

## Dual 300mA High PSRR Linear Regulator

### DESCRIPTION

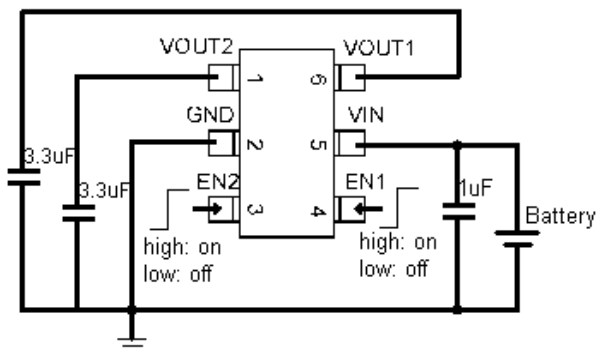
BL8566 dual, low-noise, low-dropout regulator delivers at least 300mA of continuous output current. The output voltage for each regulator is set independently by trimming. Output voltages are selectable in 100mV steps within a range of 1.2V to 3.5V. Typical output noise is 47uVrms, and PSRR is 73dB at 100Hz. The BL8566 includes two independent logic-controlled shutdown inputs and allows the output of each regulator to be turned off independently.

BL8566 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8566 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within  $\pm 2\%$ .

BL8566 is available in SOT-23-6 package which is lead(Pb)-free

### TYPICAL APPLICATION



### APPLICATION HINTS

**NOTE:**

Input capacitor ( $C_{in}=1\mu F$ ) and Output capacitor ( $C_{out}=1\mu F/3.3\mu F$ ) are recommended in all application circuit.

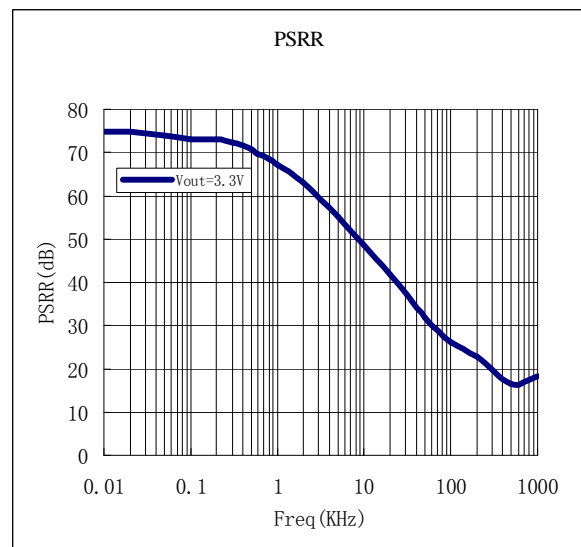
### FEATURES

- Two low dropout voltage regulators
- 300mA output current for each LDO
- 25uA operating supply current per LDO
- Low 47uVRMS output noise
- Standby Mode: 0.1uA
- Low 160mV dropout at 300mA load
- 73dB PSRR at 100Hz
- Excellent Line regulation: 0.05%/V
- Independent Shutdown controls
- 1.2V to 3.5V Factory-Preset Output
- Output Current Limit
- Highly Accurate:  $\pm 2\%$  ( $\pm 1\%$  customized)

### APPLICATIONS

- Cellular phones
- Cordless phones and radio communication equipment
- Battery Powered equipment
- Notebook and hand-hold equipment
- Wireless LAN
- GPS receivers

### ELECTRICAL CHARACTERISTICS



## ORDERING INFORMATION

BL8566- 1 2 3

Code	Description
<span style="border: 1px solid black; padding: 0 2px;">1</span>	Output Voltage: B:1.5/2.8V,C:1.5/3.0V... f:2.8/3.3V ,g:1.3/2.8V
<span style="border: 1px solid black; padding: 0 2px;">2</span>	Temperature&Rohs: P:-40~85°C ,Pb Free Rohs Std
<span style="border: 1px solid black; padding: 0 2px;">3</span>	Package type: R6:SOT-23-6 D6: SOT23-6 D-type Pin Out

## MARKING DESCRIPTON

L: Product Code  
X: Output Voltage

Code	Vout1	Vout2	Code	Vout1	Vout2
B	1.5V	2.8V	M	2.8V	1.8V
C	1.5V	3.0V	O	2.8V	2.8V
D	1.5V	3.3V	P	2.8V	3.0V
E	1.5V	4.0V	Q	3.0V	2.5V
G	1.8V	2.5V	R	3.0V	3.0V
H	1.8V	2.8V	S	3.0V	3.3V
I	1.8V	3.0V	T	3.3V	1.8V
J	1.8V	3.3V	U	3.3V	3.3V
a	1.2V	2.5V	b	2.8V	1.2V
c	2.8V	1.3V	d	2.5V	2.8V
e	2.5V	3.3V	f	2.8V	3.3V
g	1.3V	2.8V			

Z: The Year of manufacturing,"7" stands for year 2007,"8" stands for year 2008,and "0" stands for year 2010.

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

## PIN CONFIGURATION

Marking		BL8566-XPR6
LXZZ	L: Product Code	
	X: Output Voltage	
	ZZ: Date Code	
LXZZ  " " for D-type	L:Product Code	
	X:Output Voltage	
	ZZ: Date Code	
Vss	Ground Pin	
Vin	Supply Voltage Input	
Vout1	CH1 Output Voltage	
CE1	Chip Enable1	
CE2	Chip Enable2	
Vout2	CH2 Output Voltage	

## ABSOLUTE MAXIMUM RATING

Parameter	Value
Max Input Voltage	8V
Operating Junction Temperature(Tj)	125°C
Ambient Temperature(Ta)	-40°C -85°C
Power Dissipation	SOT-23-6 250mW
Storage Temperature(Ts)	-40°C -150°C
Lead Temperature & Time	260°C,10S

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

## RECOMMENDED WORK CONDITIONS

Parameter	Value
Input Voltage Range	Max. 6V
Ambient Temperature	-40°C -85°C

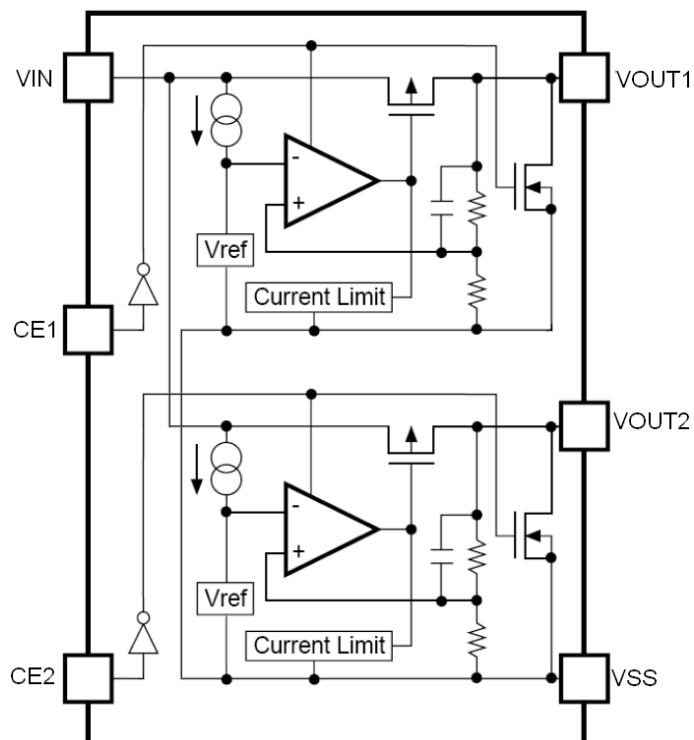
## ELECTRICAL CHARACTERISTICS

( Test Conditions:  $C_{in}=1\mu F, C_{out}=3.3\mu F, T_A=25^{\circ}C$ , unless otherwise specified. )

BL8566, For Arbitrary Output Voltage

Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_{in}$	Input Voltage				6	V
$V_{out}$	Output Voltage	$V_{in}=\text{Set } V_{out}+1V$ $1mA \leq I_{out} \leq 30mA$	$V_{out} \times 0.98$	$V_{out}1$	$V_{out} \times 1.02$	V
$I_{out} (\text{Max.})$	Maximun Output Current	$V_{in}-V_{out}=1V$	300			mA
$V_{drop}$	Dropout Voltage, $V_{out} \geq 2.8V$	$I_{out}=100mA$		50	80	mV
		$I_{out}=300mA$		160	220	mV
$\frac{\Delta V_{out}}{\Delta V_{in} \cdot V_{out}}$	Line Regulation	$I_{out}=40mA$ $2.8V \leq V_{in} \leq 6V$		0.05	0.2	%/V
$\Delta V_{out} / \Delta I_{out}$	Load Regulation	$V_{in}=\text{Set } V_{out}+1V$ $1mA \leq I_{out} \leq 300mA$		30	50	mV
$I_{ss}$	Supply Current	$V_{in}=\text{Set } V_{out}+1V$		50	100	$\mu A$
$I_{standby}$	Supply Current (Standby)	$V_{in}=\text{Set } V_{out}+1V$ $V_{ce}=\text{GND}$		0.1	1.0	$\mu A$
$\frac{\Delta V_{out}}{\Delta T \cdot V_{out}}$	Output Voltage Temperature Coefficiency	$I_{out}=30mA$		$\pm 100$		ppm/ $^{\circ}C$
PSRR	Ripple Rejection	$F=100Hz,$ Ripple=0.5Vp-p $V_{in}=\text{Set } V_{out}+1V$		70		dB
$I_{lim}$	Short Current Limit	$V_{out}=0V$		500		mA
$V_{ceh}$	CE Input Voltage "H"		1.5		$V_{in}$	V
$V_{cel}$	CE Input Voltage "L"		0		0.25	V
$e_n$	Output Noise	$BW=10Hz \sim 100kHz$		47		$\mu V_{rms}$

## BLOCK DIAGRAM



## Explanation

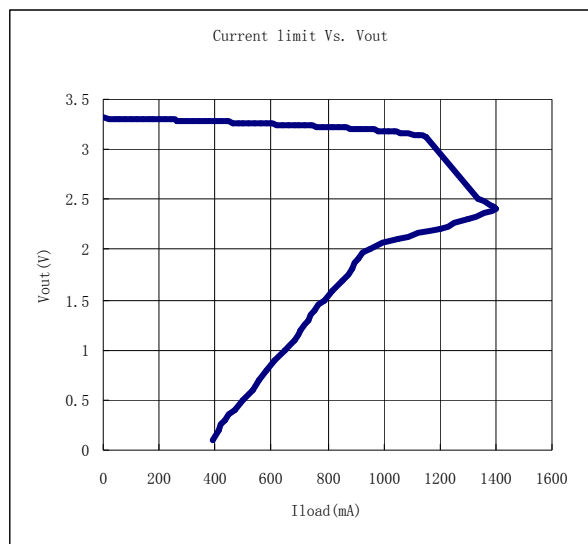
BL8566 series are highly accurate, dual, low noise, CMOS low dropout voltage regulators. The output voltage for each regulator is set independently by trimming. Voltages are selectable in 100mV steps within a range of 1.2V to 3.5V. It also can be customized on command.

BL8566 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

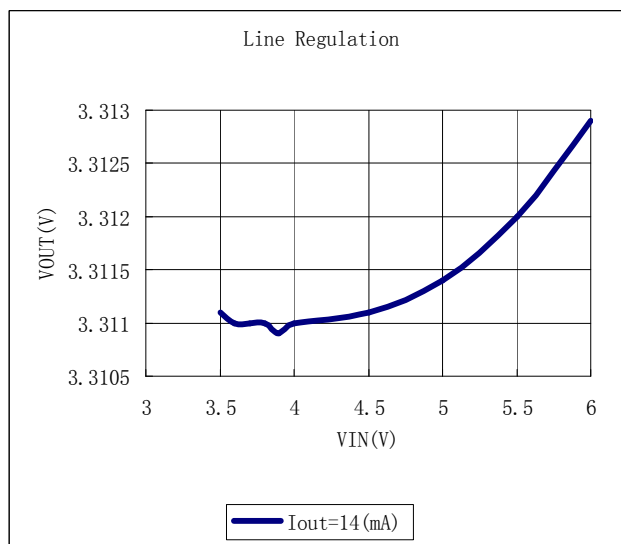
BL8566 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within  $\pm 2\%$ .

## TYPICAL PERFORMANCE CHARACTERISTICS

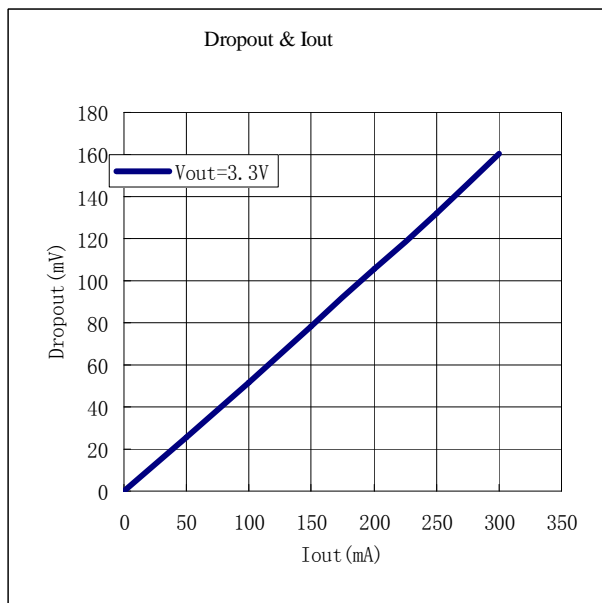
1) Output Voltage vs. Output Current (with output short protection)



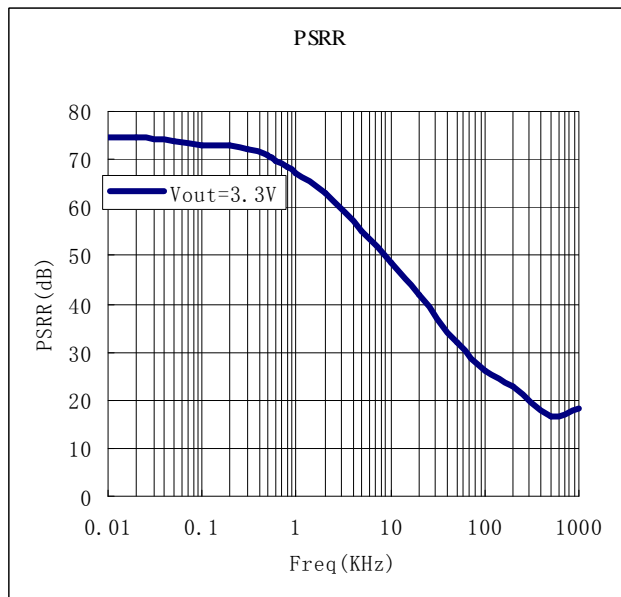
2) Output Voltage vs. Input Voltage



3) Dropout Voltage vs. Output Current

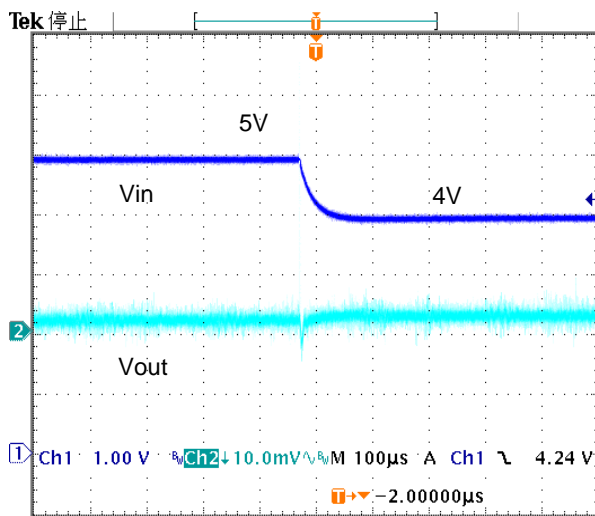
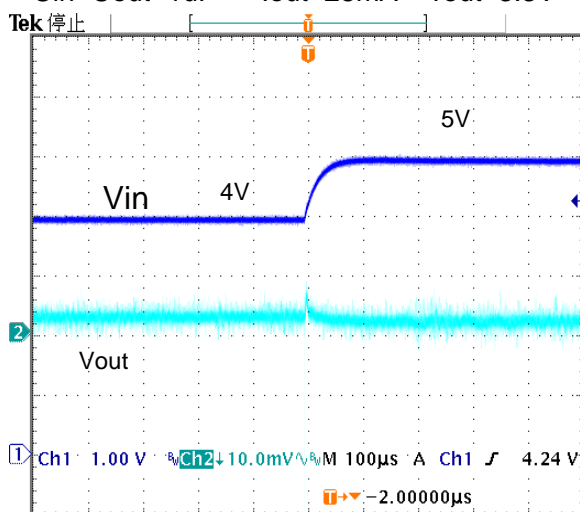


4) Ripple rejection vs. Frequency



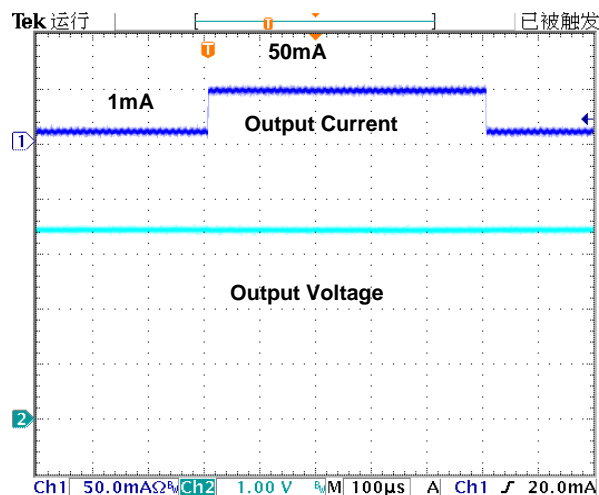
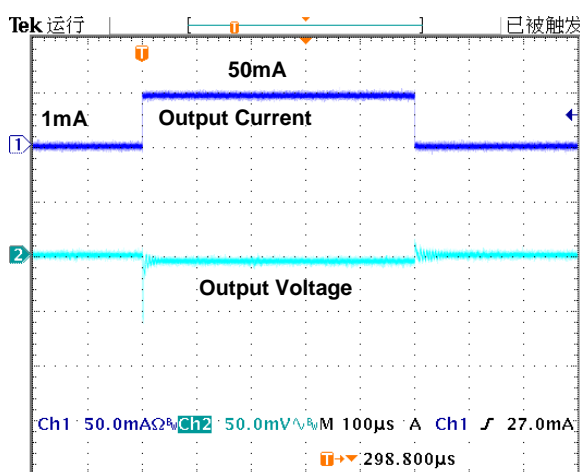
## 5) Line transient response

$C_{in}=C_{out}=1\mu F$   $I_{out}=25mA$   $V_{out}=3.3V$

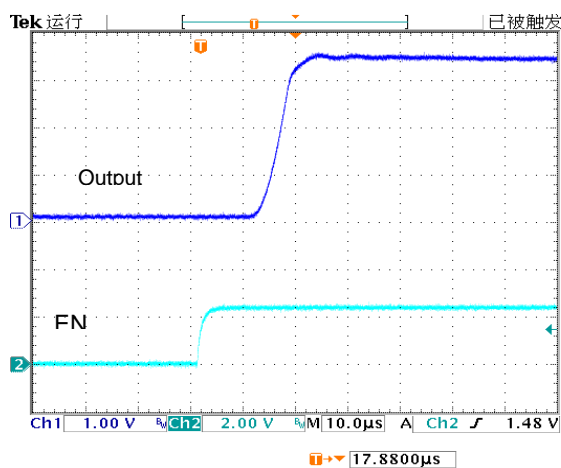


## 6) Load transient response

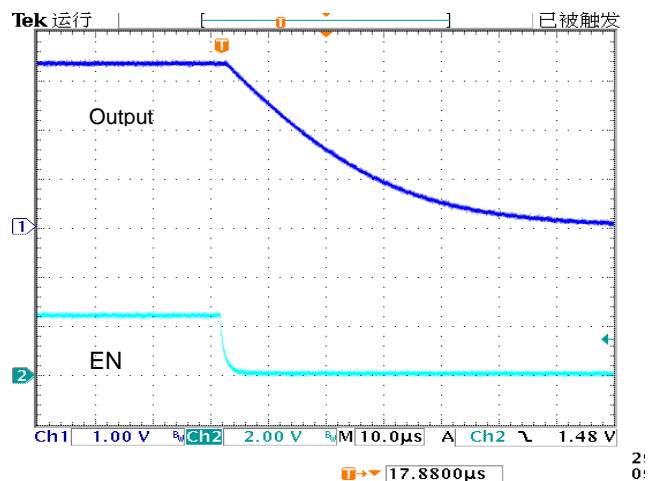
$C_{in}=C_{out}=1\mu F$   $V_{in}=4.5V$   $V_{out}=3.3V$



## 7) Start up from EN



## 8) Shut down from EN



## PACKAGE LINE

Package	SOT-23-6	Devices per reel	3000Pcs	Unit	mm
<p>Package dimension:</p> <p>The technical drawing illustrates the SOT-23-6 package with the following dimensions:</p> <ul style="list-style-type: none"> <li><b>Top View:</b> <ul style="list-style-type: none"> <li>Total width: <math>2.9 \pm 0.2</math> mm</li> <li>Distance between pins 4 and 5: <math>1.9 \pm 0.2</math> mm</li> <li>Pin pitch (between pins 4, 5, and 6): <math>0.95</math> mm</li> <li>Pin 1 to 2 distance: <math>0.4 \pm 0.1</math> mm</li> <li>Pin 2 to 3 distance: <math>0.4 \pm 0.1</math> mm</li> </ul> </li> <li><b>Side View:</b> <ul style="list-style-type: none"> <li>Maximum height: <math>2.8 \pm 0.3</math> mm</li> <li>Height to top of pin 4: <math>1.6 \pm 0.2</math> mm</li> <li>Height to top of pin 5: <math>1.1 \pm 0.2</math> mm</li> <li>Height to top of pin 6: <math>0.8 \pm 0.1</math> mm</li> <li>Lead thickness: <math>0.15 \pm 0.1</math> mm</li> <li>Lead width: <math>0.2</math> mm (MIN)</li> <li>Lead angle: <math>0</math> to <math>0.1</math> degrees</li> </ul> </li> <li><b>Perspective View:</b> Shows the 3D profile of the package with six pins.</li> </ul>					