DESCRIPTION

A6201A series is a group of positive voltage output, low power consumption, low dropout voltage, three terminal regulator. It can provide 200mA output current when input / output voltage differential drops to 418mV (V_{OUT}= 3.3V), And it also provides foldback short-circuit protection and output current limit function. The very low power consumption of A6201A (I_Q=3uA) can greatly improve natural life of batteries.

A6201A can provide output value in the range of 1.2V~5.0V in 0.1V steps. It also can customized on command.

A6201A includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

A6201A has well load transient response and good temperature characteristic, And it uses trimming technique to guarantee output voltage accuracy within±2%.

The A6201A is available in SOT-23 and SOT89-3 Packages

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	A6201AE3R-XXZ
		A6201AE3VR-XXZ
SOT89-3 SPQ: 1,000pcs/Reel	K3	A6201AK3R-XXZ
		A6201AK3VR-XXZ
Note	XX: Output Voltage Z: Pin Type V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products,		

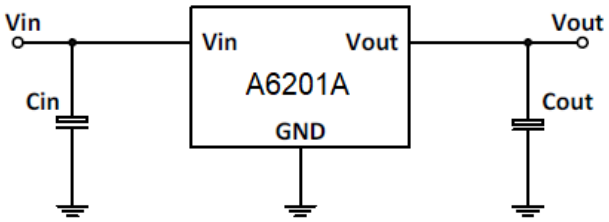
FEATURES

- Low Power Consumption: 3uA(Typ.)
- Maximum Output Current: 250mA
- Small Dropout Voltage
  211mV@100mA (V_{OUT}=3.3V)
  418mV@200mA (V_{OUT}=3.3V)
- Input Voltage Range: 2.5V~16V
- Output Voltage Range: 1.2V~5.0V (customized on command in 0.1V steps)
- Highly Accurate:±2%(±1% customized)
- Output Current Limit: 500mA
- Foldback Short-circuit Current: 85mA
- Available in SOT-23 and SOT89-3 Packages

APPLICATION

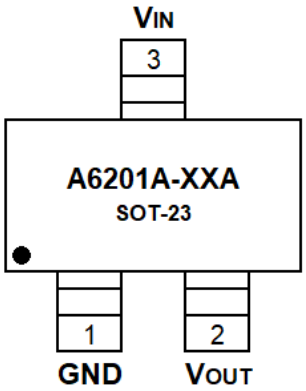
- Battery Powered equipment
- Power Management of MP3、PDA、DSC、Mouse、PS2 Games
- Reference Voltage Source Regulation after Switching Power

TYPICAL APPLICATION

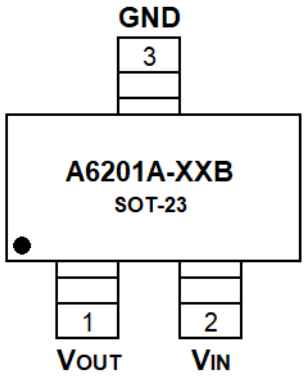


NOTE: Input capacitor (C_{IN}=1uF) and Output capacitor (C_{OUT}=1uF) are recommended in all application circuit. Ceramic capacitor is recommended.

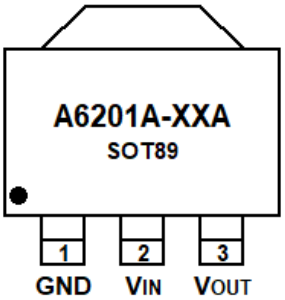
PIN DESCRIPTION



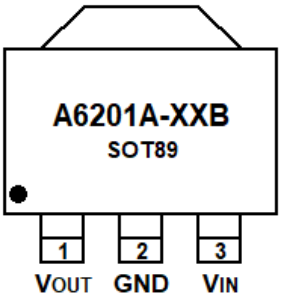
Top View



Top View



Top View



Top View

Pin #				Symbol	Function
SOT-23A	SOT-23B	SOT89-3A	SOT89-3B		
1	3	1	2	GND	Ground
2	1	3	1	V_{OUT}	Output Voltage
3	2	2	3	V_{IN}	Input Voltage

ABSOLUTE MAXIMUM RATINGS

Max Input Voltage		20V
T_J, Operating Junction Temperature		125℃
T_A, Ambient Temperature		-40℃ ~ 85℃
Power Dissipation	SOT-23	250mW
	SOT89-3	500mW
T_S, Storage Temperature		-40℃ ~ 150℃
Lead Temperature & Time		260℃,10s

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

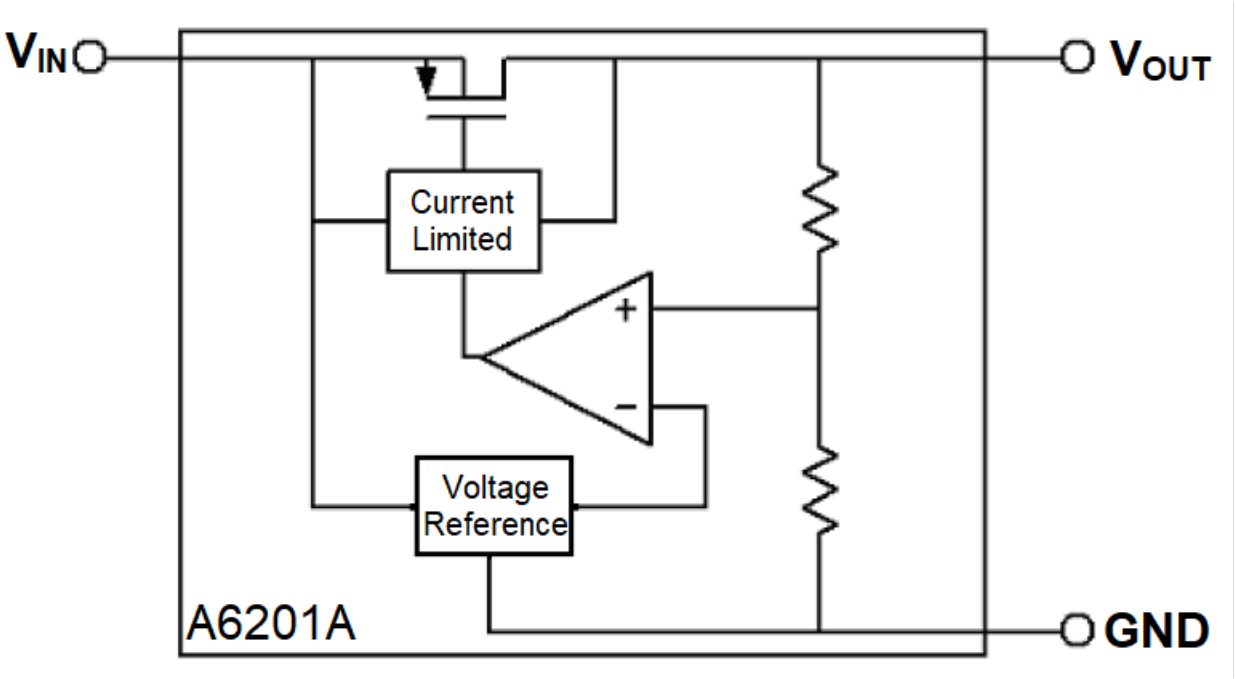
Parameter	Conditions	Min	Typ	Max	Unit
Input Voltage Range		-	-	16	V
Ambient Temperature		-40	-	85	℃

ELECTRICAL CHARACTERISTICS

Test Conditions: C_{IN}=1uF, C_{OUT}=1uF, T_A=25℃, unless Otherwise Specified

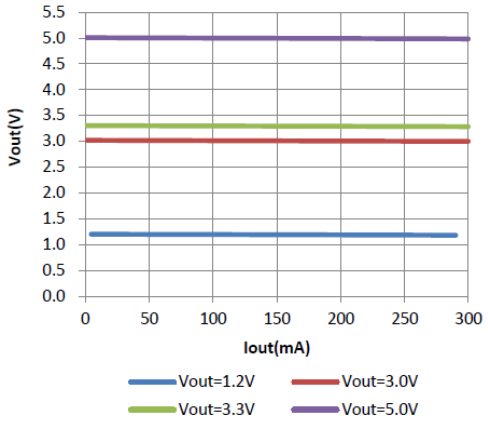
Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Input Voltage	V_{IN}		-	-	16	V
Output Voltage	V_{OUT}		V_{OUT} x 0.98	-	V_{OUT} x 1.02	V
Maximum Output Current	I_{OUT}(Max.)	$V_{IN} - V_{OUT}$ = 1V	250	-	-	mA
Input-Output Voltage Differential	Dropout Voltage	I_{OUT} =100mA V_{OUT} = 3.3V	-	210	400	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	I_{OUT} = 10mA 2V ≤ V_{IN} ≤ 16V	-	0.2	0.3	%/V
Load Regulation	ΔV_{OUT}	V_{IN} = Set V_{OUT} + 1V 1mA ≤ I_{OUT} ≤ 100mA	-	20	40	mV
Quiescent Current	I_Q	V_{IN} = Set V_{OUT} + 1V	-	3	5	uA
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	I_{OUT} = 10mA	-	100	-	ppm/℃

BLOCK DIAGRAM

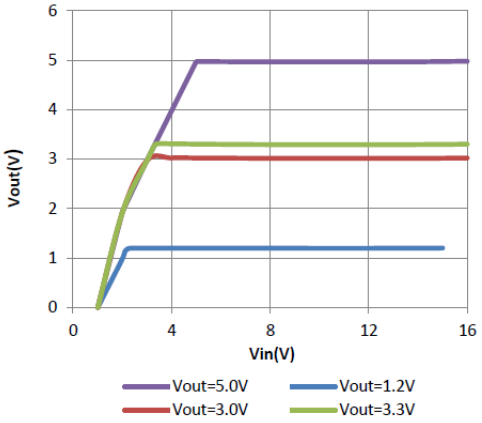


TYPICAL PERFORMANCE CHARACTERISTICS

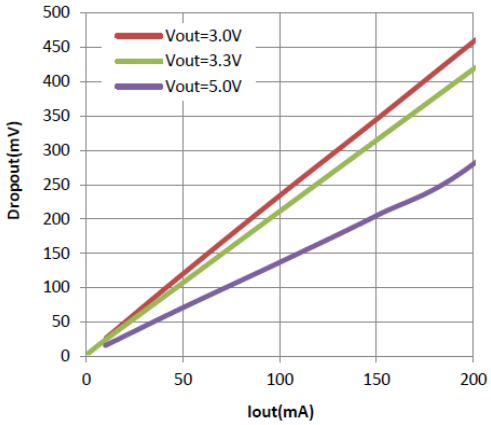
1. Load Regulation



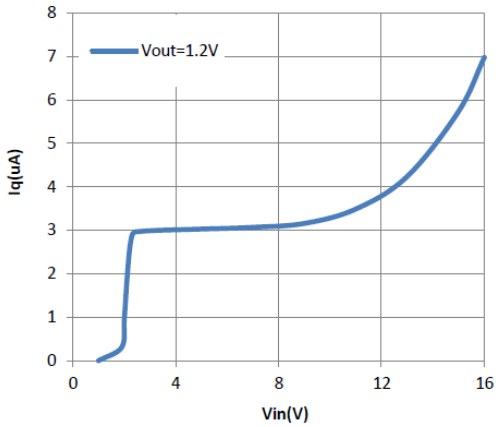
2. Line Regulation



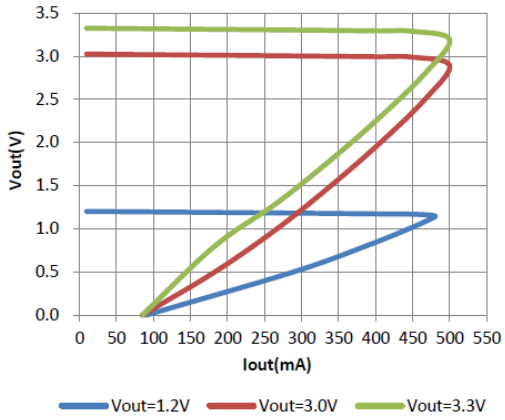
3. Dropout



4. I_Q

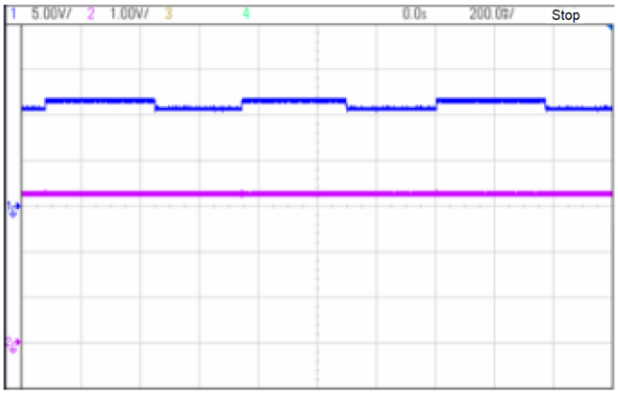


5. Current Limit



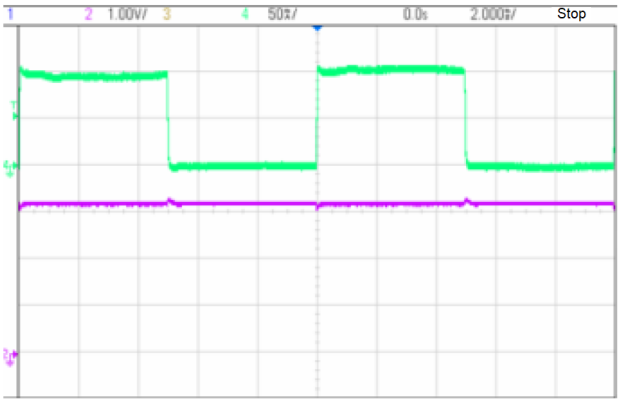
6. Line transient response

V_{IN}=11V~12V, Ch1—V_{IN}, Ch2—V_{OUT}



7. Load transient response

I_{OUT}=1mA~100mA, Ch2—V_{OUT}, Ch4—Iout



EXPLANATION

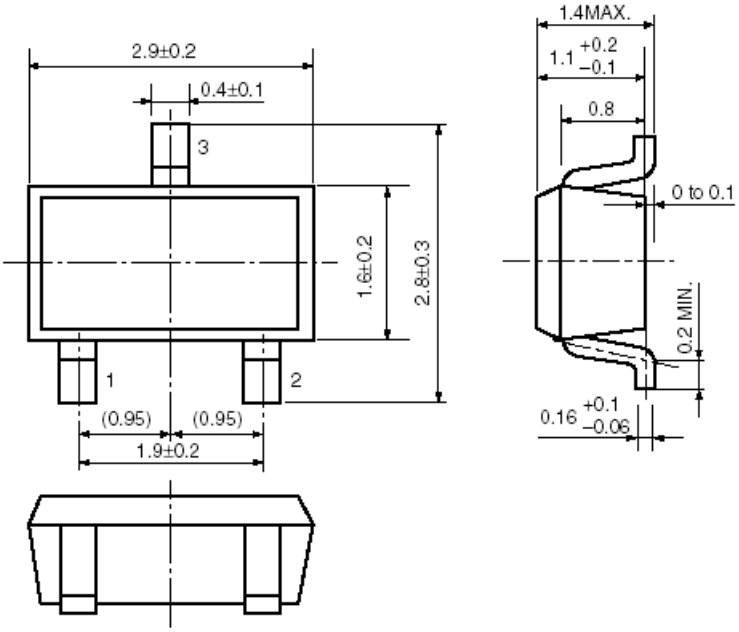
A6201A is a series of low dropout voltage and low power consumption three pins regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

Current Limit module can keep chip and power system away from danger when load current is more than 500mA.

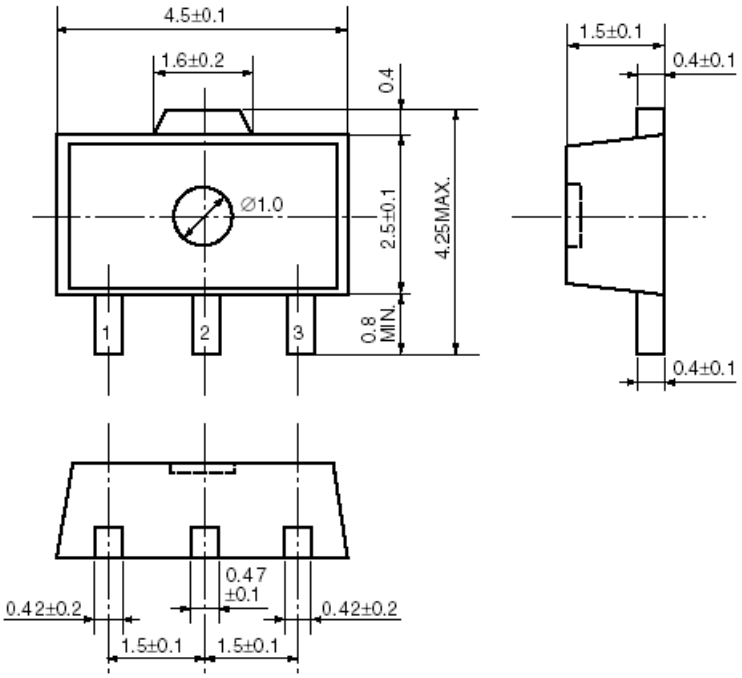
A6201A uses trimming technique to assure the accuracy of output value within±2%, at the same time, temperature compensation is elaborately considered in this chip, which makes A6201A's temperature coefficient within 100ppm/℃。

PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



Dimension in SOT89-3 Package (Unit: mm)



IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.