DESCRIPTION

The A6151F is a high ripple rejection, low power, low dropout, short circuit protected CMOS voltage regulator.

The A6151F quiescent current at no-load is as low as 1.5uA, and it can provide an output current of 250mA under the condition that the input and output voltage difference is extremely small, and it can still maintain a good regulation rate.

The A6151F designed suitable for portable battery-powered products, watch Meters and security products, etc.

The A6151F is available in SOT-23, SOT-25 and SOT89-3 Packages.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	A6151FE3R-XX
		A6151FE3VR-XX
SOT-25 SPQ: 3,000pcs/Reel	E5	A6151FE5R-XX
		A6151FE5VR-XX
SOT89-3 SPQ: 1,000pcs/Reel	K3	A6151FK3R-XX
		A6151FK3VR-XX
Note	XX: Output Voltage 18=1.8V, 30=3.0V 33=3.3V, 50=5.0V V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

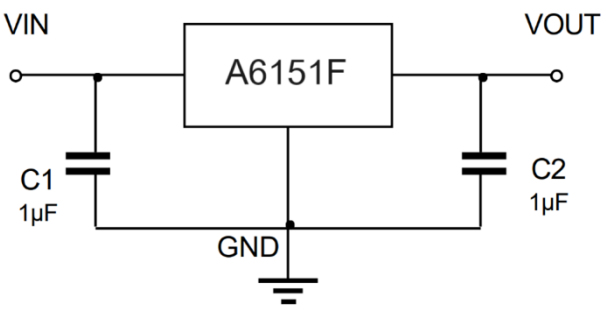
FEATURES

- ±2% Output Voltage Tolerance
- Vin Range up to 24V
- Ultra-Low Quiescent Current 1.5uA
- 650mV @100mA
- Built-In Thermal Protection
- Built-In Overcurrent Protection
- Compatible with Low ESR Ceramic Capacitors
- Available in SOT-23, SOT-25 and SOT89-3 Packages

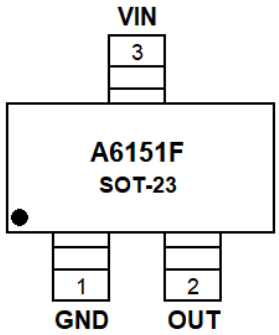
APPLICATION

- Portable Battery Powered Devices (Sensor Lights, Sterilization Boxes, Etc.)
- Security (Fire Alarms, Smoke Detectors, Etc.)
- Smart Meters (Electricity, Gas, Etc.)
- Communication Equipment (Mobile Phone, PDA, Etc.)
- Home Appliances (Light Strips, Desk Lamps, Etc.)
- Sensors

TYPICAL APPLICATION

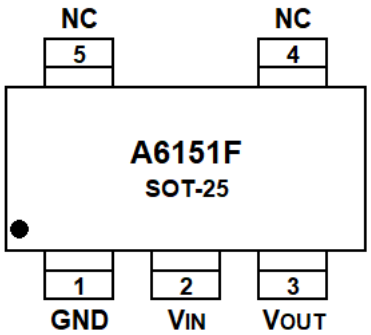


PIN DESCRIPTION



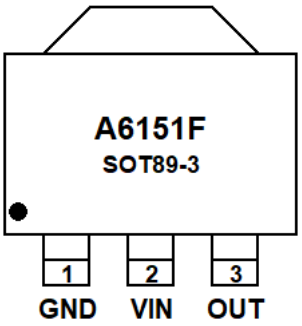
SOT-23, E3

Top View



SOT-25, E5

Top View



SOT89-3, K3

Top View

Pin #			Symbol	Function
SOT-23	SOT-25	SOT89-3		
1	1	1	GND	Ground
2	3	3	V_{OUT}	Output Voltage Pin
3	2	2	V_{IN}	Input Voltage Pin
-	4	-	NC	Not Connected
-	5	-	NC	Not Connected

ABSOLUTE MAXIMUM RATINGS

V_{IN}, Input Voltage	-0.3V ~ 25V
-, Lead Temperature (Soldering, 10 sec.)	300°C
T_{STG}, Storage Temperature	-65°C~+150°C
T_J, Junction Temperature	125°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED WORK CONDITIONS

Parameter	Symbol	Min	Max	Unit
Input Voltage	V_{IN}	5	24	V
Junction Temperature	T_J	-40	125	°C

ELECTRICAL CHARACTERISTICS

V_{IN} = V_{OUT} +2V, or V_{IN} = 5V, I_{OUT}=1mA, C_{IN} = C_{OUT} = 1μF, T_J= 25°C, unless otherwise noted.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	V_{OUT}	-	-2%	-	2%	V
Line Regulation	ΔV_{LINE}	V_{IN}= V_{OUT}+2V ~24V, V_{IN}= 5V~24V if V_{OUT} < 3V	-	2	50	mV
Load Regulation	ΔV_{LOAD}	I_{OUT} = 1mA~150mA	-	40	75	mV
Dropout Voltage	V_{DROP}	I_{OUT} = 100mA	-	650	-	mV
		I_{OUT} = 150mA	-	1100	-	
Quiescent Current	I_Q	I_{OUT} =0mA	-	1.50	4	uA
Current Limit	I_{CL}		170	200	-	mA
Power-Supply Rejection Ratio	PSRR	V_{IN}=12V I_{OUT} = 10mA, f=100Hz	-	70	-	dB
Thermal Shutdown	T_{SD}	-	-	150	-	℃
Thermal Shutdown HY	T_{SDHY}	-	-	25	-	℃

TYPICAL PERFORMANCE CHARACTERISTICS

V_{IN} =5V, I_{OUT} = 1mA, C_{IN} = C_{OUT} = 1μF, T_J= 25°C, unless otherwise noted.

Fig 1. V_{OUT} vs. V_{IN}

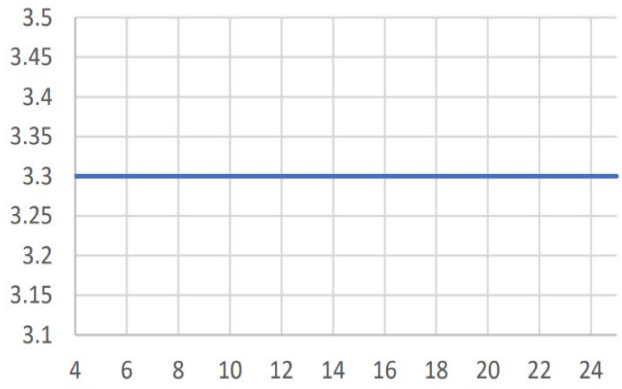


Fig 2. I_Q vs. V_{IN}

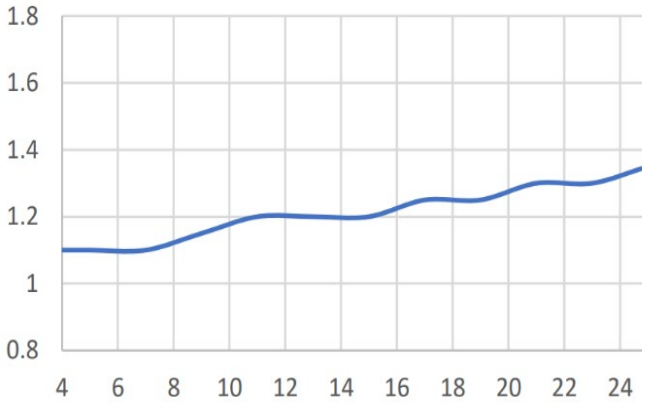


Fig 3. V_{OUT} (3.3V) vs. Temperature

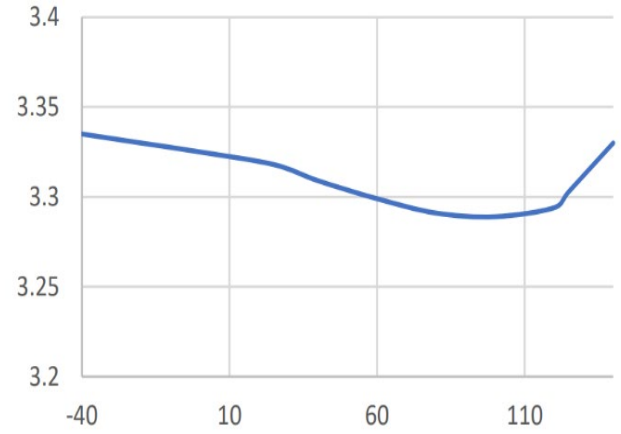
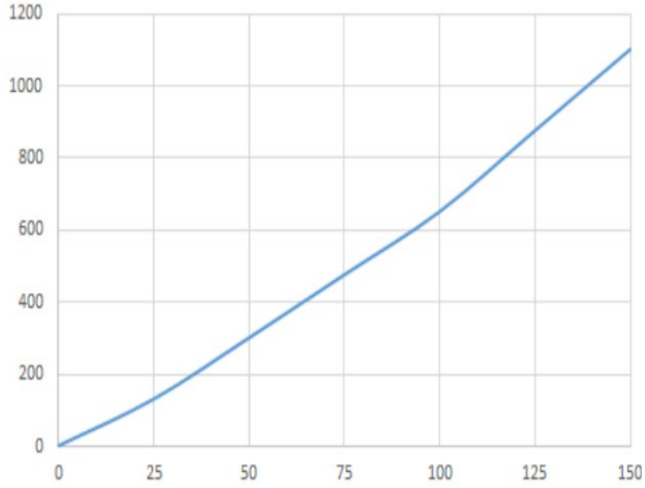
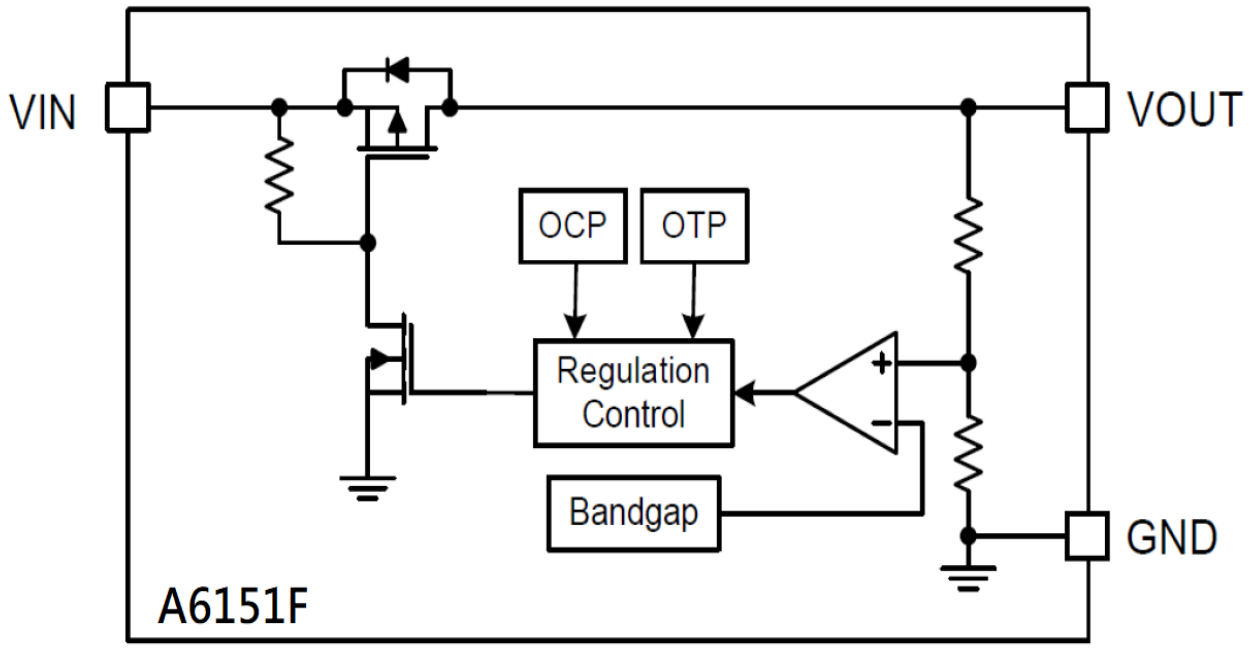


Fig 4. Dropout vs. Load

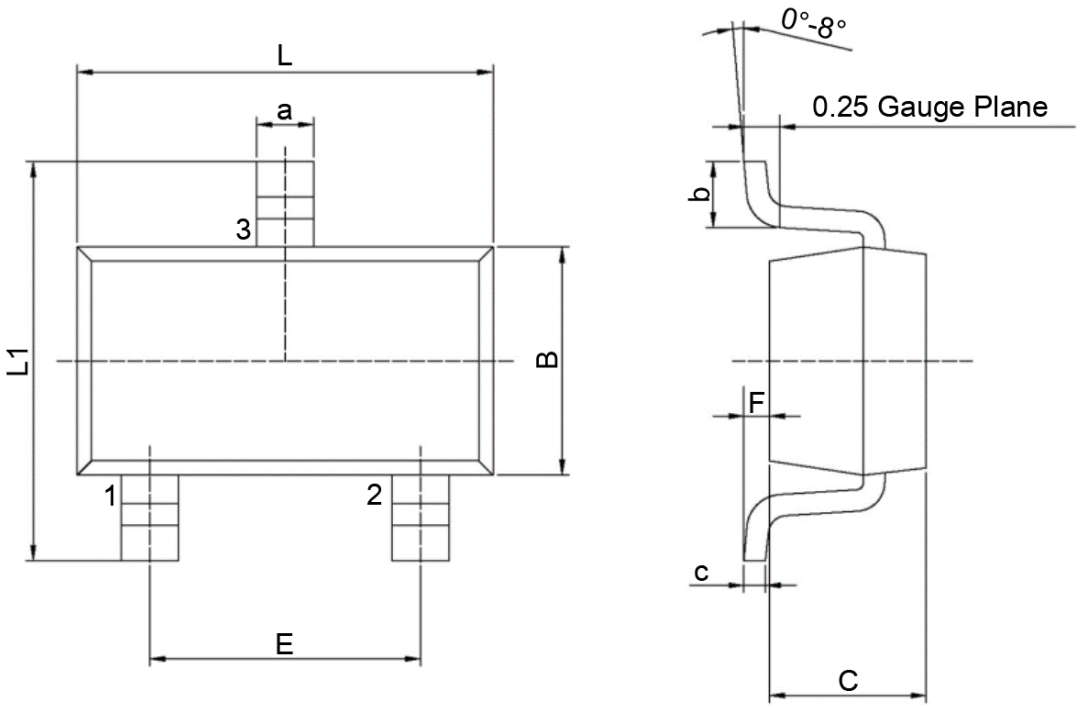


BLOCK DIAGRAM



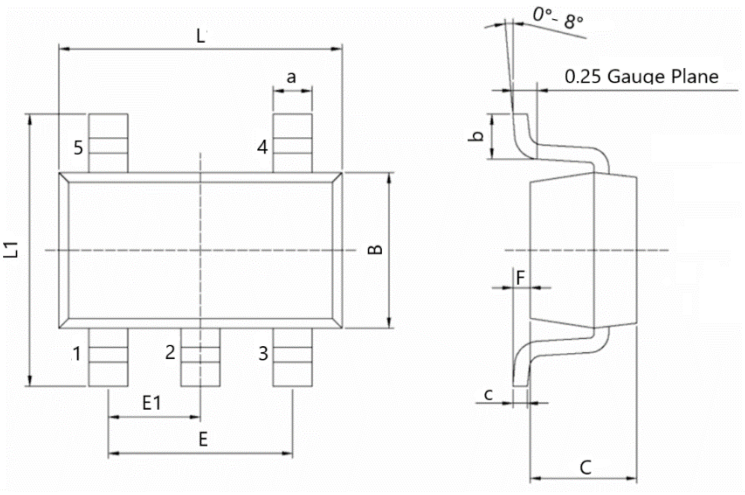
PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



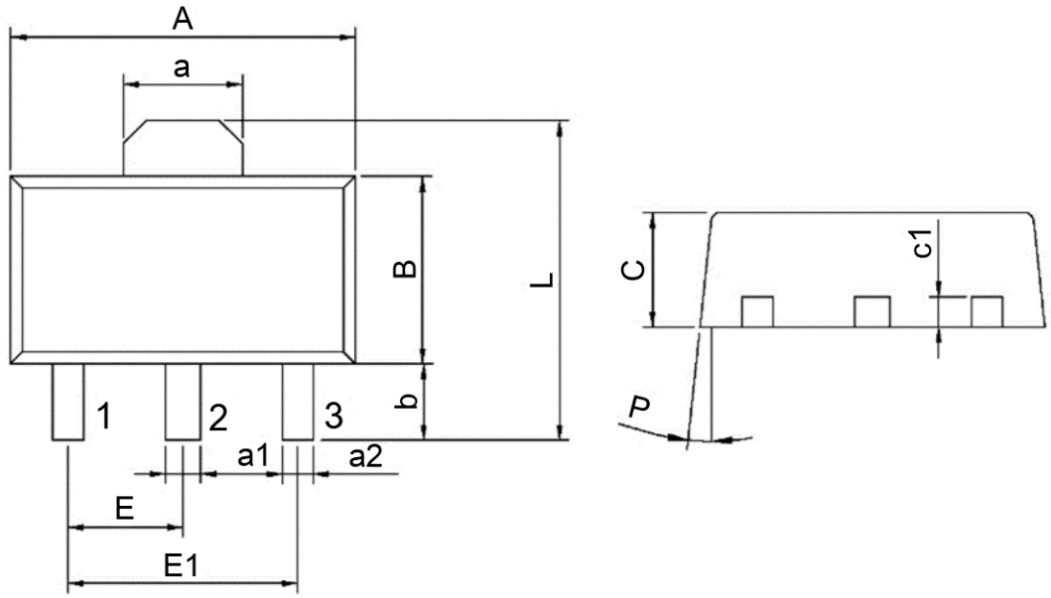
Symbol	MILLIMETERS	
	Min.	Max.
a	0.350	0.500
B	1.500	1.700
b	0.350	0.550
C	0.900	1.300
c	0.100	0.200
E	1.800	2.000
F	0	0.150
L	2.820	3.020
L1	2.600	3.000

Dimension in SOT-25 (Unit: mm)



Symbol	Min.	Max.
a	0.350	0.500
B	1.500	1.700
b	0.350	0.550
C	0.900	1.300
c	0.100	0.200
E	1.800	2.000
E1	0.850	1.050
F	0.000	0.150
L	2.820	3.020
L1	2.600	3.000

Dimension in SOT89-3 (Unit: mm)



Symbol	Millimeters	
	Min	Max
A	4.400	4.700
a	1.450	1.650
a1	0.360	0.560
a2	0.300	0.500
B	2.350	2.650
b	0.800	1.200
C	1.400	1.700
c1	0.350	0.500
E	1.400	1.600
E1	2.800	3.200
L	3.878	4.478
P	6°	

IMPORTANT NOTICE

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