AT1202

Preliminary Product Information

High Voltage Linear Regulator

Features

- ±2% Output Accuracy
- 12μA Quiescent Current
- Shutdown Current <1μA
- High Output Voltage: Up to 28V
- 30mA Output Current
- Tiny SOT-25 Package

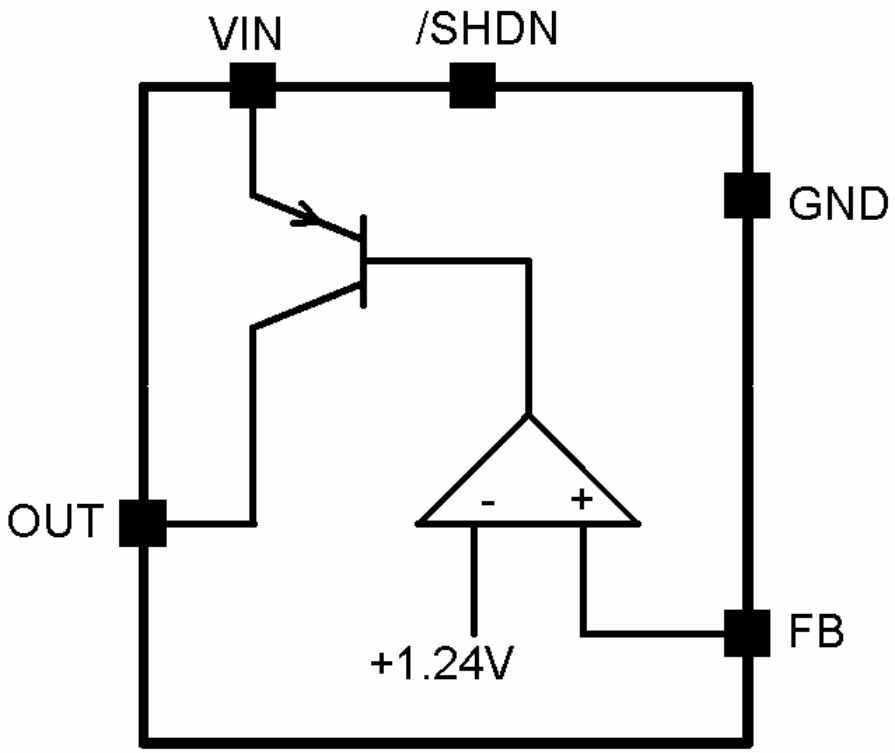
Applications

- Microcontroller Power
- Notebook Computers
- Battery Operating system

General Description

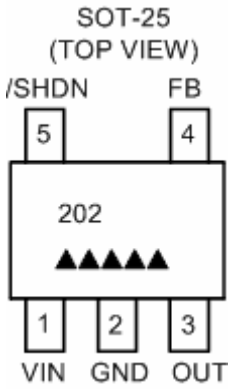
The AT1202 is high voltage, micropower linear regulator. Key feature include wide input voltage, low-noise, low-dropout and low-quiescent-current. The output voltage precision is within ±2% and output currents of up to 30mA.

Block Diagram



Aimtron reserves the right without notice to change this circuitry and specifications.

Pin Assignment



Ordering Information

Part number	Package	Marking
AT1202X	SOT-25	▲▲▲▲▲ Date Code
AT1202X_GRE	SOT-25, Green	▲▲▲▲▲ ,Date Code with one bottom line

▲▲▲▲▲: Date Code

******For more marking information, contact our sales representative directly*

Pin Description

Pin No.	Symbol	I/O	Description
1	VIN	P	Power Supply
2	GND	P	Ground
3	OUT	O	Regulator Output
4	FB	I	Feedback Input
5	/SHDN	I	Shutdown input, active low.

Absolute Maximum Ratings

Item	Symbol	Ratings	Units
Storage temperature	T_{STG}	-55～＋150	℃
Operating temperature	T_{OPR}	-30～＋85	℃
VIN		-0.3～+30	V
/SHDN,FB		-0.3～＋(VIN+0.3)	V
OUT		-0.3V～+30	V
Power consumption	Pd*1	570	mW

***1. Continuous Power Dissipation derate 7.1mW/℃ above +70℃**

Electrical Characteristics

(V_{IN}=15V, /SHDN = V_{IN}, I_{LOAD}=5μA, Ta=T_{MIN} to T_{MAX} ,unless otherwise note. Typical Ta =25^{0}C)

Parameter	Symbol	Condition	Values			Unit
			Min.	Typ.	Max.	
Input Voltage	V_{IN}		4	-	28	V
Supply Current	I_{IN}	/SHDN=VIN, Ta =25^{0}C	-	12	15	μA
		/SHDN=VIN,VIN=6~28V, Ta=T_{MIN} to T_{MAX}	-	-	20	μA
Shutdown Supply Current	I_{IN1}	/SHDN=GND, Ta =25^{0}C	-	-	3	μA
		/SHDN=GND, Ta=T_{MIN} to T_{MAX}	-	-	5	μA
Feedback Reference	V_{FB}	FB=OUT, Ta =25^{0}C VIN=6V to 28V,I_{LOAD}=1mA	1.215	1.240	1.265	V
		FB=OUT, VIN=6V to 28V, Ta=T_{MIN} to T_{MAX} I_{LOAD}=5 μA to 30mA	1.18	-	1.28	V
Feedback Input Current	I_{FB}	V_{FB} =1.3V	-10	12	30	nA
Dropout Voltage	ΔVDO	I_{LOAD}=30mA	-	-	350	mV
Output Current Limit		V_{IN}=6	-	100	-	mA
OUT Reverse Leakage Current		VIN=unconnected, OUT set to 5V	-	80	-	μA
Capacitive Load Requirement			0.33	-	-	μF/mA
Start-Up Time Response		R_L =500Ω,OUT set to 5V C_{OUT} =10 μF	-	-	2	ms
Start-Up overshoot		R_L =500Ω,C_{OUT} =10 μF OUT set to 5V with 90% output	-	0.5	-	%OUT
/SHDN Input Current	$I_{/SHDN}$	/SHDN=0 or 15V	-1	-	1	μA
/SHDN Input Level	V_{IH} V_{IL}		1.4 -	- -	- 0.25	V V

Typical Application Circuit

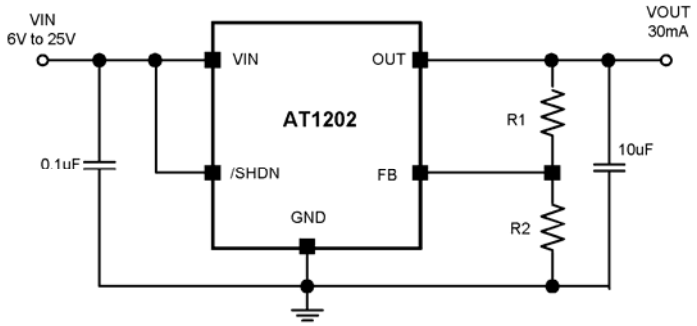


Fig1. AT1202 Typical Application Circuit

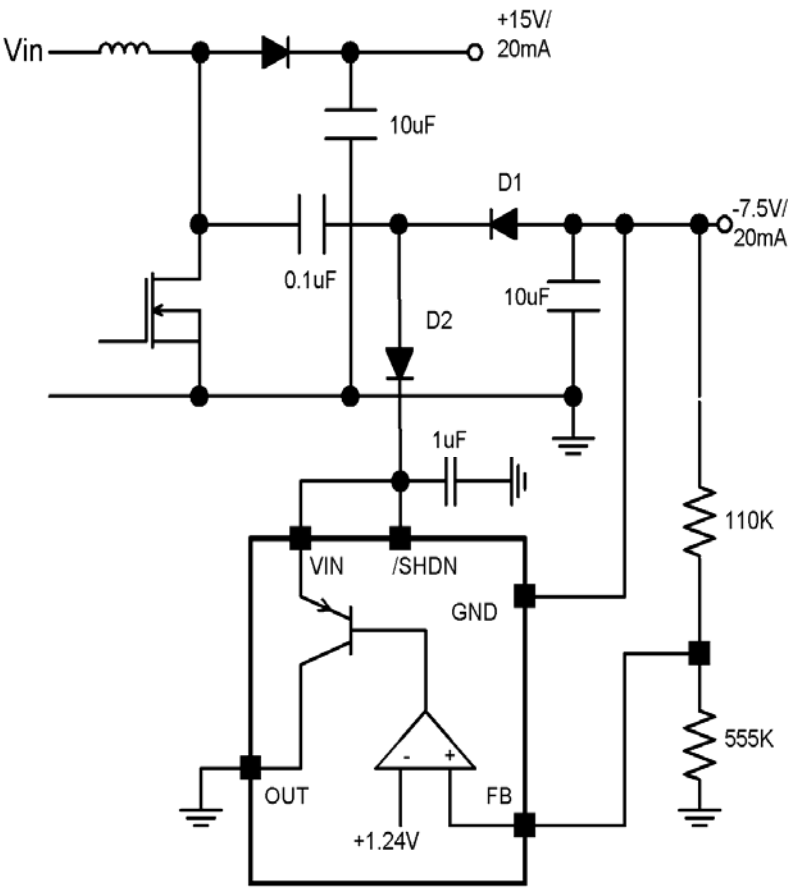


Fig2. Negatve Power supply

Typical Characteristics (C_{OUT}=10μF)

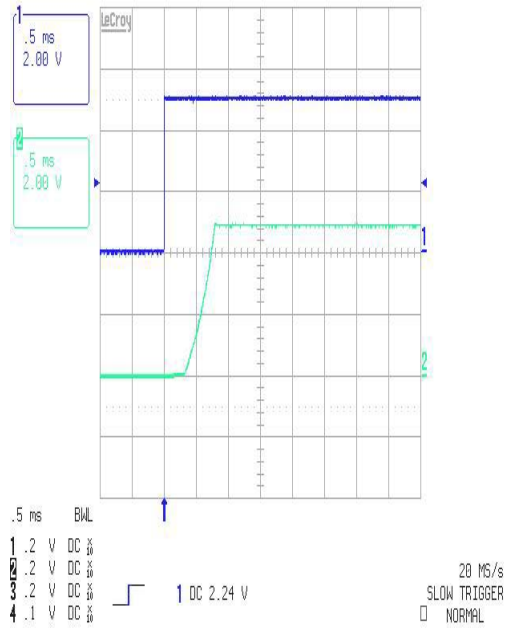


Fig1a. VOUT=5V Start-Up Response

(CH1:/SHDN CH2:V_{OUT}/30mA VIN=10V)

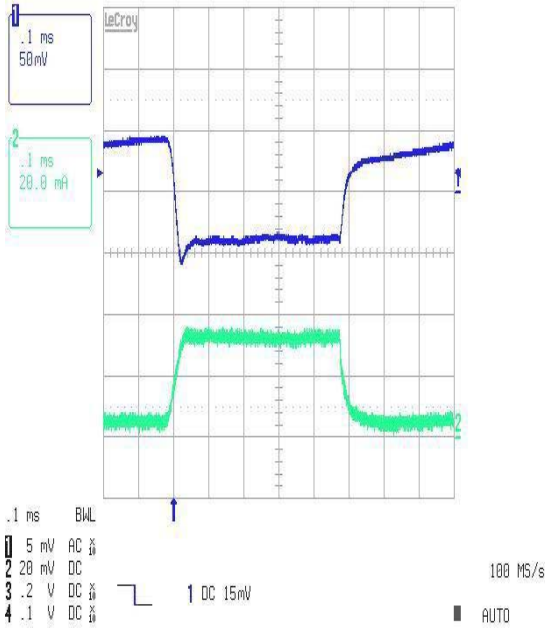


Fig1b. VOUT=5V Transient

(CH1:V_{OUT} CH2:I_{OUT})

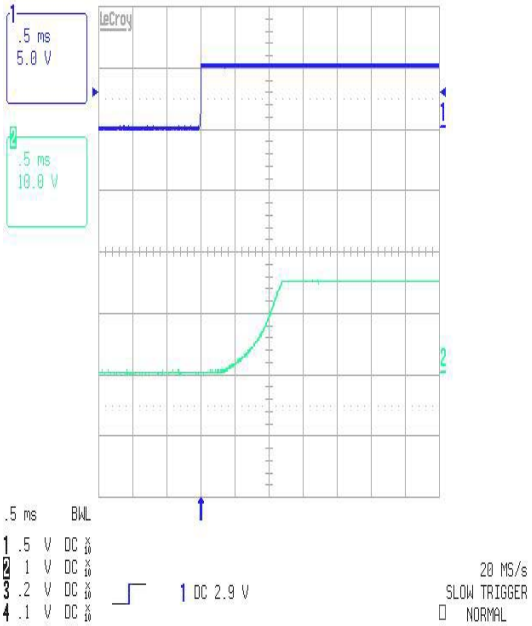


Fig 2a. VOUT=15V Start-Up Response

(CH1:/SHDN CH2:VOUT/30mA VIN=20V)

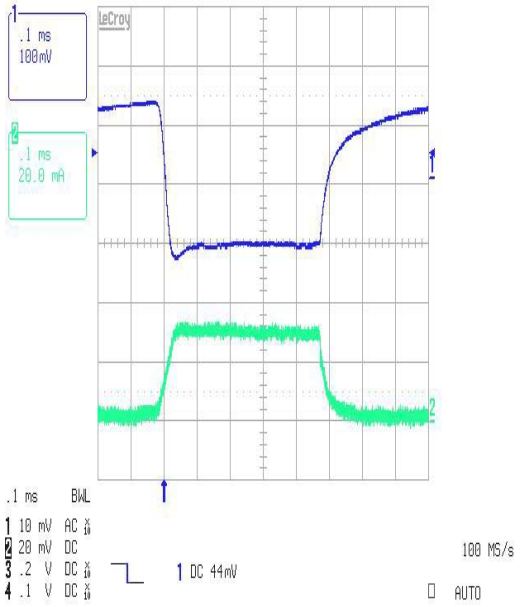
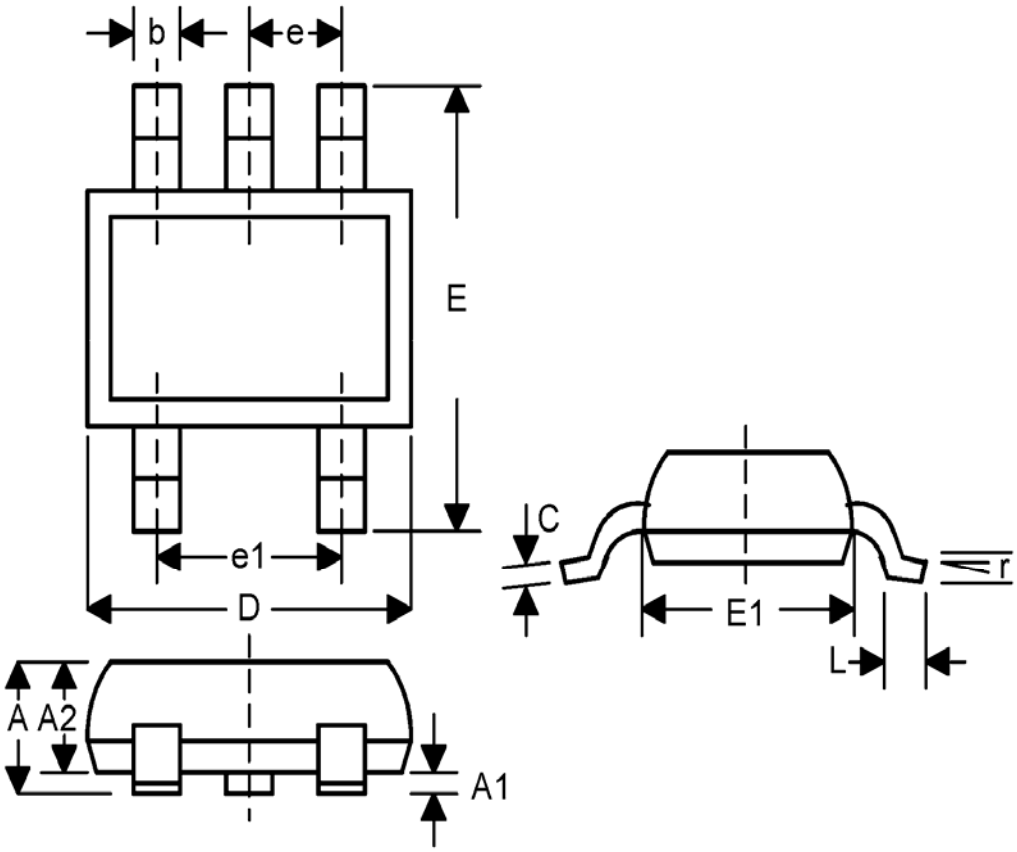


Fig2b. VOUT=15V Transient

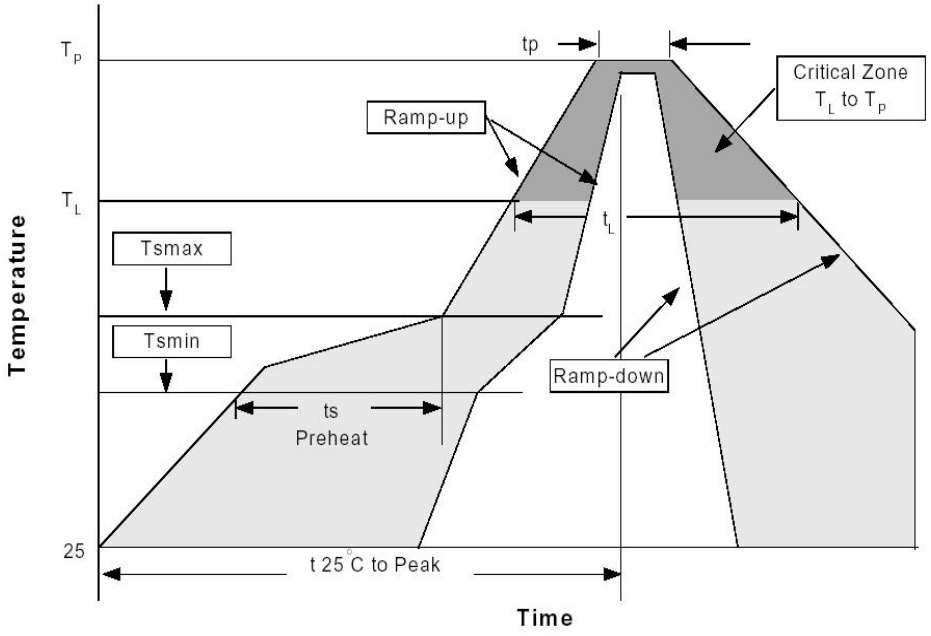
(CH1:V_{OUT} CH2:I_{OUT})

Small Outline SOT-25



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.035	0.057	0.90	1.45	-
A1	0.000	0.006	0.00	0.15	-
A2	0.035	0.051	0.90	1.30	-
b	0.010	0.020	0.25	0.50	-
C	0.003	0.008	0.08	0.20	-
D	0.110	0.122	2.80	3.10	-
E	0.102	0.118	2.60	3.00	-
E1	0.059	0.069	1.50	1.75	-
L	0.014	0.022	0.35	0.55	
e	0.037ref		0.95ref		
e1	0.075ref		1.90ref		
r	0^0	10^0	0^0	10^0	-

Reflow Profiles



Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body Pkg. thickness ≥2.5mm or Pkg. volume ≥350mm^3	**Small Body Pkg. thickness <2.5mm or Pkg. volume <350mm^3**	**Large Body Pkg. thickness ≥2.5mm or Pkg. volume ≥350mm^3**	**Small Body Pkg. thickness ≥2.5mm or Pkg. volume ≥350mm^3**
Average ramp-up rate (T_L to T_P)	3°C/second max.		3°C/second max.	
Preheat -Temperature Min(Tsmin) -Temperature Max (Tsmax) -Time (min to max)(ts)	 100°C 150°C 60-120 seconds		 150°C 200°C 60-180 seconds	
Tsmax to T_L -Ramp-up Rate			3°C/second max.	
Time maintained above: -Temperature (T_L) -Time (t_L)	 183°C 60-150 seconds		 217°C 60-150 seconds	
Peak Temperature(T_P)	225+0/-5°C	240+0/-5°C	245+0/-5°C	250+0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10-30 seconds	10-30 seconds	10-30 seconds	20-40 seconds
Ramp-down Rate	6°C/second max.		3°C/second max.	
Time 25°C to Peak Temperature	6 minutes max.		8 minutes max.	

***All temperatures refer to topside of the package, measured on the package body surface.**