上海贝岭 SHANGHAI BELLING

BL8078

40V 150mA Low Consumption Linear Regulator

DESCRIPTION

BL8078 series is a group of positive voltage output, low power consumption, low dropout voltage regulator. It can provide 150mA output current when input / output voltage differential drops to 400mV (Vout= 5V), and it also provides foldback short-circuit protection, thermal protection and output current limit function. The very low power consumption of BL8078 (Iq=2.5uA)can greatly improve natural life of batteries.

BL8078 can provide output value in the range of 1.2V~5.0V in 0.1V steps. It also can customize on command.

BL8078 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8078 has well load transient response and good temperature characteristic, And it uses trimming technique to guarantee output voltage accuracy within ±2%.

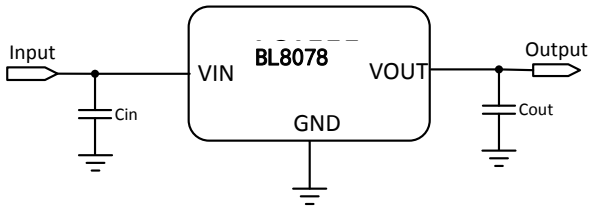
FEATURES

- Low Power Consumption: 2.5uA(Typ.)
- Maximum Output Current: 150mA
- Small Dropout Voltage
  400mV@100mA (Vout=5V)
- Input Voltage Range: 3V~40V
- Output Voltage Range: 1.2V~5.0V (Vout>5V customized)
- Highly Accurate:±2%(±1% customized)
- Output Current Limit: 180mA

APPLICATIONS

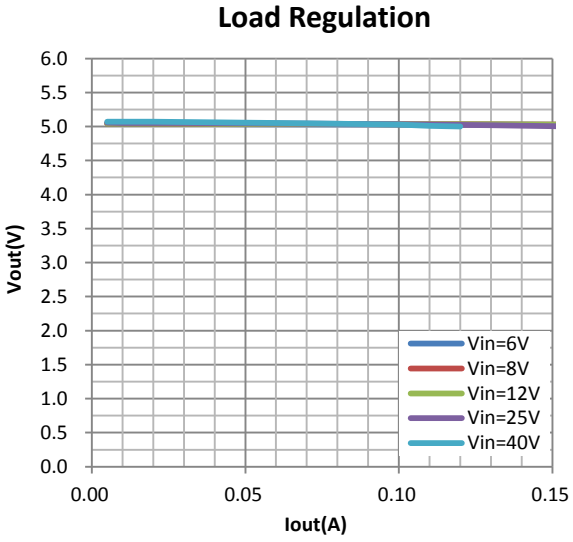
- Battery Powered equipment
- Power Management of MP3、PDA、DSC、Mouse、PS2 Games
- Reference Voltage Source Regulation after Switching Power

TYPICAL APPLICATION



NOTE: Input capacitor (Cin=1uF) and Output capacitor (Cout=1uF) are recommended in all application circuit. *Ceramic capacitor is recommended.*

ELECTRICAL CHARACTERISTICS



ORDERING INFORMATION

BL8078 □□□□□

Code	Description
□	Temperature&Rohs: C:-40~85°C ,Pb Free Rohs Std.
□	Package type: C3:SOT-89-3 C3B:SOT-89-3(B)
□	Packing type: TR:Tape&Reel (Standard)
□	Output voltage: e.g. 12=1.2V 15=1.5V 50=5.0V
□	Voltage accuracy: 1=±1% Blank(default)=±2%

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max Input Voltage		50V
Operating Junction Temperature(Tj)		125°C
Ambient Temperature(Ta)		-40°C -85°C
Power Dissipation (P_D@Ta=25°C)	SOT-89-3	500mW
Storage Temperature(Ts)		-40°C -150°C
Lead Temperature & Time		260°C,10S

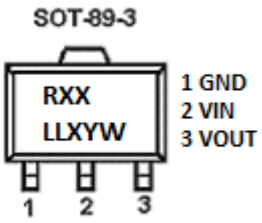
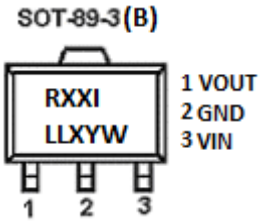
Note:

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

RECOMMENDED WORK CONDITIONS

Item	Min	Recom-mended	Max.	Unit
Input Voltage Range	3		40	V
Ambient Temperature	-40		85	°C

PIN CONFIGURATION

Product Classification		BL8078CC3TR□□□
Marking		
RXX LLXYW	R:Product Code	
	XX:Output Voltage	
	LL:LOT NO.	
	X:FAB Code	
	YW:Date Code	
Product Classification		BL8078CC3BTR□□□
Marking		
RXXI LLXYW	R:Product Code	
	XX:Output Voltage	
	LL:LOT NO.	
	X:FAB Code	
	YW:Date Code	
VIN	Supply Voltage Input	
GND	Ground Pin	
VOUT	Output Voltage	

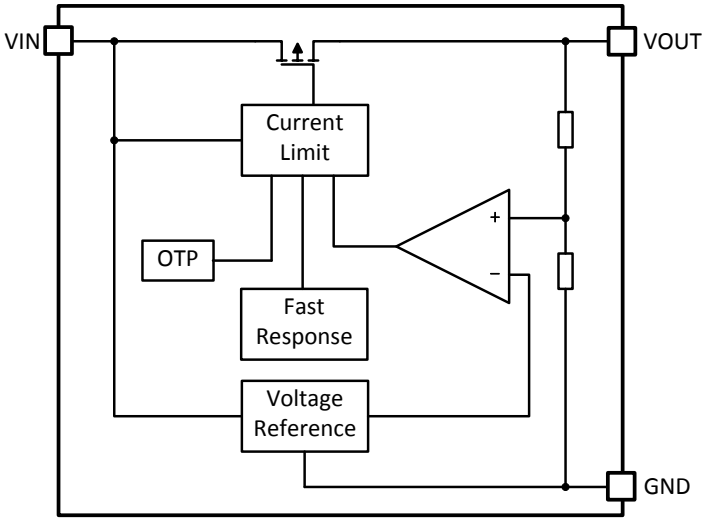
Y: The Year of manufacturing,"1" stands for year 2011, "2" stands for year 2012, and "8" stands for year 2018.
W: The week of manufacturing. "A" stands for week 1,"Z" stands for week 26," $\overline{A}$ " stands for week 27," $\overline{Z}$ " stands for week 52.

ELECTRICAL CHARACTERISTICS

(Test Conditions: Cin=1uF, Cout=1uF, Ta=25°C, Unless Otherwise Specified)

Symbol	Parameter		Conditions	Min	Type	Max	Units
Vin	Input Voltage			3		40	V
Vout	Output Voltage	Vout>1.5V	Vin-Vout=1V 1mA≤Iout≤30mA	Vout x0.98	Vout	Vout X1.02	V
		Vout≤1.5V		Vout -0.03		Vout +0.03	
Iout(Max.)	Maximum Output Current		Vin-Vout=1V	150			mA
Dropout Voltage	Input-Output Voltage Differential		Iout=100mA, Vout = 5V		400		mV
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line Regulation		Iout=10mA, 4V≤Vin≤40V		0.2	0.3	%/V
$\Delta Vout$	Load Regulation		Vin=Set Vout+1V 1mA≤Iout≤100mA		20	40	mV
Iq	Quiescent Current		Vin=Set Vout+1V		2.5	5	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output Voltage Temperature Coefficient		Iout=10mA		±100		ppm/°C
	Thermal Shutdown				130		°C

BLOCK DIAGRAM



EXPLANATION

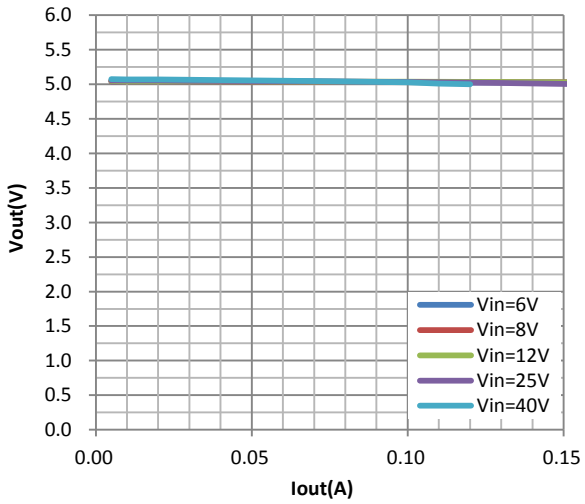
BL8078 is a series of low dropout voltage and low power consumption regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

Current Limit module can keep chip and power system away from danger when load current is more than 180mA.

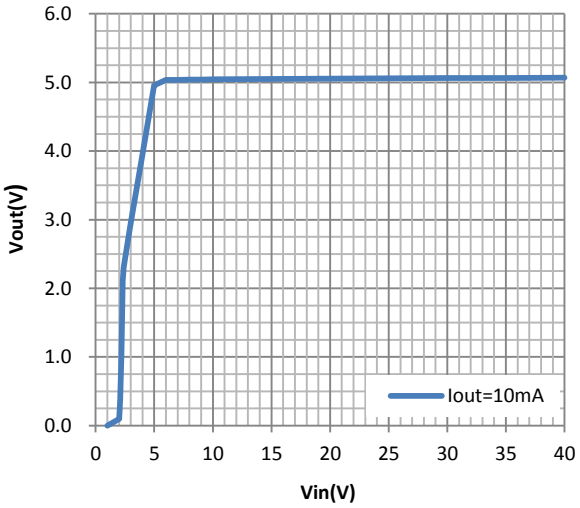
BL8078 uses trimming technique to assure the accuracy of output value within±2%, at the same time, temperature compensation is elaborately considered in this chip, which makes BL8078's temperature coefficient within ±100ppm/℃。

TYPICAL PERFORMANCE CHARACTERISTICS

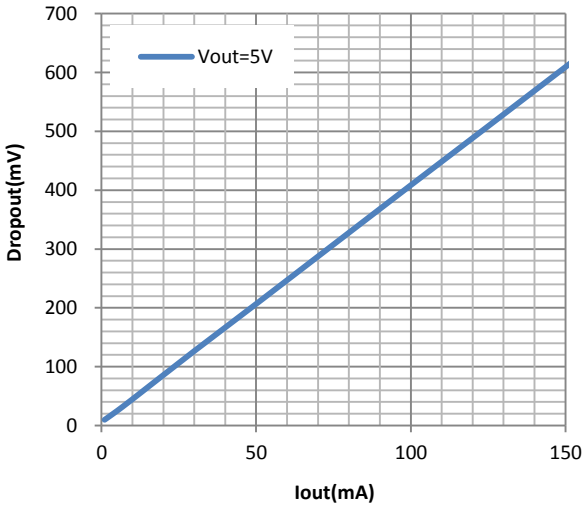
Load Regulation



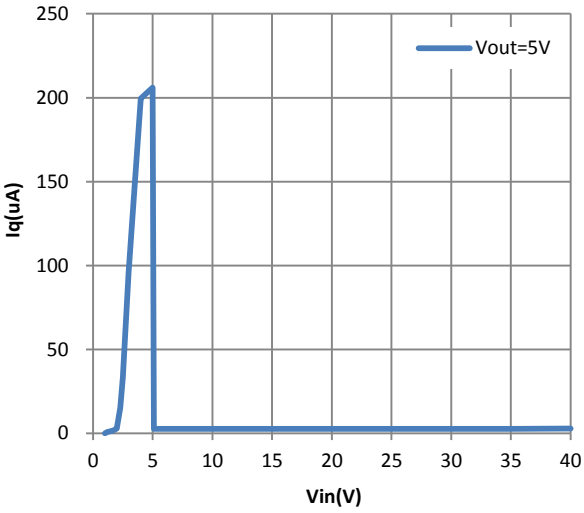
Line Regulation



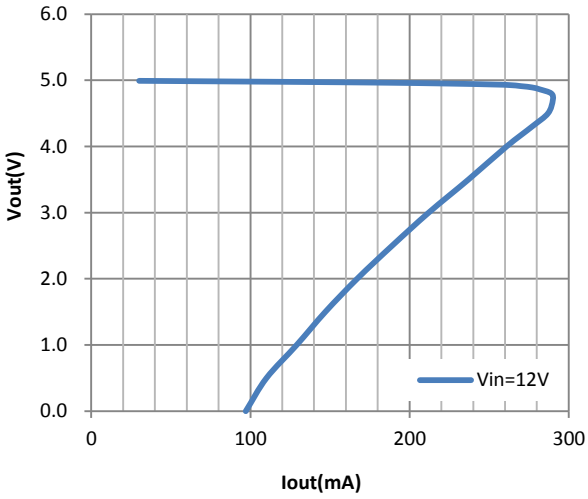
Dropout



Iq



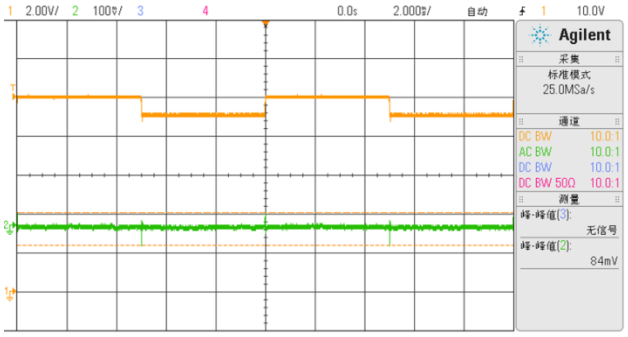
Current Limit



Line transient response

Vin=6V~7V, Iout=10mA

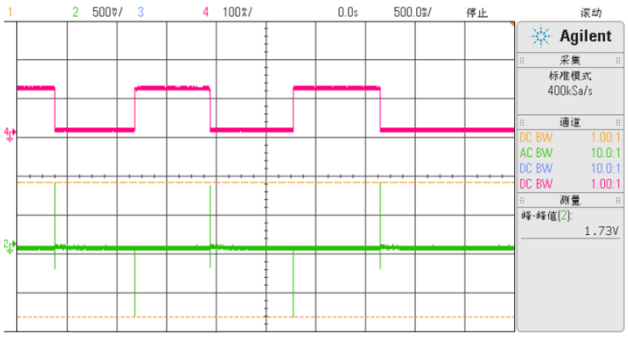
Ch1—Vin, Ch2—Vout



Load transient response

Vin=12V, Iout=10mA~100mA

Ch2—Vout, Ch4—Iout



PACKAGE LINE

Package	SOT-89-3	Devices per reel	1000Pcs	Unit	mm

Package Dimension:

