

Dual 500mA High PSRR Linear Regulator

DESCRIPTION

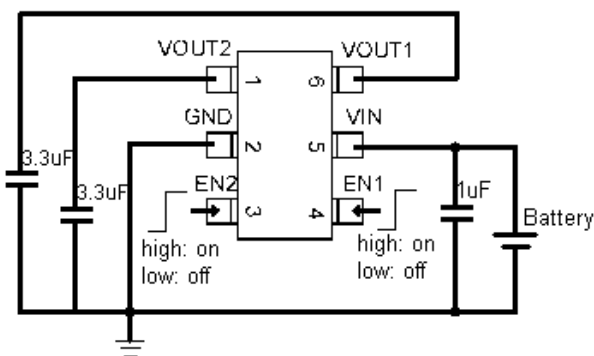
BL8569 dual, low-noise, low-dropout regulator delivers at least 500mA of continuous output current. The output voltage for each regulator is set independently by trimming. Voltages are selectable in 100mV steps within a range of 1.2V to 4.5V. The BL8569 includes two independent logic-controlled shutdown inputs and allows the output of each regulator to be turned off independently.

BL8569 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8569 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 $\pm 2\%$.

BL8569 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.

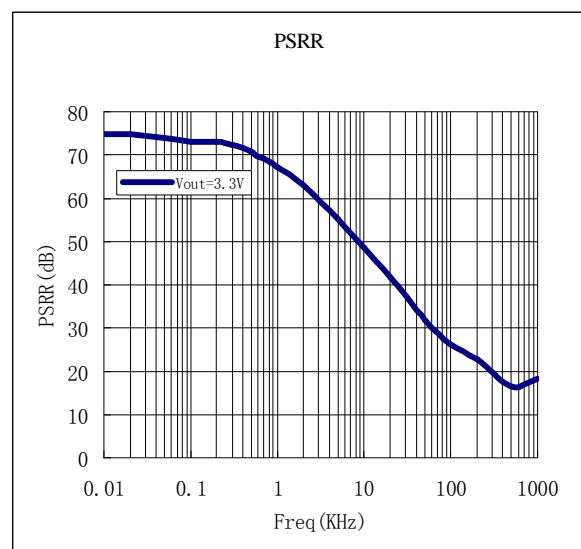
FEATURES

- Two low dropout voltage regulators
- 500mA output current for each LDO
- Low output noise (50uVRMS)
- Low dropout Voltage: 0.08V@150mA(Typ)
- Standby Mode: 0.1uA
- High Ripple Rejection: 72dB@1000Hz (Typ)
- Excellent Line regulation: 0.05%/V
- Independent Shutdown controls
- 1.2V to 4.5V Factory-Preset Output
- Output Current Limit
- Highly Accurate: $\pm 2\%$

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

BL8569 1 2 3 4 5

Code	Description
1	Temperature&RoHS: C:-40~85°C ,Pb Free RoHS Std.
2	Package type: B6:SOT-23-6
3	Packing type: TR:Tape&Reel (Standard)
4	CH1 Output voltage: e.g. 15=1.5V 28=2.8V 45=4.5V
5	CH2 Output voltage: e.g. 15=1.5V 28=2.8V 45=4.5V

MARKING DESCRIPTON

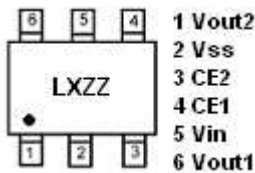
L: Product Code
X: Output Voltage

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

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

Product Classification		BL8569CB6TR□□	
Marking			
LXZZ	L:Product Code		
	X:Output Voltage		
	ZZ:Data 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

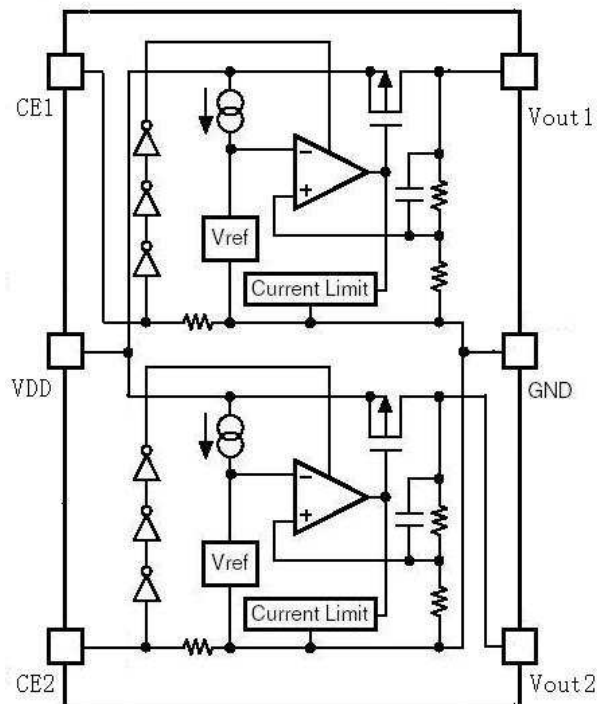
ELECTRICAL CHARACTERISTICS

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

BL8569, For Arbitrary Output Voltage

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{in}	Input Voltage		1.2		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		600			mA
V_{drop}	Dropout Voltage, $V_{out} \geq 2.8V$	$I_{out}=50mA$		25	40	mV
		$I_{out}=100mA$		50	75	mV
		$I_{out}=150mA$		75	115	mV
		$I_{out}=400mA$		220	280	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	0.1	%/V
$\Delta V_{out} / \Delta I_{out}$	Load Regulation	$V_{in}=\text{Set } V_{out}+1V$ $1mA \leq I_{out} \leq 500mA$		100	150	mV
I_{ss}	Supply Current	$V_{in}=\text{Set } V_{out}+1V$		30	50	μA
$I_{standby}$	Supply Current (Standby)	$V_{in}=\text{Set } V_{out}+1V$ $V_{ce}=0V$		0.1	1.0	μA
$\frac{\Delta V_{out}}{\Delta T \cdot V_{out}}$	Output Voltage Temperature Coefficiency	$V_{in}=\text{Set } V_{out}+1V$ $I_{out}=30mA$		± 50		ppm/ $^\circ C$
PSRR	Ripple Rejection	$F=1000Hz,$ Ripple=0.5Vp-p $V_{in}=\text{Set } V_{out}+1V$		72		dB
I_{lim}	Short Current Limit	$V_{out}=0V$		500		mA
V_{ceh}	CE Input Voltage "H"		1.4			V
V_{cel}	CE Input Voltage "L"				0.25	V
e_n	Output Noise	$BW=10Hz \sim 100kHz$		50		μV_{rms}

BLOCK DIAGRAM



Explanation

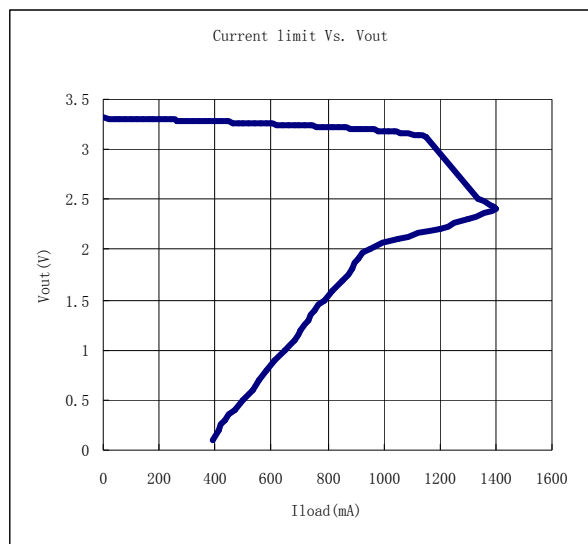
BL8569 series are highly accurate, Dual, low noise, CMOS low dropout voltage regulators. The output voltage for each regulator is set independently by trimming. Voltages are selectable in 100mV steps within a range of 1.2V to 4.5V. It also can be customized on command.

BL8569 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

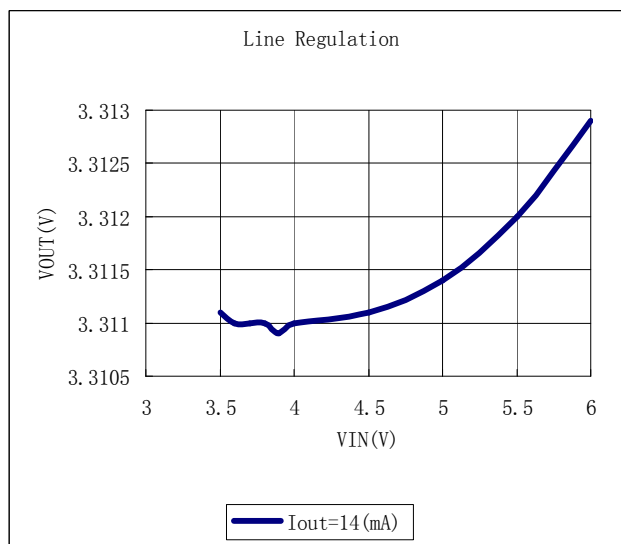
BL8569 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within $\pm 2\%$.

TYPICAL PERFORMANCE CHARACTERISTICS

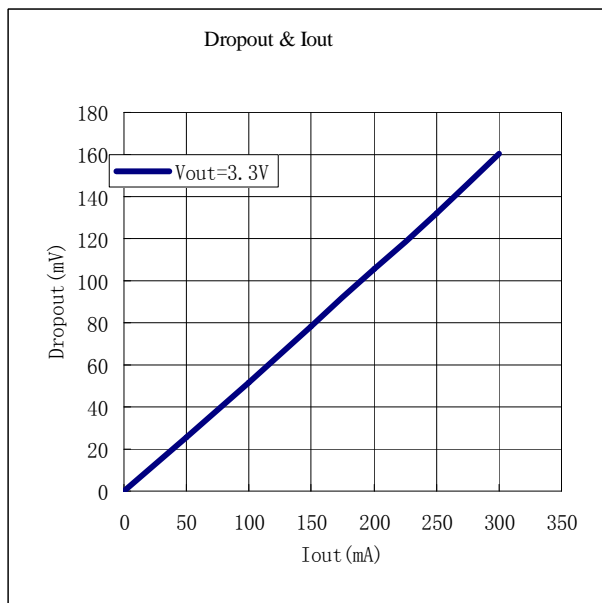
1) Output Voltage vs. Output Current (with output short protection)



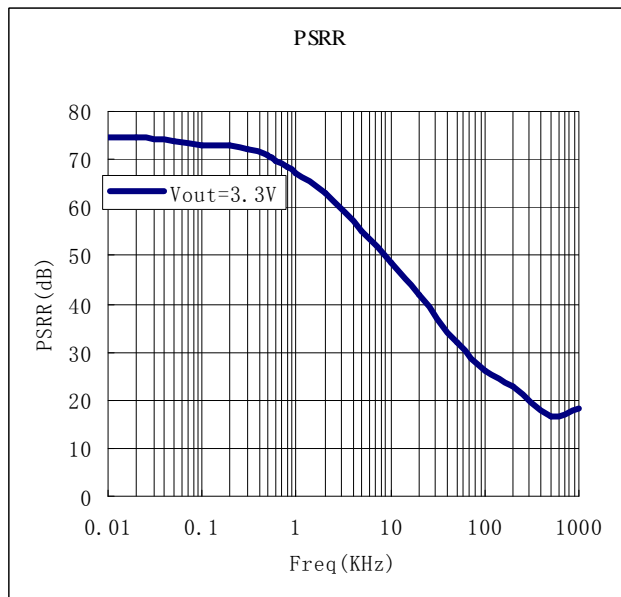
2) Output Voltage vs. Input Voltage



3) Dropout Voltage vs. Output Current

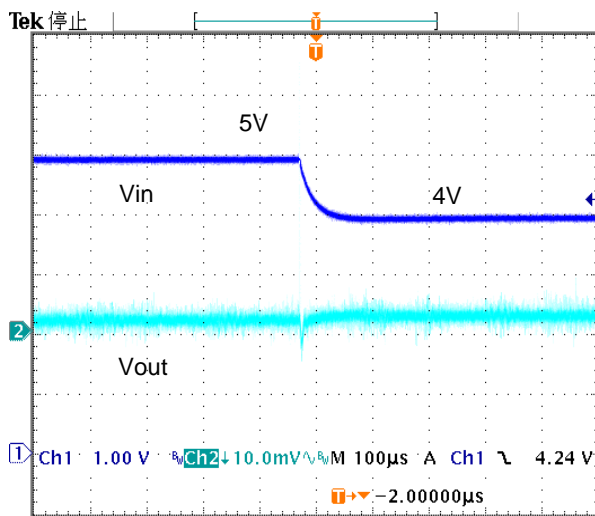
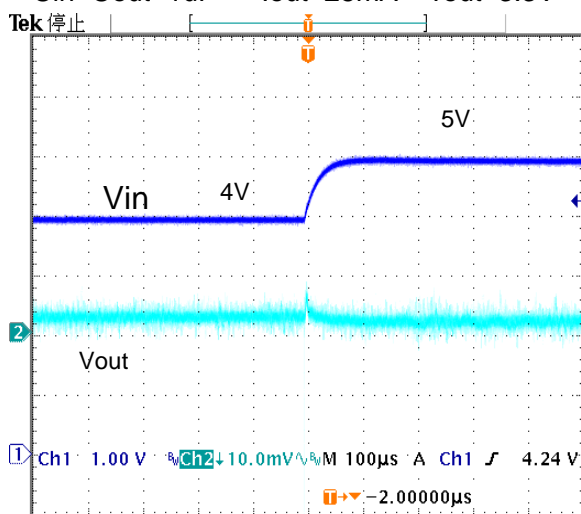


4) Ripple rejection vs. Frequency



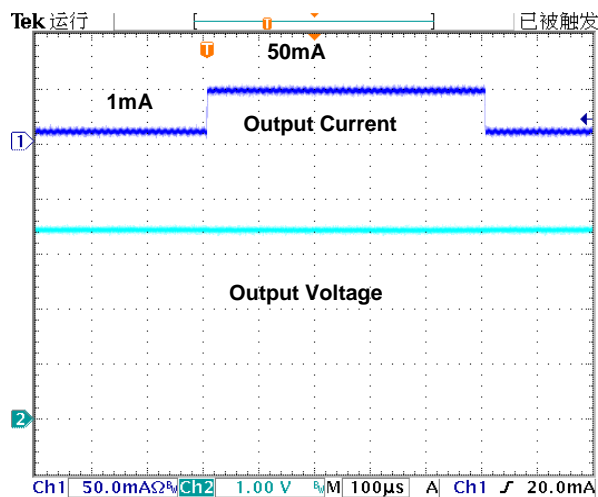
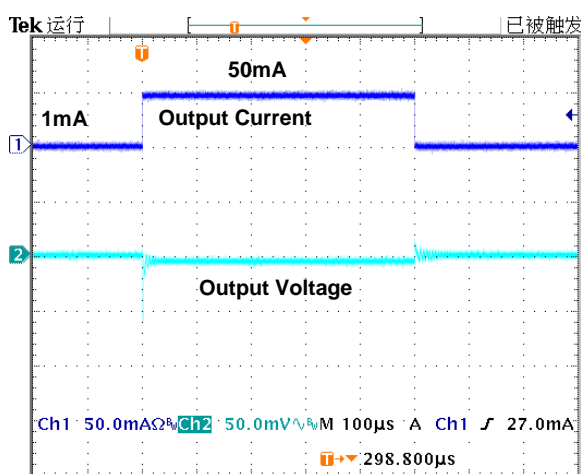
5) Line transient response

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

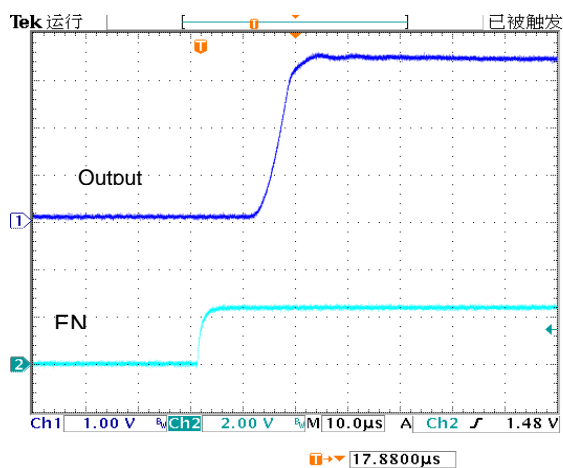


6) Load transient response

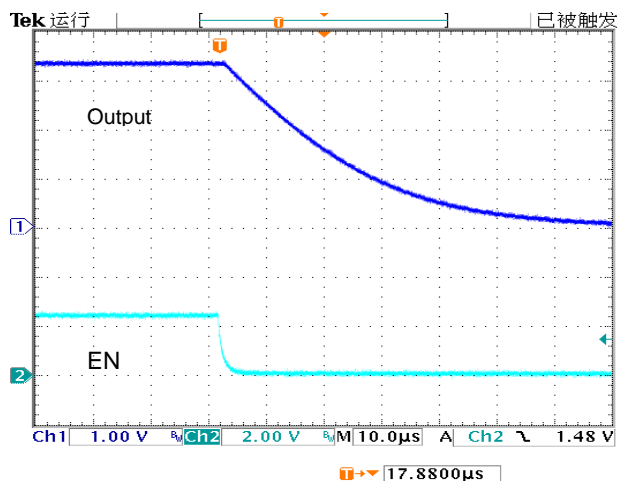
$C_{in}=C_{out}=1\mu F$ $V_{in}=4.5V$ $V_{out}=3.3V$



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 dimensions of the BL8569 SOT-23-6 package. It includes three views: a top view, a side view, and a perspective view. The top view shows a rectangular body with six leads, numbered 1 through 6. Dimensions include a total width of 2.9 ± 0.2 mm, a lead pitch of 1.9 ± 0.2 mm, and individual lead widths of 0.95 mm. The body height is $1.6^{+0.2}_{-0.1}$ mm, and the total height including leads is 2.8 ± 0.3 mm. The side view shows a lead height of $1.1^{+0.2}_{-0.1}$ mm, a lead width of 0.8 ± 0.1 mm, and a lead thickness of $0.15^{+0.1}_{-0.05}$ mm. A minimum lead length of 0.2 mm is specified. The perspective view shows the package from an angled perspective.</p>					