150mA CMOS LOW NOISE
LOW-DROPOUT VOLTAGE REGULATOR

A6150

Description

The A6150 series of fixed output low dropout linear regulators are designed for portable battery powered applications which require low noise operation, fast enable response time, and low dropout. The device achieves its low noise performance without the need of an external noise bypass capacitor.

The A6150 can provide output value in the range of 1.2V~5.0V every 0.1V increasing. It also can be customized on request.

The A6150 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module, The A6150 has excellent load and line transient response and good temperature characteristics, when can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

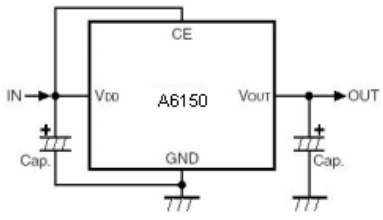
Features

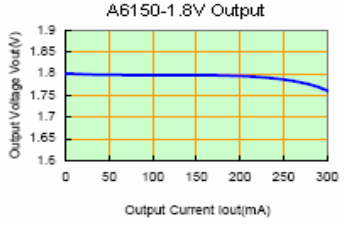
- Low Power Consumption: 25uA (Typ.)
- Low Output Noise (27uVRMS)
- Standby Mode: 0.1uA
- Low Dropout Voltage: 0.2V@100mA(Typ.)
- High Ripple Rejection: 65dB@1kHz(Typ.)
- Low Temperature Coefficient: ±100ppm/°C
- Excellent Line Regulation: 0.05%/V
- Built-in chip Enable Circuit
- Output Voltage Range: 1.2V~5.0V
- Highly Accurate: ±2% (±1% customized)
- Output Current Limit

Application

- Power Source for Cellular Phones and various kind of PCs
- Battery Powered Equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Regulation after Switching Power

Typical Application





Pin Description

Pin Number			Symbol	Function
SC-82	SOT-23A	SOT-23B		
3	5	1	V_{OUT}	Output Pin
4	1	3	V_{DD}	Input Pin
2	2	2	GND	Ground Pin
1	3	4	CE	Enable Pin
	4	5	NC	No Connection

Ordering Information

Output Voltage	Package Type	Part Number	Package Type	Part Number	Package Type	Part Number
1.2V	SOT-25A	A6150E5-12A	SOT-25B	A6150E5-12B	SC-82	A6150E4-12
1.5V	SOT-25A	A6150E5-15A	SOT-25B	A6150E5-15B	SC-82	A6150E4-15
1.8V	SOT-25A	A6150E5-18A	SOT-25B	A6150E5-18B	SC-82	A6150E4-18
2.5V	SOT-25A	A6150E5-25A	SOT-25B	A6150E5-25B	SC-82	A6150E4-25
2.8V	SOT-25A	A6150E5-28A	SOT-25B	A6150E5-28B	SC-82	A6150E4-28
3.0V	SOT-25A	A6150E5-30A	SOT-25B	A6150E5-30B	SC-82	A6150E4-30
3.3V	SOT-25A	A6150E5-33A	SOT-25B	A6150E5-33B	SC-82	A6150E4-33
3.5V	SOT-25A	A6150E5-35A	SOT-25B	A6150E5-35B	SC-82	A6150E4-35
■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
5.0V	SOT-25A	A6150E5-50A	SOT-25B	A6150E5-50B	SC-82	A6150E4-50

Absolute Maximum Ratings

Max Input Voltage	10V
Junction Temperature(T_J)	125°C
Output Current	200mA
Power Dissipation	
SOT-25	200mW
SC-82	200mW
Storage Temperature (Ts)	-45°C~150°C
Lead Temperature and Time	260°C, 10S

Electrical Characteristics

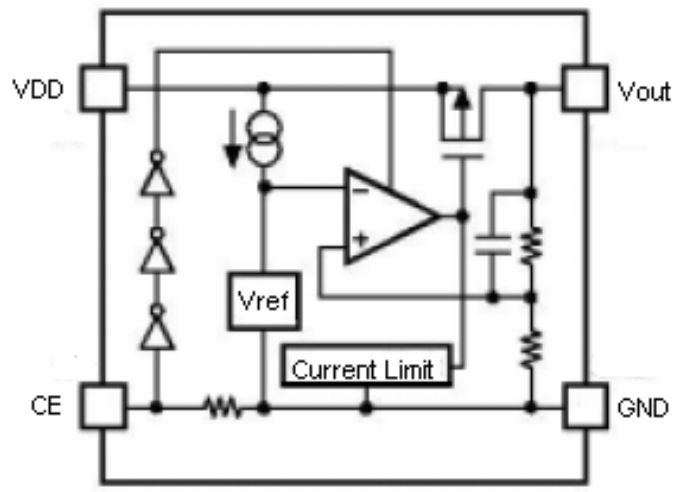
Test Conditions: Cin=1uF, Cout=2.2uF, TA=25°C, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Vin	Input Voltage		1.8		8	V
Vout	Output Voltage	Vin=Set Vout+1V 1mA≦Iout≦30mA	Vout x0.98		Vout x1.02	V
Iout (Max)	Max Output Current	Vin-Vout=1V	150			mA
Dropout Voltage	Input-Output Voltage Differential	Refer to the Electrical Characteristics by output voltage				
$\frac{\Delta Vout}{\Delta VinxVout}$	Line Regulation	Iout=40mA 1.6V≦Vin≦8V		0.05	0.2	%/V
ΔVout/ΔIout	Load Regulation	Vin=Set Vout+1V 1mA≦Iout≦80mA		12	40	mV
Iss	Supply Current	Vin=Set Vout+1V		25	50	uA
$I_{standby}$	Supply Current (Standby)	Vin=Set Vout+1V, Vce=GND		0.1	1.0	uA
$\frac{\Delta Vout}{\Delta T\text{-}Vout}$	Output Voltage Temperature Coefficiency	Iout=30mA		±100		ppm/°C
PSRR	Ripple Rejection	F=1kHz, Ripple=0.5Vp-p Vin=Set Vout+1V		65		dB
I_{Lim}	Short Current Limit	Vout=0V		20		mA
Rpd	CE Pull down Resistance		2.0	5.0	10.0	mΩ
Vceh	CE Input Voltage "H"		1.5		Vin	V
Vcel	CE Input Voltage "L"		0		0.25	V
en	Output Noise	BW=10Hz~100kHz		27		uVrms

Electrical Characteristics by Output Voltage

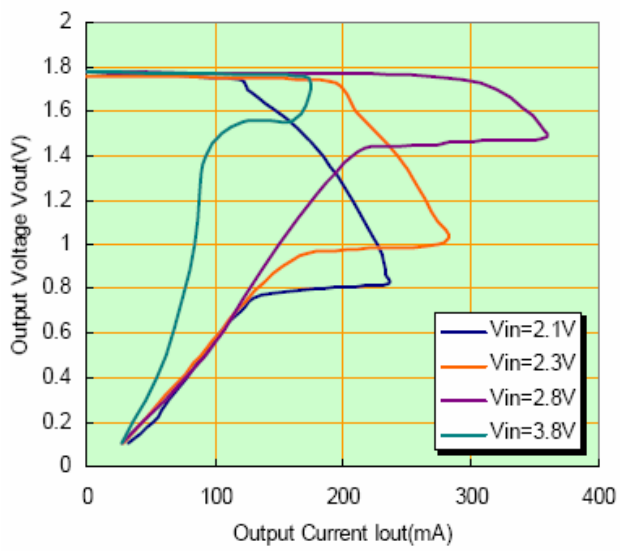
Output Voltage Vout (V)	Dropout Voltage, V_{DIF} (V)		
	Condition	Typ.	Max
Vout=1.5V	Iout=120mA	0.38	0.70
Vout=1.6V		0.36	0.65
Vout=1.7V		0.34	0.60
1.8V≦Vout≦2.0		0.32	0.55
2.1V≦Vout≦2.7		0.28	0.60
2.8V≦Vout≦4.0		0.22	0.35

Block Diagram

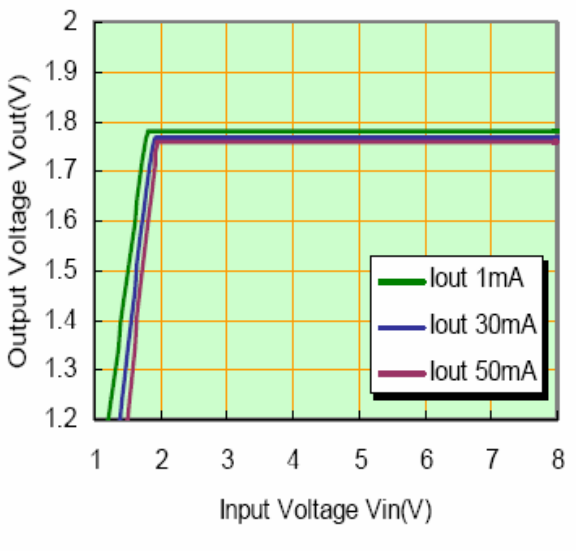


Typical Performance Characteristics

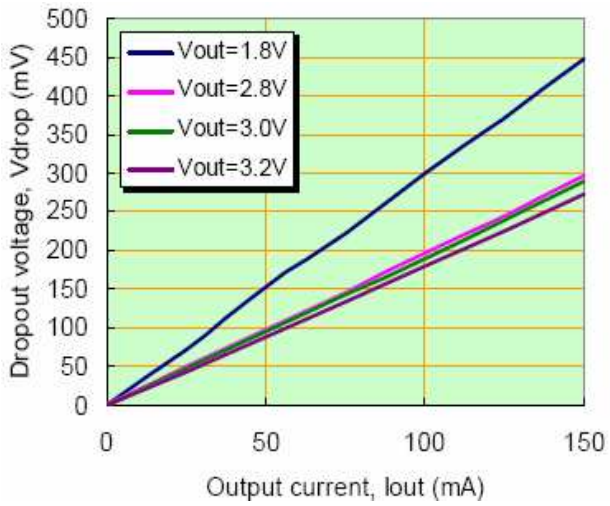
1) Output Voltage vs Output Current
(with output short protection)



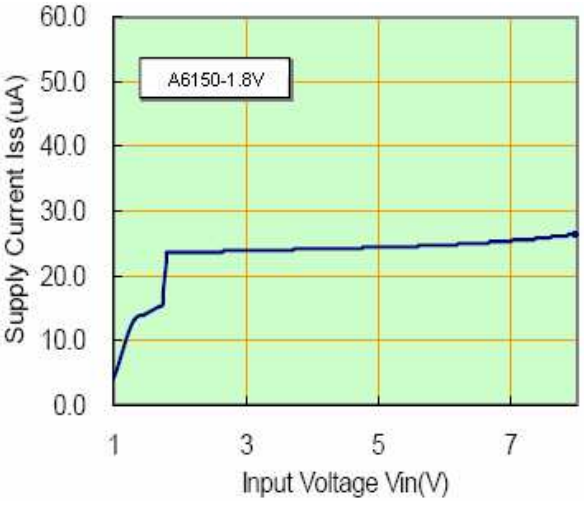
2) Output Voltage vs Input Voltage



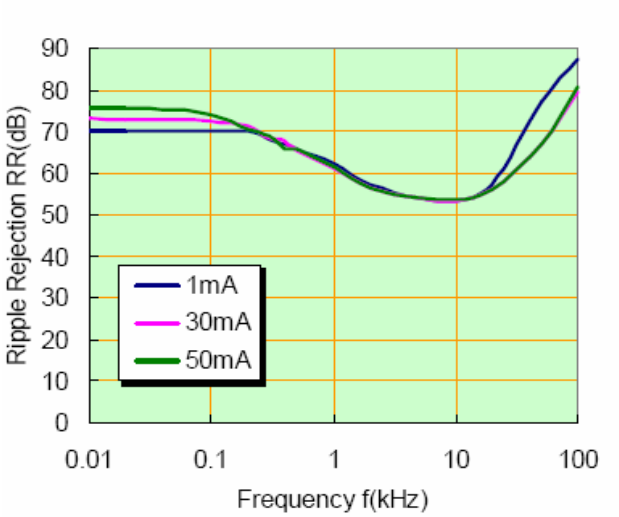
3) Dropout Voltage vs Output Current



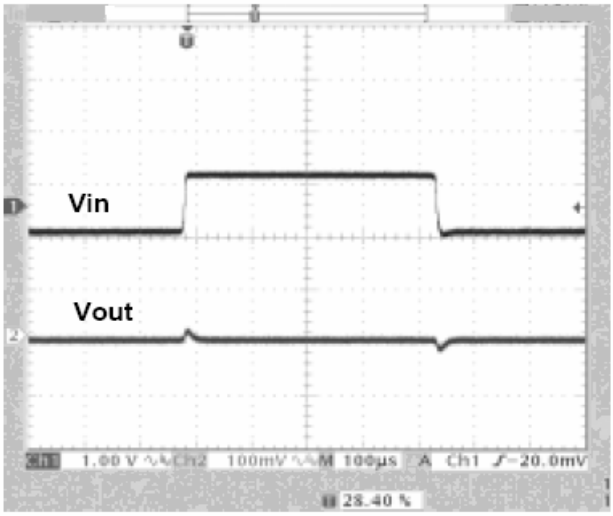
4) Supply Current vs Input Voltage



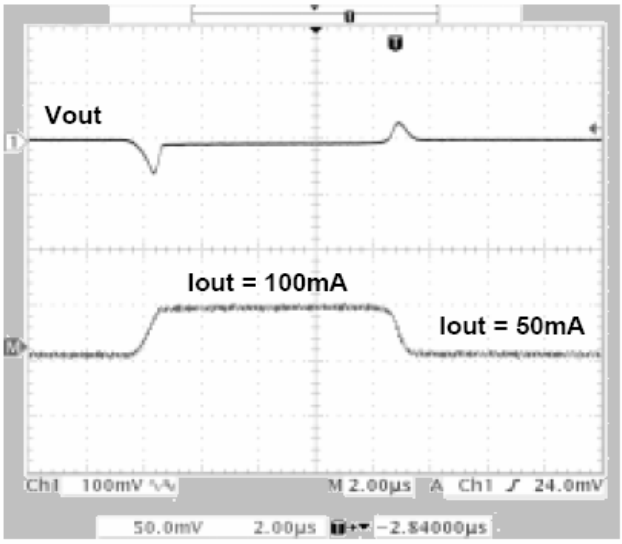
5) Ripple Rejection vs Frequency



6) Line Transient Response

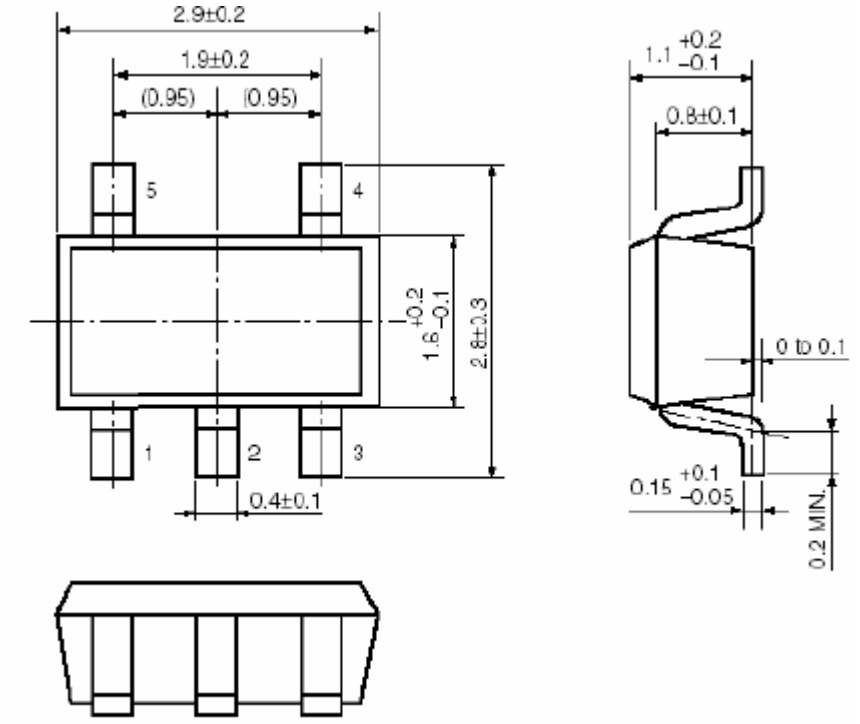


7)Load Transient Response



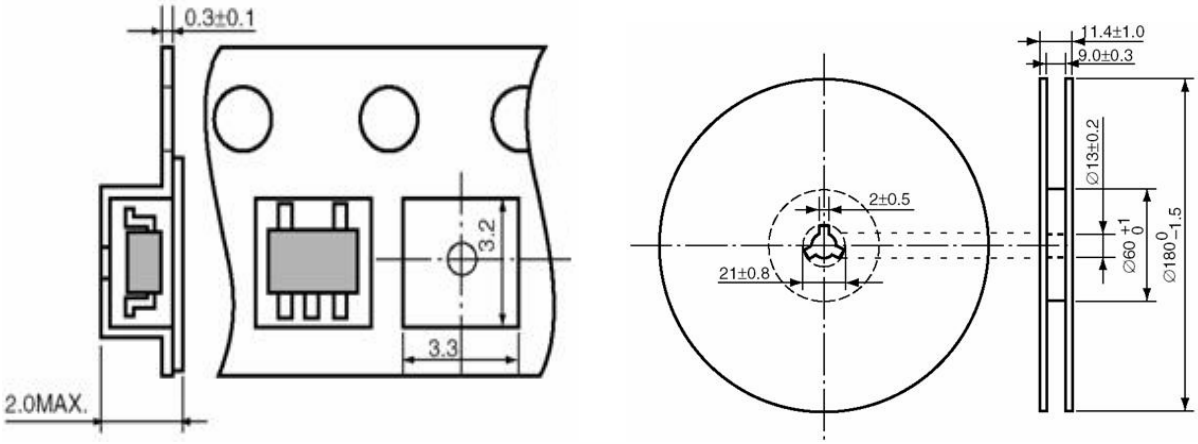
Package Information

Dimension in SOT-25 (Unit: mm)



Tape Dimension

Reel Dimension



IMPORTANT NOTICE

Advanced Innovation Technology Corp. (AiT) reserves the right to make changes to any its product, specifications, to discountinue 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.

Advanced Innovation Technology Corp.'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 servere property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

Advanced Innovation Technology Corp. 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.