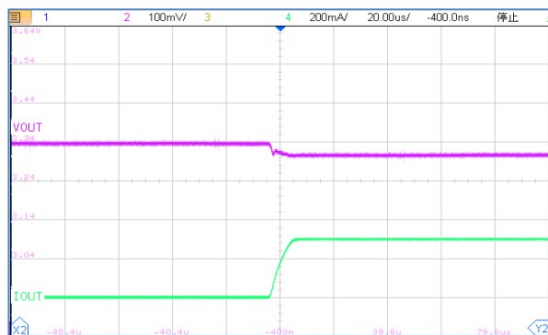
线路瞬态响应

$V_{IN}=4.3V-5.5V; I_{OUT}=1mA, V_{OUT}=3.3V$



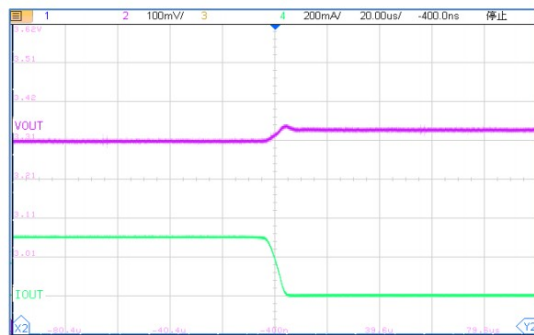
线路瞬态响应

$V_{IN}=5.5V-4.3V; I_{OUT}=1mA, V_{OUT}=3.3V$



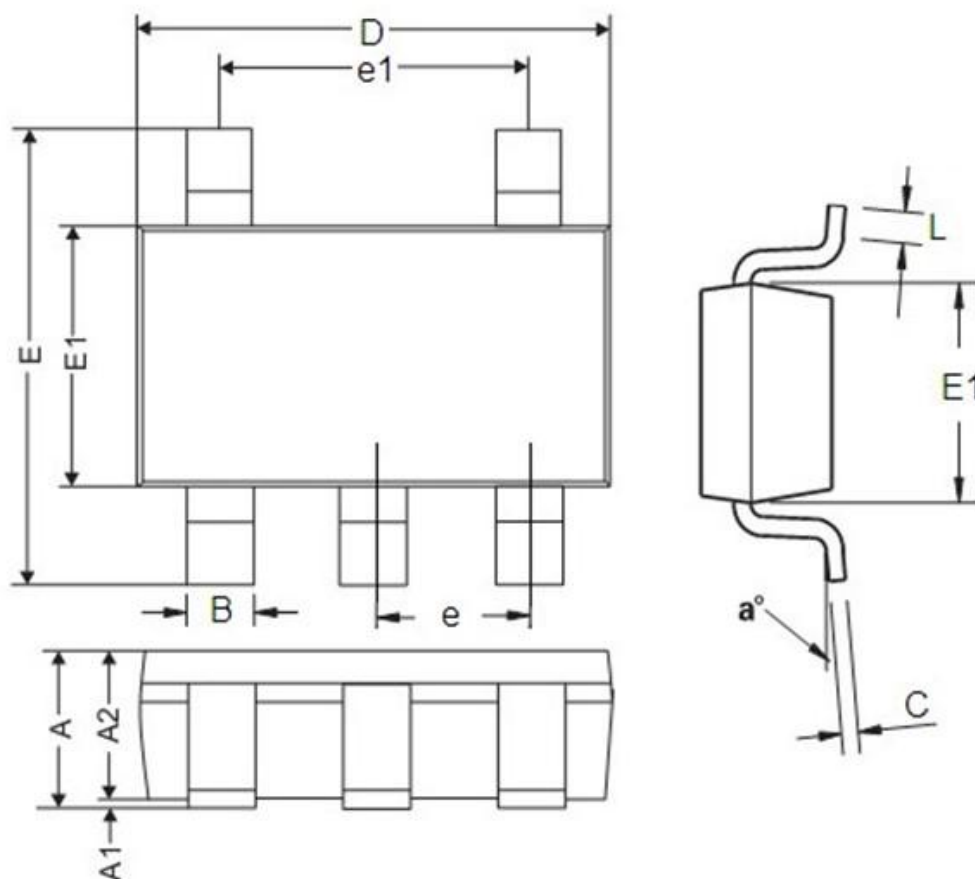
负载瞬态响应

$V_{IN}=4.3V; I_{OUT}=1mA-300mA, V_{OUT}=3.3V$



负载瞬态响应

$V_{IN}=4.3V; I_{OUT}=300mA-1mA, V_{OUT}=3.3V$

SOT-23-5L Package Outline Dimensions


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.050	1.450
A1	0	0.150
A2	0.900	1.300
B	0.250	0.500
C	0.100	0.250
D	2.800	3.100
E	2.600	3.100
E1	1.500	1.800
e	0.950TYP	
e1	1.900TYP	
L	0.100	0.600
θ	0°	30°

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.