GPL7750 Series

500mA CMOS Voltage Regulators

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 9V. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

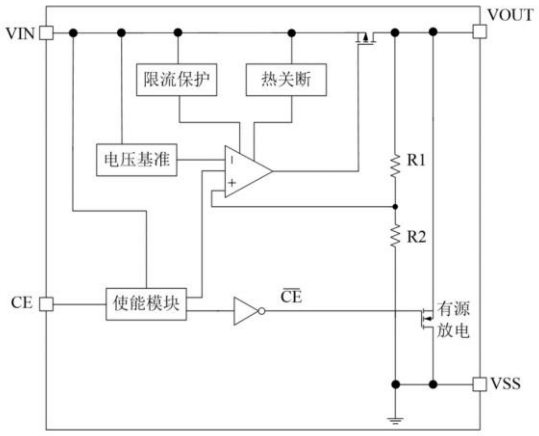
Features

- Low Quiescent Current: 0.3μA
- Input Voltage Up To: 9V
- Output Current: 500mA
- Output Voltage: 1.2~3.3V
- High Accuracy: ±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



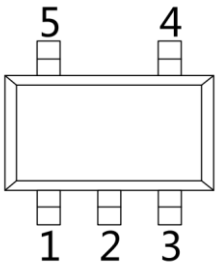
Order Information

GPL7750V①②

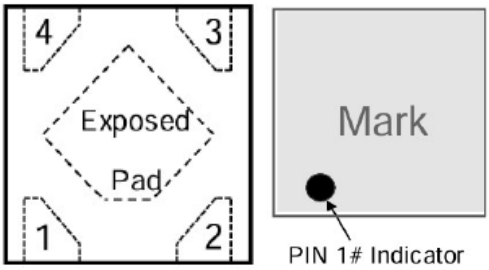
Designator	Description
①	Output Voltage e.g.1.8V=①:V, ②:1,③:8
②	Package: SOT-23-5L=K5 DFN1X1-4L=H1

Pin Configuration

SOT-23-5L



DFN1X1-4L



SOT-23-5L & DFN1X1-4L

Pin Number		Pin Name	Function
SOT-23-5L	DFN1X1-4L		
1	4	V_{IN}	Power input
2	2	GND	Ground
3	3	CE	Chip Enable Pin
4	-	NC	No Connection
5	1	V_{OUT}	Output

Absolute Maximum Ratings (T_A=25℃,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	P_D	500	mW
	DFN1X1-4L		530	mW
Storage Temperature		T_{STG}	-65~+150	°C
ESD		HBM	+4000	V
		CDM	+1500	V

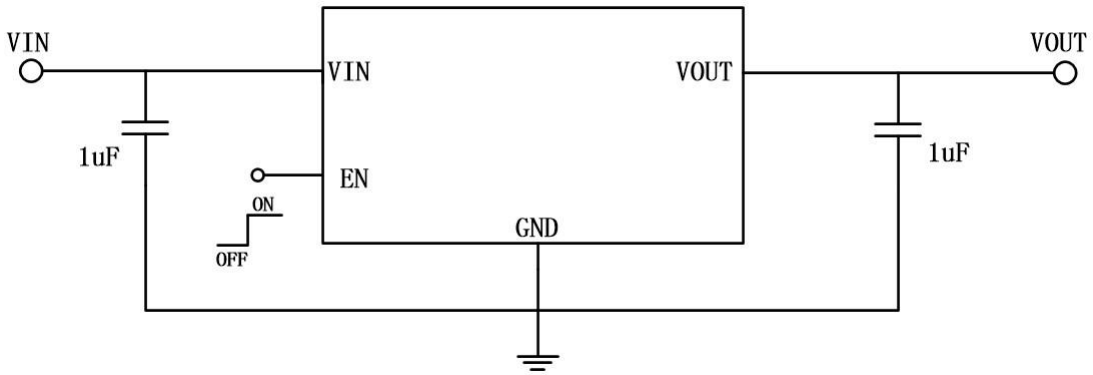
Recommended Operating Conditions

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

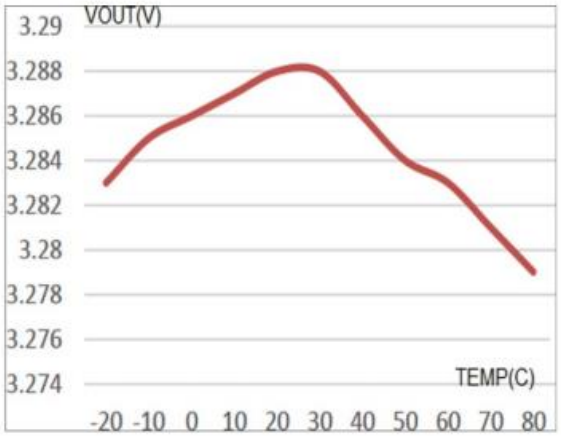
Electrical Characteristics (V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1μF，T_A=25℃,unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Units
Input Voltage	V_{IN}			2		7	V
Output Voltage Range	V_{OUT}	I_{OUT}=10mA		V_{OUT}*0.985		V_{OUT}*1.015	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
Low Threshold Enable	V_{ENL}					0.4	V
High Threshold Enable	V_{ENH}			1.2			V
Load Regulation	ΔV_{OUT}	1mA≤I_{OUT}≤100mA			5	20	mV
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	I_{OUT} =10mA V_{OUT} +1V≤V_{IN}≤7V			0.03	0.1	%/V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	I_{OUT}=30mA, 0°C≤T_A≤70°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 Shutdown Temperature	T_{SD}	rise in temperature			150		℃
Thermal Shutdown Hysteresis	ΔT_{SD}	temperature drop			20		℃

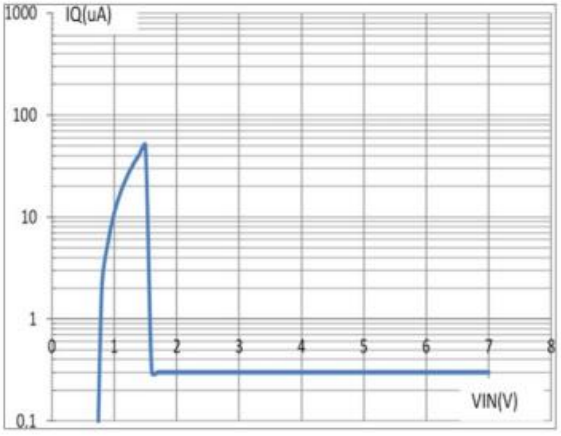
Typical Application



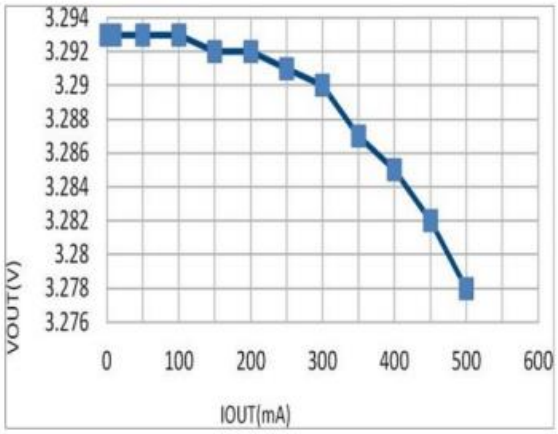
Typical Performance Characteristics



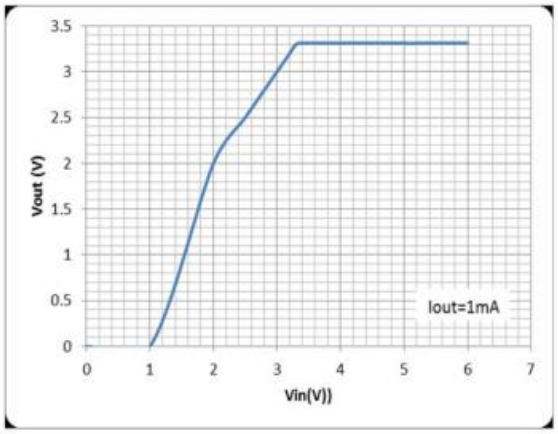
Output Voltage vs TEMP



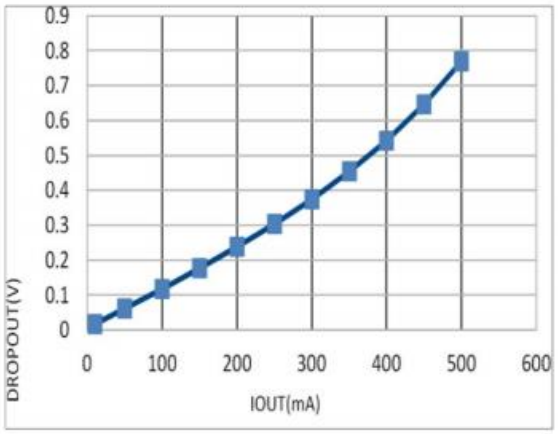
Input Voltage vs. IQ **(Note about IQ)**



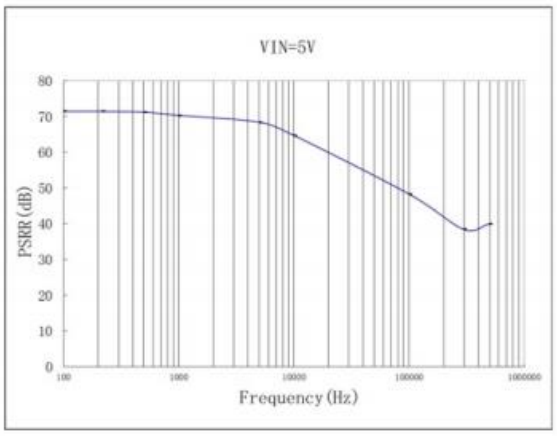
Load Regulation



Line Regulation

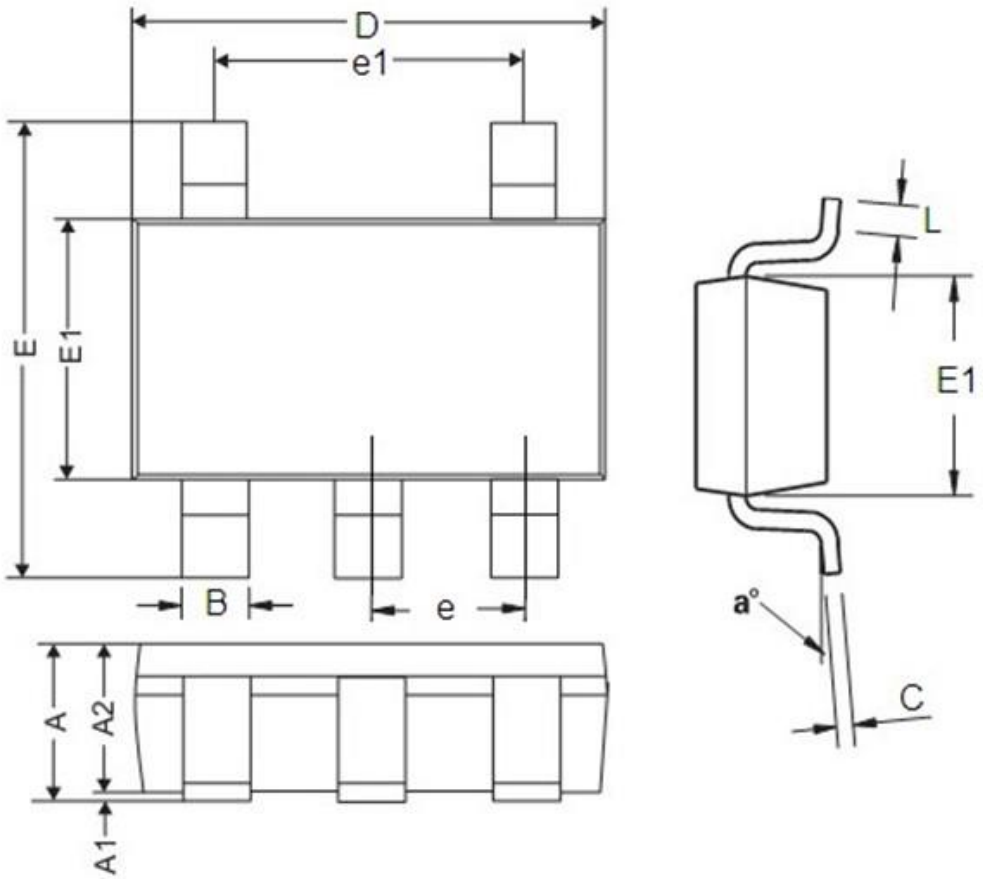


Dropout Voltage vs.Load Curren



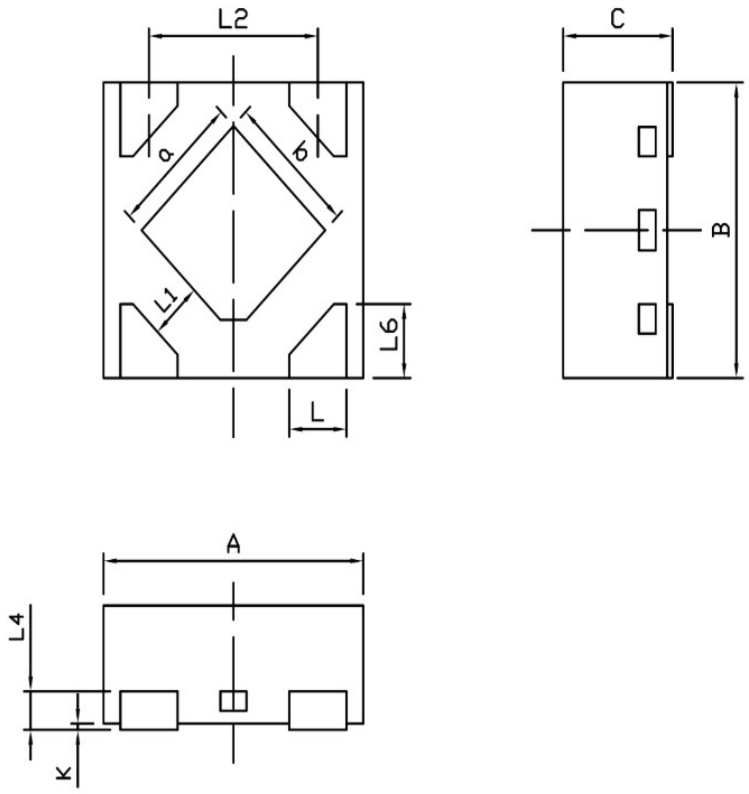
PSRR vs. Frequency

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°

DFN1X1-4L Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.95	1.05
B	0.95	1.05
C	0.35	0.45
L	0.17	0.27
L1	0.15	-
L2	0.65REF	
L4	0.127REF	
L6	0.2	0.3
K	-	0.05
a	0.43	0.53
b	0.43	0.53

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.