DESCRIPTION

The A6132 is a family of low-dropout (LDO) linear regulator ICs implemented in CMOS technology. These devices can withstand input voltages up to 30 V and feature low dropout voltage and low quiescent current, making them suitable for a wide range of audio, video, and communication applications.

The series integrates a voltage reference, error amplifier, current limiter, phase compensation circuitry, and a driver transistor. The regulator is designed to work with low-ESR ceramic capacitors for output stabilization. Built-in protection features include over-current protection (OCP) and over-voltage protection (OVP). These protection circuits activate when the output current or input voltage exceeds the specified limits.

The A6132 is available in a compact SOT-25 package.

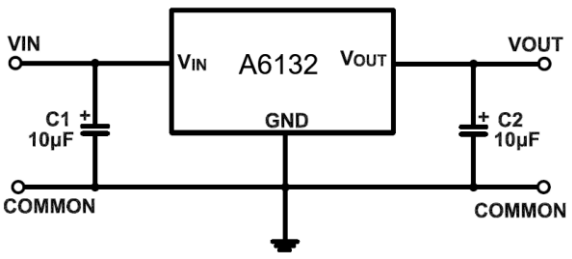
FEATURES

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- 30V input withstanding voltage.
- Quiescent Current 1.8μA
- Output Voltage Accuracy: ±2%
- High output current: 180mA

APPLICATION

- Battery-powered Equipment
- Communication devices
- Audio and Video Equipment
- Smart Battery Packs
- Smoke Detectors
- CO_2 Detectors

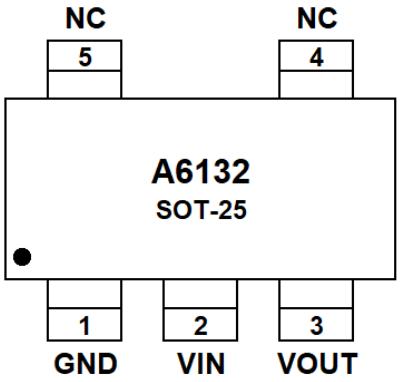
TYPICAL APPLICATION



ORDERING INFORMATION

Package Type	Part Number	
SOT-25 SPQ:3,000pcs/Reel	E5	A6132E5VR
Note	R: Tape & Reel	
AiT provides all RoHS products		

PIN DESCRIPTION



SOT-25, E5
Top View

Pin #	Symbol	Functions
1	GND	Ground
2	VIN	Input
3	VOUT	Output
4	NC	No Connect
5	NC	No Connect

ABSOLUTE MAXIMUM RATINGS

over operating free-air temperature range (unless otherwise noted) (1) (2)

V_{IN}, Limit Power Voltage	-0.3V ~ + 33V
T_A, Operating Free-air Temperature Range	-50℃ ~ +125℃
T_{STG}, Storage Temperature Range	-30℃ ~ +85℃
θ_{JA}, Thermal Resistance	500°C/W
P_W, Power Dissipation	200mW

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.

DC CHARACTERISTICS

T_A = 25°C (V_{IN}= V_{OUT}+2.0V, C_{IN}=C_L=10uF), Series +3.0V output, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V, I_{OUT}=10mA	2.94	3	3.06	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	-	180	-	mA
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2.0V, 1mA≤I_{OUT}≤50mA	-	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA, ΔV_{OUT}=2%	-	30	100	mV
Quiescent Current	I_{SS}	No Load	-	1.8	3	μA
Line Regulation	ΔV_{OUT}/ V_{OUT} *V_{IN}	V_{OUT}+1.0V≤V_{IN}≤30V, I_{OUT}=1mA	-	-	0.2	%/V
Input Voltage	V_{IN}	-	-		30	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 VIN=VOUT+2.0V, as the output voltage declined 2%, the VDIF=VIN-VOUT.

Series +3.3V OUTPUT

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.234	3.300	3.366	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	-	180	-	mA
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $1mA \le I_{OUT} \le 50mA$	-	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	-	25	55	mV
Quiescent Current	I_{SS}	No Load	-	1.8	3	μA
Line Regulation	$\Delta V_{OUT}/ V_{OUT} * V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 30V$, $I_{OUT}=1mA$	-	-	0.200	%/V
Input Voltage	V_{IN}	-	-		30	V
Temperature Coefficient	$\Delta V_{OUT}/ \Delta T_A * V_{OUT}$	$V_{IN}= V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40°C \le T_A \le 85°C$	-	100	-	ppm/°C

When VIN=VOUT+2.0V, as the output voltage declined 2%, the VDIF=VIN-VOUT.

Series +3.6V OUTPUT

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.528	3.600	3.672	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	-	180	-	mA
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $1mA \le I_{OUT} \le 50mA$	-	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	-	25	55	mV
Quiescent Current	I_{SS}	No Load	-	1.8	3	μA
Line Regulation	$\Delta V_{OUT}/ V_{OUT} * V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 30V$, $I_{OUT}=1mA$	-	-	0.200	%/V
Input Voltage	V_{IN}	-	-		30	V
Temperature Coefficient	$\Delta V_{OUT}/ \Delta T_A * V_{OUT}$	$V_{IN}= V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40°C \le T_A \le 85°C$	-	100	-	ppm/°C

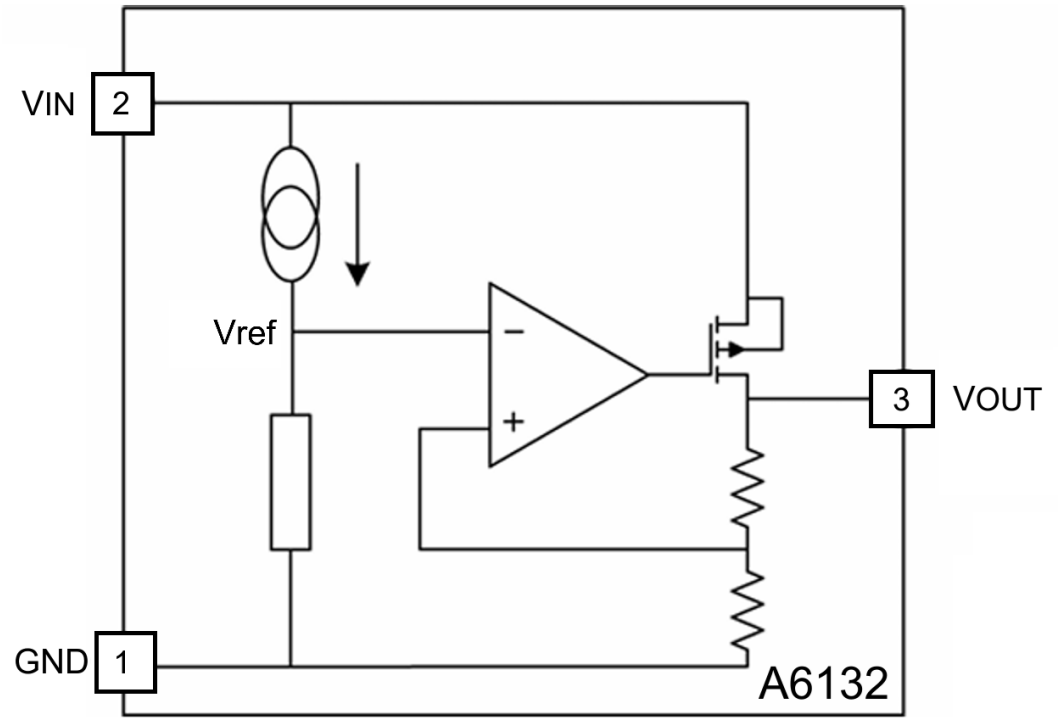
When VIN=VOUT+2.0V, as the output voltage declined 2%, the VDIF=VIN-VOUT.

Series +5.0V OUTPUT

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.9	5	5.1	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	-	180	-	mA
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $1mA \le I_{OUT} \le 50mA$	-	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	-	25	55	mV
Quiescent Current	I_{SS}	No Load	-	1.8	3	μA
Line Regulation	$\Delta V_{OUT}/ V_{OUT} * V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 30V$, $I_{OUT}=1mA$	-	-	0.2	%/V
Input Voltage	V_{IN}	-	-		30	V
Temperature Coefficient	$\Delta V_{OUT}/ \Delta T_A * V_{OUT}$	$V_{IN}= V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40°C \le T_A \le 85°C$	-	100	-	ppm/°C

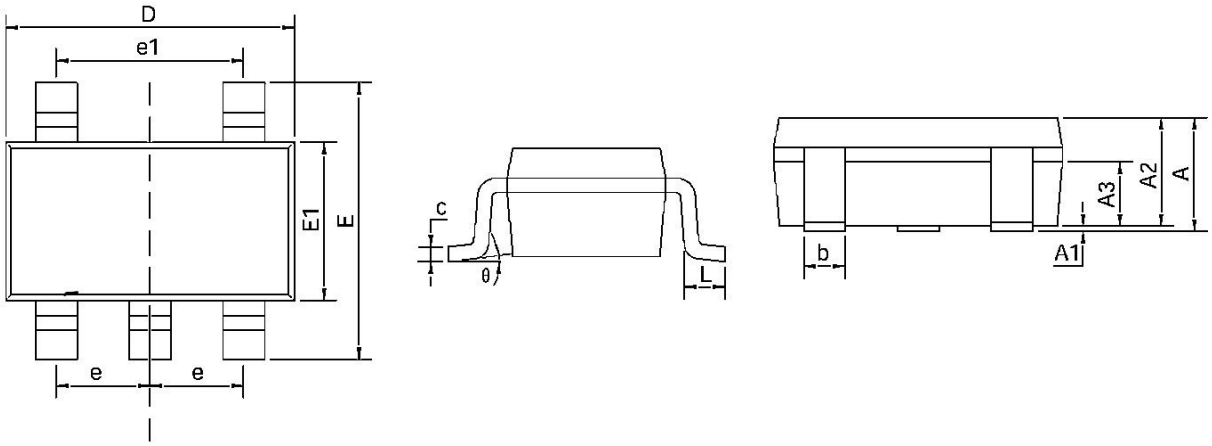
When VIN=VOUT+2.0V, as the output voltage declined 2%, the VDIF=VIN-VOUT.

BLOCK DIAGRAM



PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm/ inch)



Symbol	Millimeters	
	Min	Max
A	-	1.350
A1	0.040	0.150
A2	1.000	1.200
A3	0.550	0.750
b	0.380	0.480
c	0.100	0.250
D	2.720	3.120
E	2.600	3.000
E1	1.400	1.800
e	0.950 BSC	
e1	1.900 BSC.	
L	0.300	0.600
θ	0°	8°

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