GENERAL DESCRIPTION

The HP6018 series are low dropout linear regulators and optimized to provide a high performance solution for battery power system to delivery low quiescent current. The device offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

HP6018 can provide output value in the range of 1.2V~3.6V by every 0.1V step.

The HP6018 series are designed to make use of low cost ceramic capacitors which ensure the stability of the output current, and enhance the efficiency in order to prolong the battery life of those portable devices.

The HP6018 regulators are available in DFN1x1_4L packages. Standard products are Pb-free and Halogen-free.

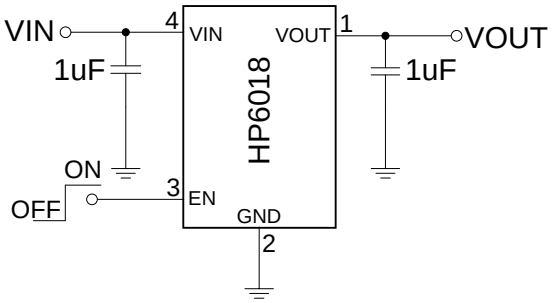
FEATURES

- Input voltage: 2.5V~6.5V
- Output range: 1.2V~3.6V
  (customized by every 0.1V step)
- Output current: 300mA @ V_{IN}-V_{OUT}=0.5V
- Dropout voltage: 100mV @ I_{OUT}=100mA
- Quiescent current: 1μA Typ.
- Recommend capacitor: 1μF

APPLICATIONS

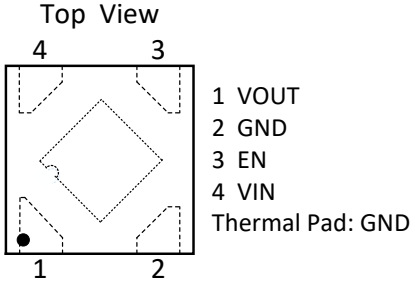
- Reference voltage source
- Toys
- Bluetooth, wireless handsets
- Low Consumption Device
- Others portable electronics device

TYPICAL APPLICATION CIRCUIT



PIN ASSIGNMENT

DFN1x1_4L



ORDER INFORMATION

PART NO	ACCURACY	PACAKGE	TEMPERATURE	TAPE & REEL
HP6018D4-XX	2%	DFN1x1_4L	-40 ~ +85℃	10000/REEL

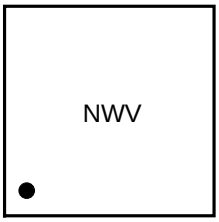
Note: *XX indicates 1.2V~3.6V by 0.1V step. For example, 33 means product outputs 3.3V.*

PART NUMBER RULES

HP6018 [1] - [2]

Code	Description
[1]	Package: D4: DFN1x1_4L
[2]	Voltage version: XX: 1.2V~3.6V by 0.1V step Example: 33: 3.3V

MARKING DESCRIPTION:



"N": Product code, here use "U" stands for "HP6018".

"W": The week of manufacturing. "A" stands for week 1, "Z" stands for week 26, "a" stands for week 27, "z" stands for week 52.

"V": Output voltage code.

PIN DESCRIPTION

PIN NO	SYMBOL	I/O	DESCRIPTTION
1	VOUT	O	Output
2	GND	GND	Ground
3	EN	I	Enable (Active high, do not float)
4	VIN	Power	Input

ABSOLUTE MAXIMUM RATINGS (Note)

SYMBOL	ITEMS		VALUE	UNIT
V_{IN}	Input Voltage		-0.3~8	V
I_{OUT}	Output Current		350	mA
P_{DMAX}	Power Dissipation	DFN1x1_4L	0.6	W
$R_{\theta JA}$	Thermal Resistance	DFN1x1_4L	250	℃/W
T_J	Junction Temperature		-40~125	℃
T_A	Ambient Temperature		-40~85	℃
T_{STG}	Storage Temperature		-55~150	℃
T_{SOLDER}	Package Lead Soldering Temperature (10s)		260	℃

Note: *Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.*

RECOMMANDED OPERATING RANGE

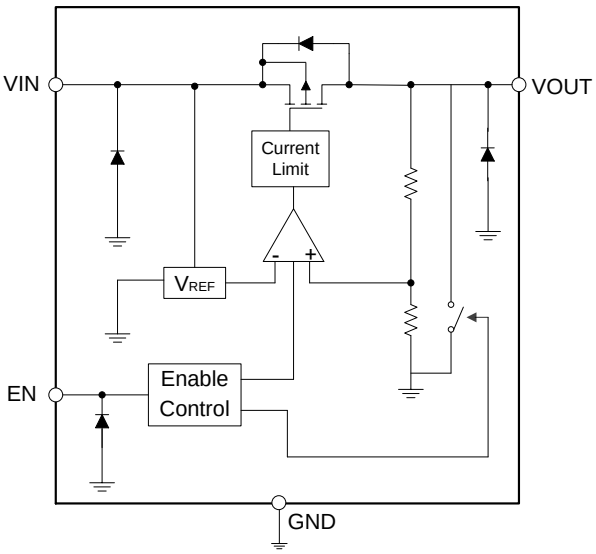
SYMBOL	ITEMS	VALUE	UNIT
V_{IN}	Supply Voltage	2.5 to 6.5	V
T_{OPT}	Operating Temperature	-40 to +85	℃

ELECTRICAL CHARACTERISTICS

The following specifications apply for V_{OUT}=3.3V, T_A=25℃, unless otherwise noted.

SYMBOL	ITEMS	CONDITIONS	MIN	TYP	MAX	UNIT
V_{IN}	Input Voltage				6.5	V
V_{OUT}	Output Voltage	I_{OUT}=1mA	-2	V_{OUT}	2	%
I_Q	Quiescent Current	V_{OUT}=3.3V, I_{OUT}=0		1	2	μA
I_{LIMIT}	Current Limit	V_{IN}-V_{OUT}=0.5V		350		mA
V_{DROP}	Dropout Voltage	V_{OUT}=3.3V, I_{OUT}=100mA		110		mV
		V_{OUT}=3.3V, I_{OUT}=200mA		230		
ΔV_{LINE}	Line Regulation	V_{IN}=2.7~5.5V, I_{OUT}=1mA		0.01		%/V
ΔV_{LOAD}	Load Regulation	V_{OUT}=3.3V, I_{OUT}=1~300mA		100		mV
I_{SHORT}	Short Current	V_{EN}=V_{IN}, V_{OUT} Short to GND with 1Ω		90		mA
I_{SHDN}	Shut-down Current	V_{EN}=0V		0.1	1	μA
V_{ENH}	EN Logic High Voltage	V_{IN}=5.5V, I_{OUT}=1mA	1.2		V_{IN}	V
V_{ENL}	EN Logic Low Voltage	V_{IN}=5.5V, V_{OUT}=0V			0.4	V
I_{EN}	EN Input Current	V_{EN}= 0 to 5.5V			1.0	μA

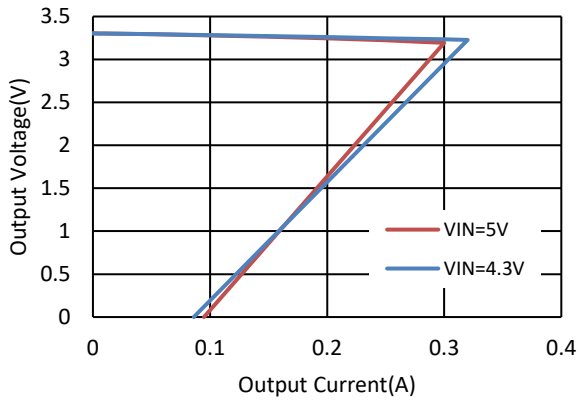
SIMPLIFIED BLOCK DIAGRAM



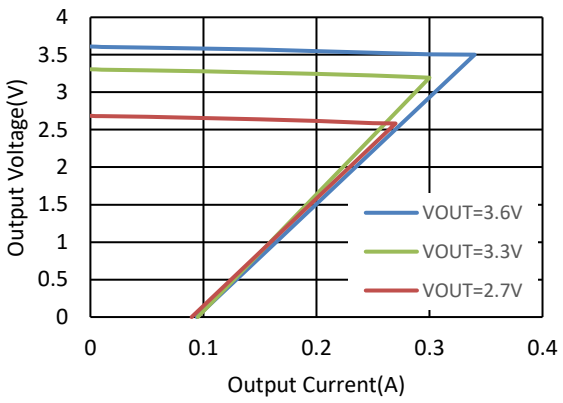
TYPICAL PERFORMANCE CHARACTERISTICS

C_{IN}=1μF, C_{OUT}=1μF, T_{OPT}=25℃, V_{IN}=5V, V_{OUT}=3.3V, unless otherwise noted.

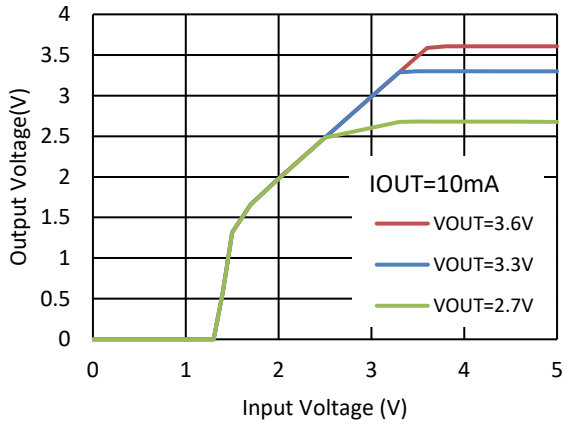
Output Voltage vs. Output Current



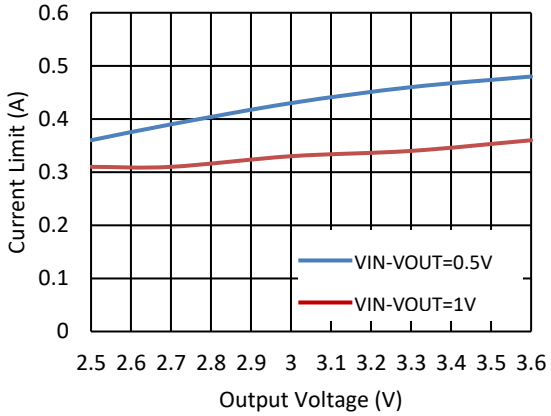
Output Voltage vs. Output Current



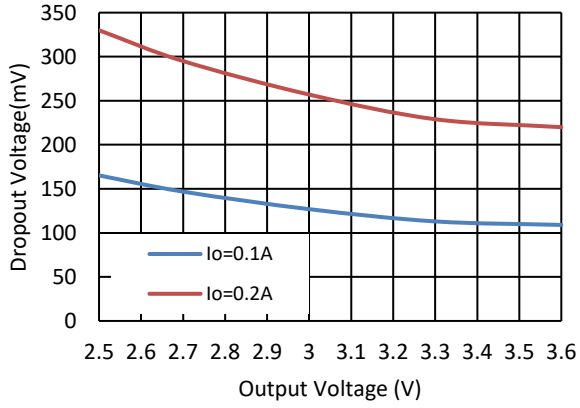
Output Voltage vs. Input Voltage



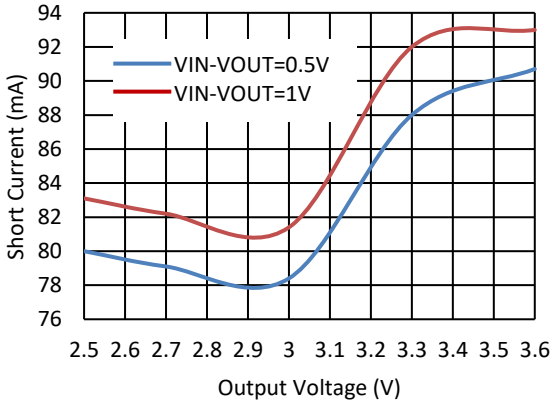
Current Limit vs. Output Voltage



Dropout Voltage vs. Output Voltage

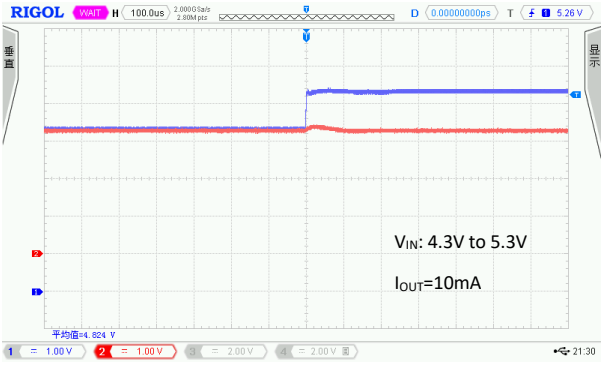


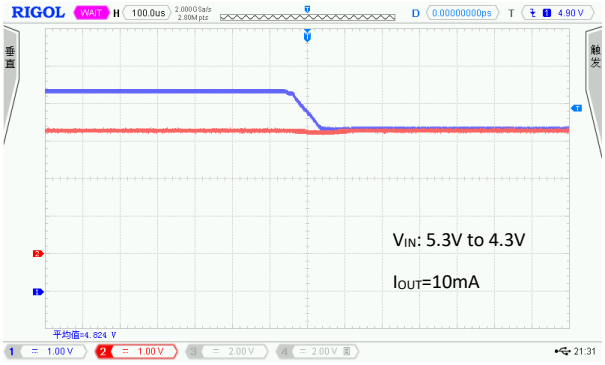
Short Current vs. Output Voltage

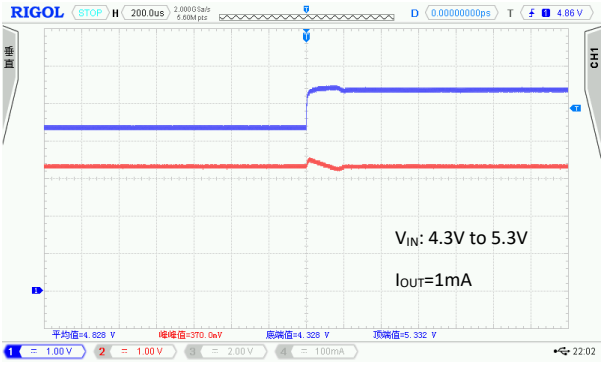


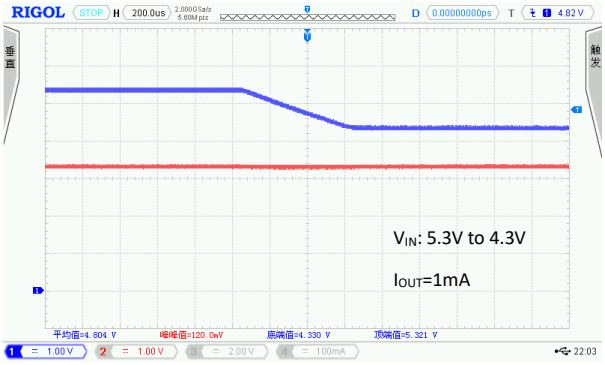
Line Transient Response

CH1: V_{IN} CH2: V_{OUT}



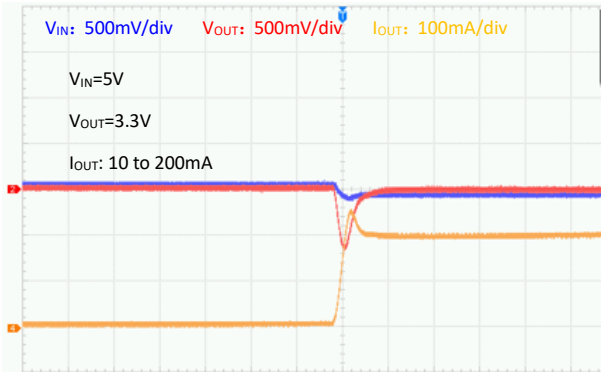


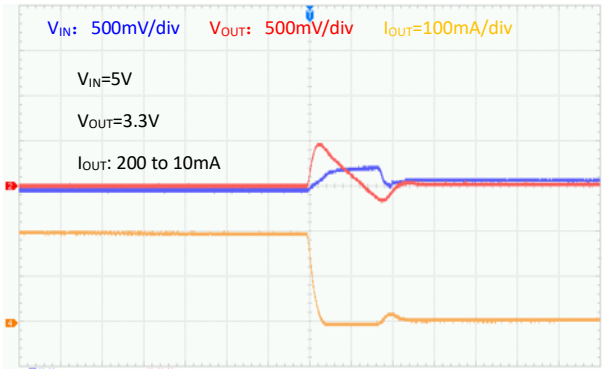


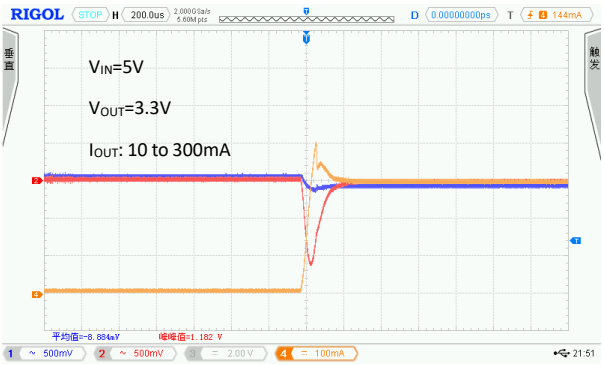


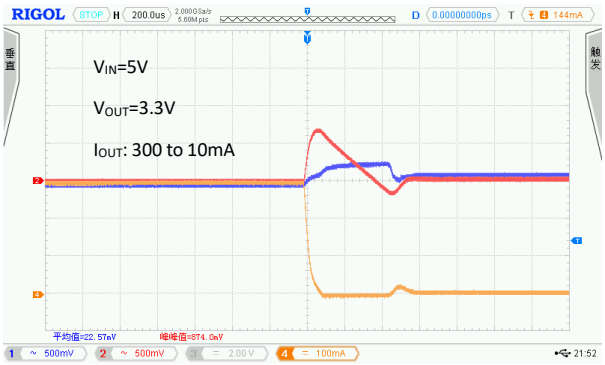
Load Transient Response

CH1: V_{IN} CH2: V_{OUT} CH3: I_{OUT}



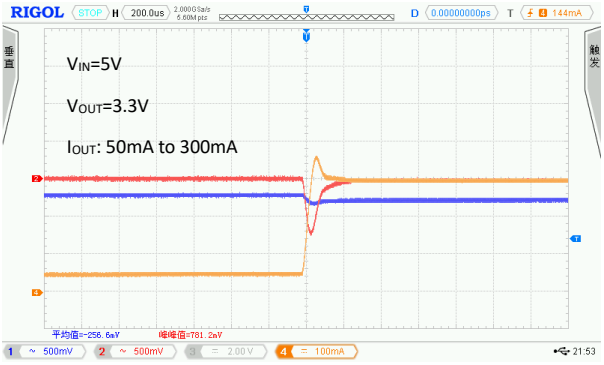


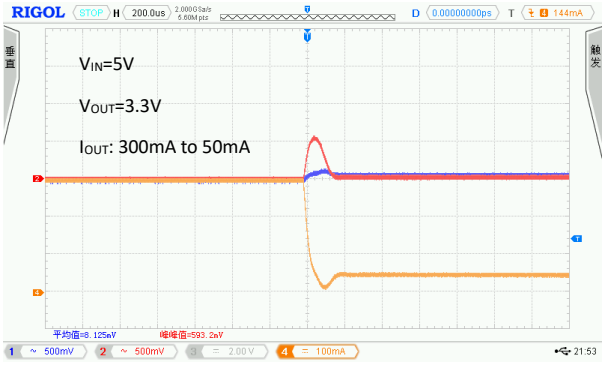


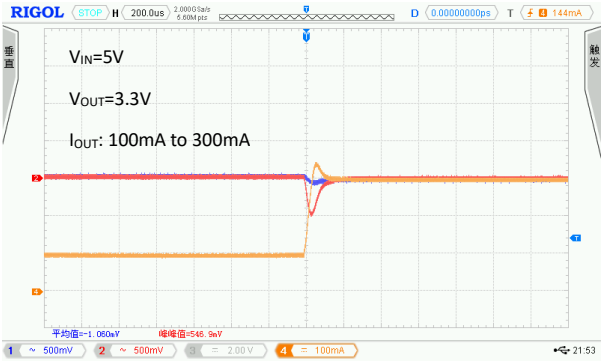


Load Transient Response

CH1: V_{IN} CH2: V_{OUT} CH3: I_{OUT}



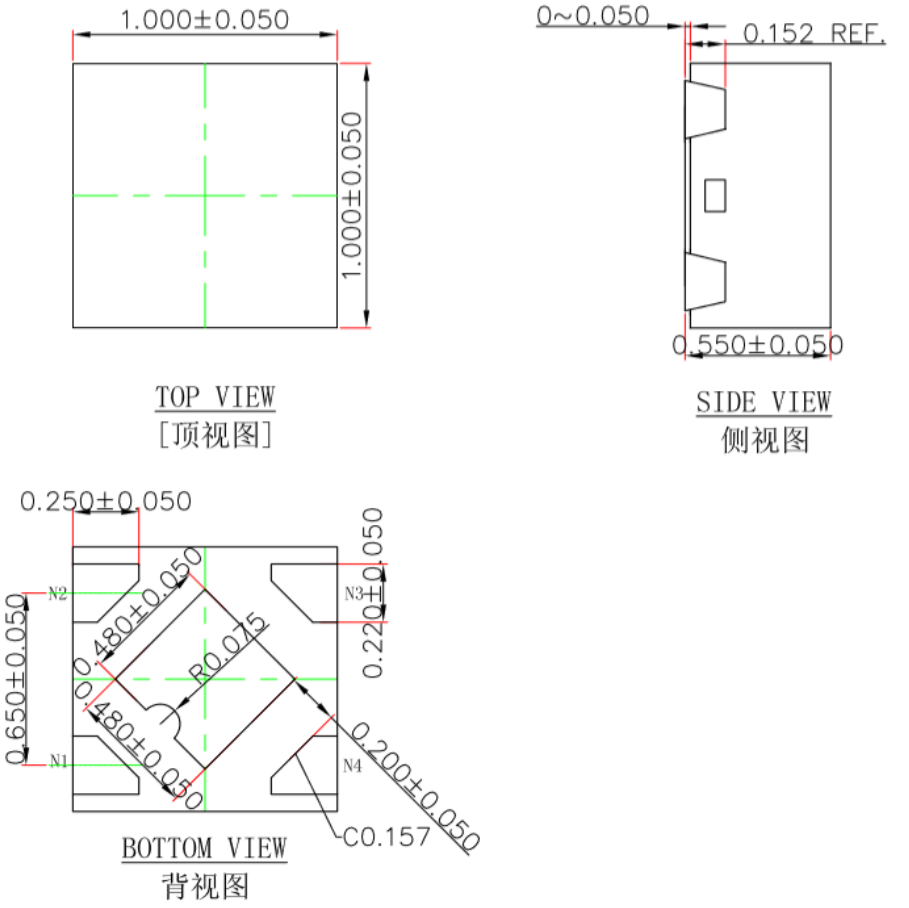




PACKAGE OUTLINE

Package	DFN1x1_4L	Devices per reel	10000Pcs	Unit	mm

Package Dimension：



REVISION HISTORY

Version No.	Date	Description
Preliminary	2017-10-26	- Initial preliminary release
Version 1.0	2018-07-31	- Remove 1% accuracy version and change PN rules
Version 1.1	2018-12-18	- Update DFN1x1_4L package dimension
		-