

Product Summary

The GPL7750A series is a CMOS-based three-terminal linear regulator featuring high input voltage, low dropout, and low power consumption. It offers a steady-state output current of 500mA and can handle an input voltage up to 9V. The fixed output voltage range is from 0.8V to 5.0V. The chip is equipped with short-circuit protection to ensure safe operation during use.

The GPL7750A series is suitable for battery-powered devices with long service life. CMOS technology ensures low voltage drop and low quiescent current. Additionally, it features an internal current limiter, over-temperature protection, and short-circuit protection. By the EN pin on the control chip can be used to turn off the output. After being turned off, the power consumption is less than 1μA.

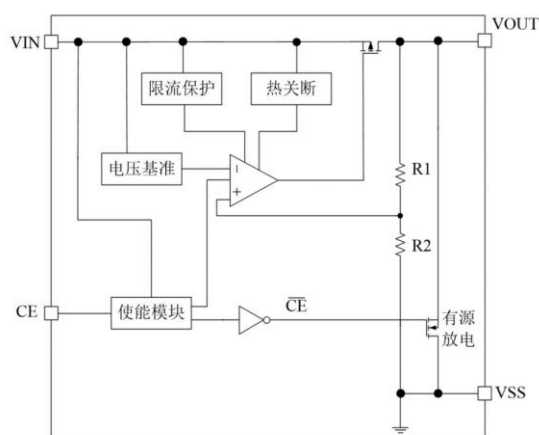
Features

- Low Quiescent Current: 0.3μA
- Input Voltage Up To: 9V
- Output Current: 500mA
- Output Voltage: 0.8~5V
- High Accuracy: ±1.5%
- High Power Supply Rejection Ratio: 70dB@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

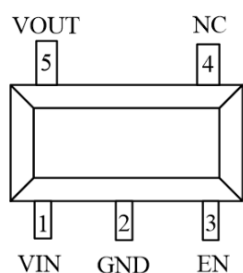


Order Information

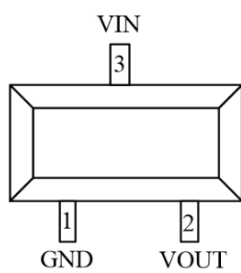
GPL7750AV①②

Designator	Description
①	Output Voltage e.g. 1.8V=①:V, ②:1,③:8
②	Package: SOT-23-3L=K3 SOT-23-5L=K5 SOT-89-3L=KE DFN1X1-4L=H1

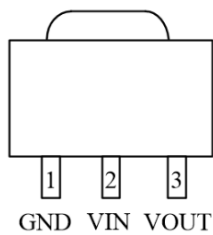
Pin Configuration



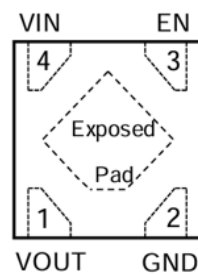
SOT-23-5L



SOT-23-3L



SOT-89-3L



DFN1X1-4L



Pin Configuration

Pin Number				Pin Name	Function
SOT-23-3L	SOT-23-5L	SOT-89-3L	DFN1X1-4L		
3	1	2	4	V _{IN}	Power input
1	2	1	2	G _{ND}	Ground
-	3	-	3	EN	Chip Enable Pin
-	4	-	-	NC	No Connection
2	5	3	1	V _{OUT}	Output

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

Parameter		Symbol	Ratings	Units
Input Voltage		V _{IN}	-0.3~9	V
Output Voltage		V _{OUT}	-0.3~5	V
EN Pin Withstand Voltage		V _{EN}	-0.3~9	V
Output Current		I _{OUT}	500	mA
Power Dissipation	SOT-23-3L	P _D	0.45	W
	SOT-23-5L		0.5	W
	SOT-89-3L		0.7	W
	DFN1X1-4L		0.53	W
Storage Temperature		T _{STG}	-65~+150	°C
ESD		HBM	±4000	V
		CDM	±2000	V

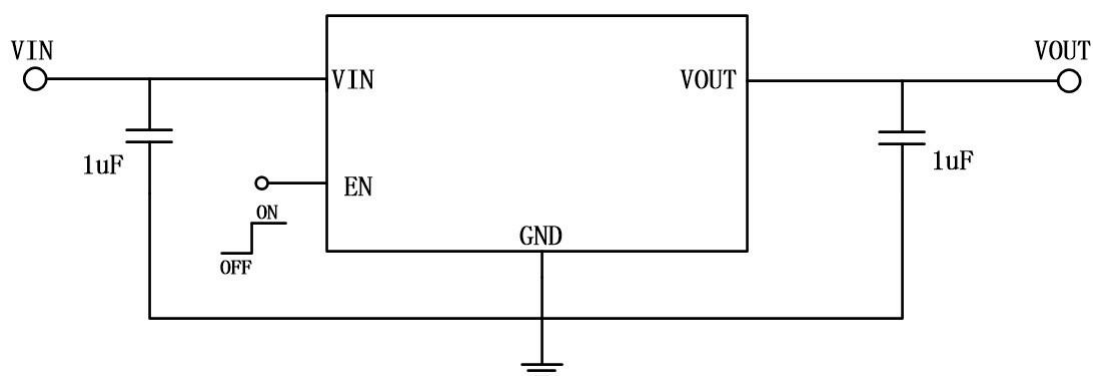
Recommended Operating Conditions

Parameter	Min.	Nom.	Max.	Units
Supply Voltage At V _{IN}	2		7	V
Operating Junction Temperature Range, T _J		+150		°C

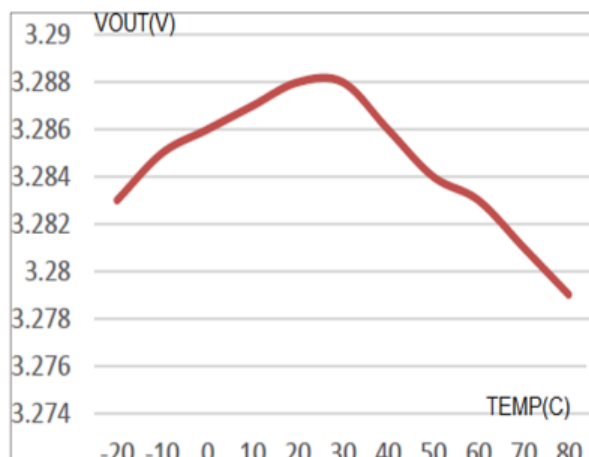
Electrical Characteristics ($V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Input Voltage	V_{IN}		2		7	V
Output Voltage Range	V_{OUT}		$V_{OUT}*0.985$		$V_{OUT}*1.015$	V
Dropout Voltage	V_{DROP}	$I_{OUT}=100mA$		100		mV
		$I_{OUT}=500mA$		600	750	mV
Supply Current	I_{SS}	Non-Loaded		0.3	0.5	μA
Shutdown Current	I_{ST}	EN=GND		0	0.1	μA
Output Current	I_{OUT}		500			mA
Enable The Low Threshold	V_{ENL}				0.4	V
Enable The High Threshold	V_{ENH}		1.2			V
Load Adjustment Degree	ΔV_{OUT}	$1mA \leq I_{OUT} \leq 100mA$		5	20	mV
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT}=10mA$ $V_{OUT}+1V \leq V_{IN} \leq 7V$		0.05		%/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	$V_{IN}=5V$, $I_{OUT}=10mA$ $V_{OUT}=3.3V$ $f=1KHz$		70		dB
		$f=10KHz$		65		dB
Thermal Turn-Off Temperature	T_{SD}	Rise In Temperature		160		$^{\circ}C$
Thermal Disconnection Is Delayed	ΔT_{SD}	Temperature Drop		20		$^{\circ}C$

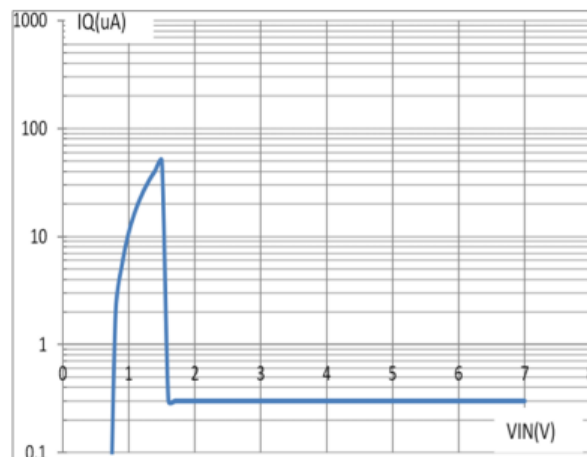
Typical Application



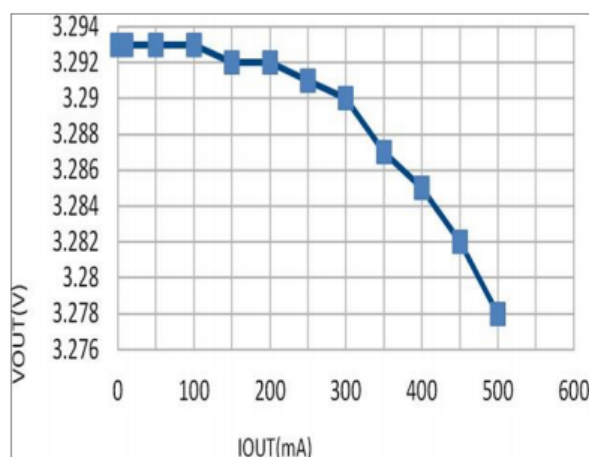
Typical Performance Characteristics



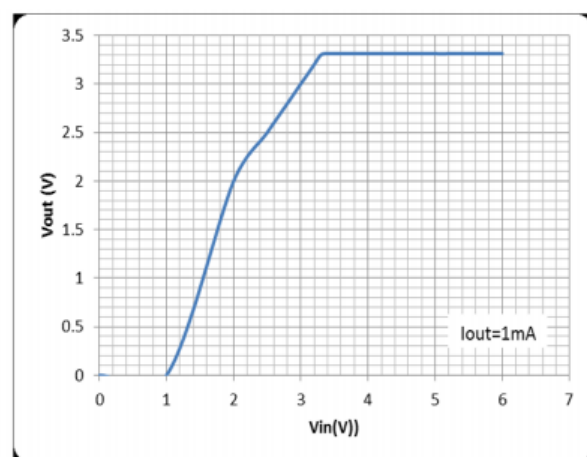
Output Voltage vs TEMP



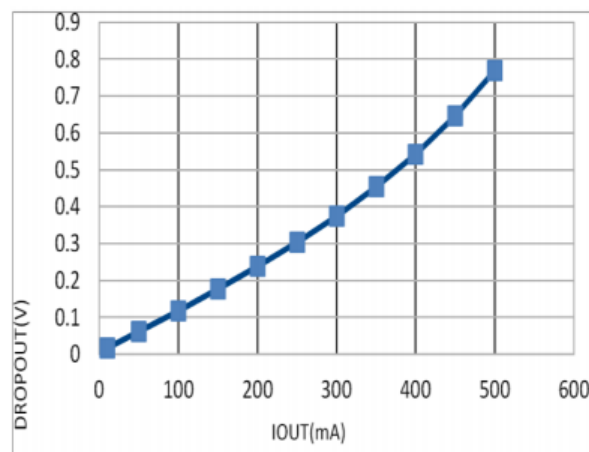
Input Voltage vs. IQ (Note about IQ)



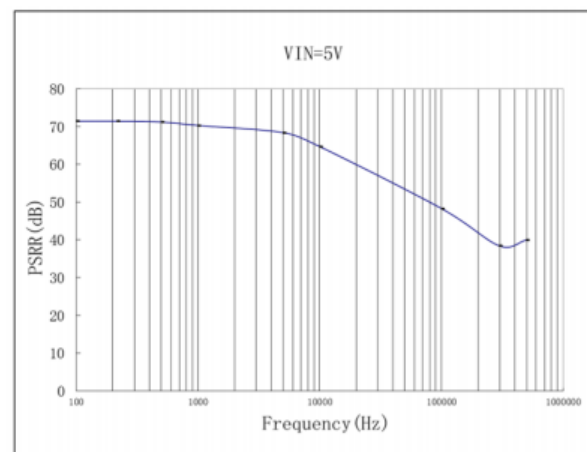
Load Regulation



Line Regulation

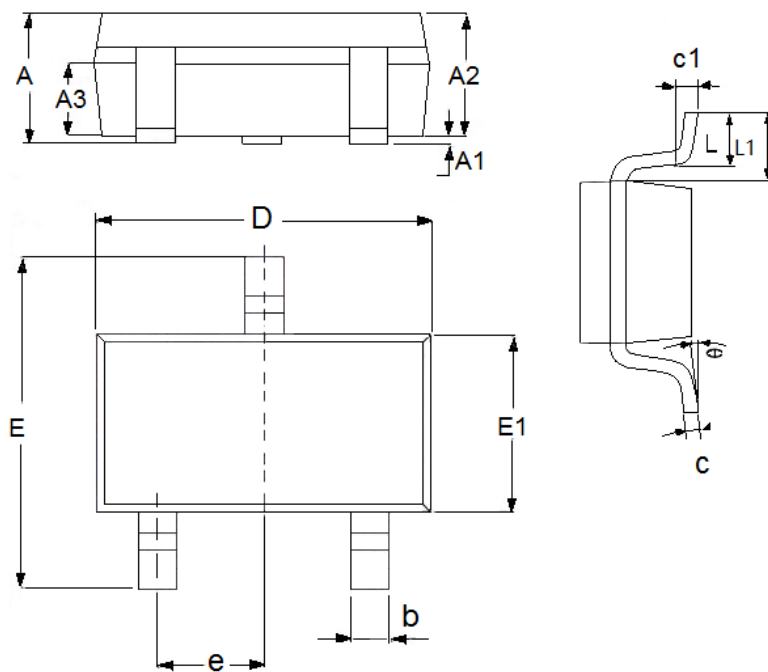


Dropout Voltage vs. Load Current



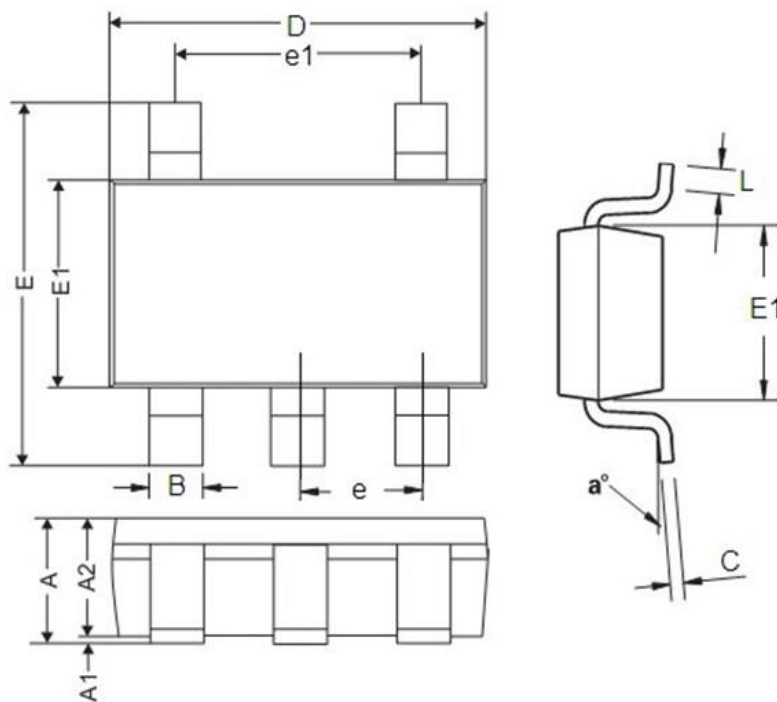
PSRR vs. Frequency

SOT-23-3L Package Outline Dimensions



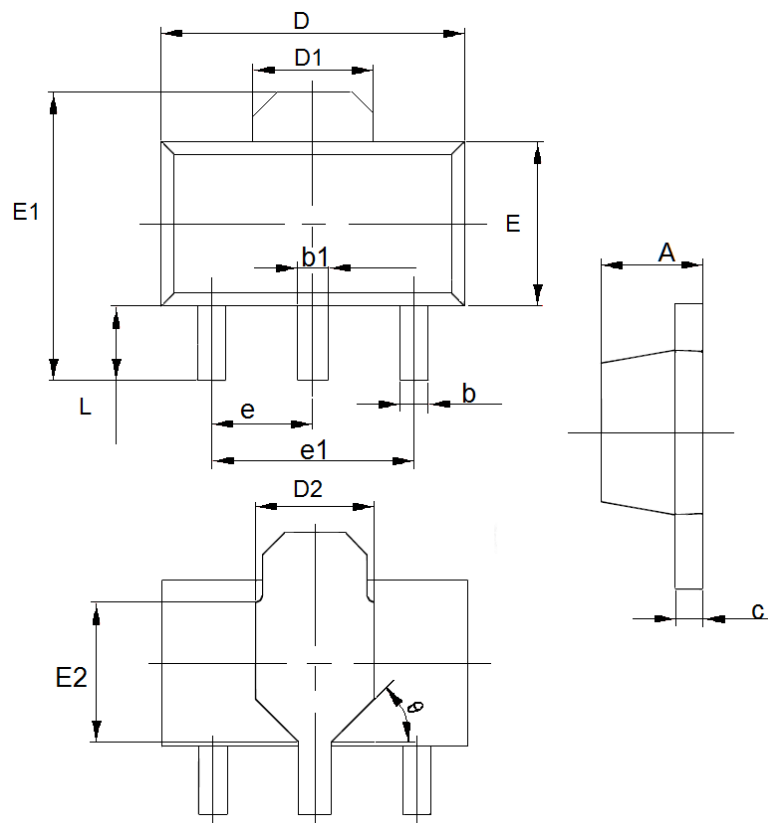
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.450	0.0413	0.0571
A1	0.000	0.150	0.0000	0.0059
A2	0.900	1.300	0.0354	0.0512
A3	0.600	0.700	0.0236	0.0276
b	0.250	0.500	0.0098	0.0197
c	0.100	0.250	0.0039	0.0098
D	2.800	3.100	0.1102	0.1220
E	2.600	3.100	0.1023	0.1220
E1	1.500	1.800	0.0591	0.0709
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°	8°
c1	0.2 (TYP)		0.0079 (TYP)	

SOT-23-5L Package Outline Dimensions



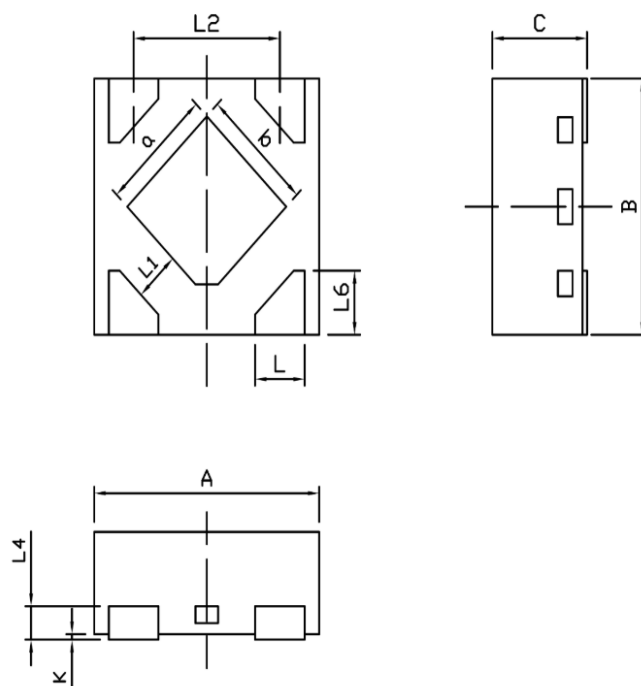
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.450	0.0413	0.0570
A1	0.000	0.150	0.0000	0.0059
A2	0.900	1.300	0.0354	0.0511
B	0.250	0.500	0.0098	0.0196
C	0.100	0.230	0.0039	0.0090
D	2.820	3.050	0.1110	0.1200
E	2.600	3.050	0.1023	0.1200
E1	1.500	1.750	0.0590	0.0688
e	0.95 (TYP)		0.0374 (TYP)	
e1	1.90 (TYP)		0.0748 (TYP)	
L	0.10	0.60	0.0039	0.0236
θ	0°	30°	0°	30°

SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.400	1.60	0.0551	0.0551
b	0.320	0.520	0.0126	0.0205
b1	0.400	0.580	0.0157	0.0228
c	0.350	0.450	0.0138	0.0177
D	4.400	4.600	0.1732	0.1811
D1	1.55 (TYP)		0.061 (TYP)	
D2	1.75 (TYP)		0.0689 (TYP)	
e1	3.00 (TYP)		0.1181 (TYP)	
E	2.300	2.600	0.0906	0.1023
E1	3.940	4.40	0.1151	0.1732
e	1.5 (TYP)		0.0591 (TYP)	
L	0.8	1.2	0.0315	0.0472
θ	45°		45°	

DFN1X1-4L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.95	1.05	0.0374	0.0413
B	0.95	1.05	0.0374	0.0413
C	0.35	0.45	0.0138	0.0177
L	0.17	0.27	0.0067	0.0106
L1	0.15	---	0.0059	
L2	0.65(TYP)		0.0256(TYP)	
L4	0.127(TYP)		0.005(TYP)	
L6	0.20	0.30	0.0078	0.0118
K	0.00	0.05	0.0000	0.0019
a	0.43	0.53	0.0169	0.0208
b	0.43	0.53	0.0169	0.0208

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.