DESCRIPTION

The A6154F is a high ripple rejection, low power, low dropout, short circuit protected CMOS voltage regulator.

The A6154F quiescent current at no-load is as low as 1.8uA, and it can provide an output current of 150~200mA under the condition that the input and output voltage difference is extremely small, and it can still maintain a good regulation rate.

The A6154F design is suitable for portable battery-powered products, Video, Audio and security products, etc.

The A6154F is available in SOT-25 and Package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-25 SPQ: 3,000pcs/Reel	E5	A6154FE5VR-30
		A6154FE5VR-33
		A6154FE5VR-50
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

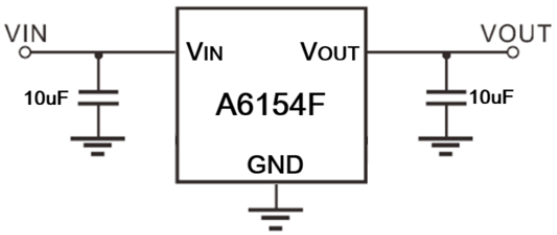
FEATURES

- ±2% Output Voltage Tolerance
- Vin Range Up To 30V
- Ultra-Low Quiescent Current 1.8uA
- Available Output Voltage: 3.0, 3.3 & 5.0V
- Built-In Thermal Protection
- High output current: 150mA
- Low Temperature Coefficient
- Built-In Overcurrent Protection
- Available in SOT-25 Packages

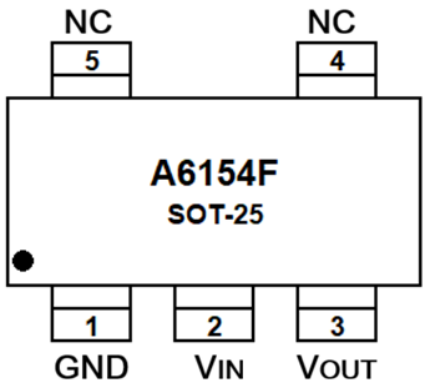
APPLICATION

- Portable Battery Powered Devices (Sensor Lights, Sterilization Boxes, Etc.)
- Security (Fire Alarms, Smoke Detectors, Etc.)
- Communication Equipment (Mobile Phone, PDA, Etc.)
- Audio, Video and Home Appliances
- Smoke and CO2 Detectors

TYPICAL APPLICATION



PIN DESCRIPTION



SOT-25, E5

Top View

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

ABSOLUTE MAXIMUM RATINGS

V_{IN}, Input Voltage	-0.3V ~ 33V
V_{OUT}, Output Voltage Range	-0.3V ~ +5V
Lead Temperature (Soldering, 10 sec.)	260°C
T_{STG}, Storage Temperature	-50°C~+125°C
T_A, Operating Free-air Temperature Range	-30~+85°C
θ_{JA}, Thermal resistance SOT-25	500°C/W
P_D , Power dissipation	200mW

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	30	V
Junction Temperature	T_J	-30	85	°C

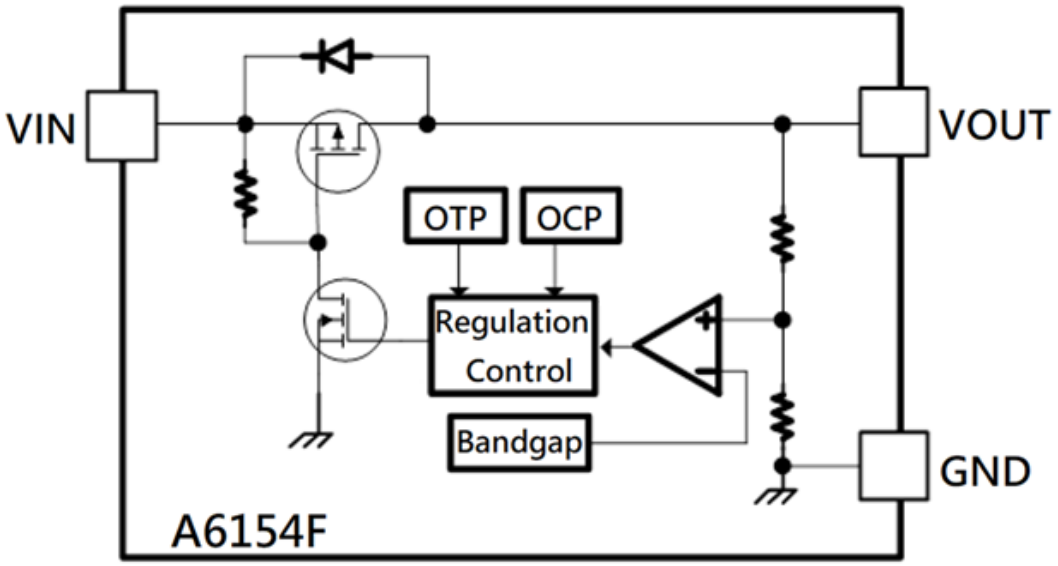
ELECTRICAL CHARACTERISTICS

V_{IN} =V_{OUT}+2.0V, I_{OUT} = 10mA, C_{IN} = C_{OUT} = 10μF, T_J= 25°C, unless otherwise noted.

Parameter	Symbol		Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.0V	V_{OUT}	V_{IN}=V_{OUT}+2.0V , I_{OUT}=10mA	2.940	3.0	3.060	V
	3.3V			3.234	3.3	3.366	
	5.0V			4.900	5.0	5.100	
Output Current	3.0V	I_{OUT}	V_{IN}=V_{OUT}+2.0V		150		mA
	3.3V				150		
	5.0V				200		
Load Regulation	ΔV_{LOAD}		V_{IN}=V_{OUT}+2.0V , 1mA≤ I_{OUT} ≤50mA		25	60	mV
Dropout Voltage	3.0V	V_{DROP}	I_{OUT}=1mA , ΔV_{OUT}=2%	-	30	100	mV
	3.3V				25	55	
	5.0V				25	55	
Quiescent Current	I_Q		I_{OUT} =0mA	-	1.8	3.0	uA
Line Regulation	ΔV_{OUT}/ V_{OUT} x ΔV_{IN}		V_{OUT}+1.0V≤ V_{IN} ≤30V , I_{OUT}=1mA			0.2	%V
Temperature Coefficient	ΔV_{OUT}/ ΔT_A*V_{OUT}		V_{IN}= V_{OUT}+2.0V I_{OUT}=10mA , -40°C≤T_A ≤85°C		100		ppm/°C

When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DROP}=V_{IN}-V_{OUT}.

BLOCK DIAGRAM



FUNCTIONAL DESCRIPTION

The A6154F is a linear voltage regulator ICs capable of withstanding input voltages up to 30 V. The devices integrate a precision voltage reference, error amplifier, current limiter, phase compensation circuit, and driver transistor.

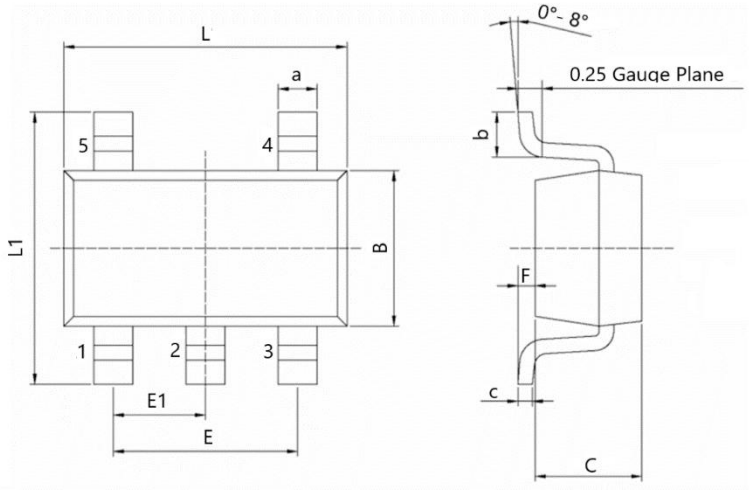
The regulators are stable with low-ESR ceramic output capacitors.

Built-in overcurrent protection (OCP) and overvoltage protection (OVP) circuits provide reliable operation.

The protection circuitry is activated when the output current or input voltage exceeds the specified limit.

PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm)



Symbol	Min.	Max.
a	0.35	0.50
B	1.50	1.70
b	0.35	0.55
C	0.90	1.30
c	0.10	0.20
E	1.80	2.00
E1	0.85	1.05
F	0	0.15
L	2.82	3.02
L1	2.60	3.00

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 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.

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.