AT1201

Preliminary Product Information

2.5/2.7/2.8/3.0/3.3/4.5/5.0V 150mA LDO

Features

- Output voltage 2.5/2.7/2.8/3.0/3.3/4.5/5.0V
- Output current 150mA
- Output noise voltage 35 μV_{rms}typ.
- No-load input current 90 μA typ.
- I/O voltage difference 0.1V typ.(Io=50mA)
- Ripple rejection ratio 70dB typ.
- Bulit-in On/Off control

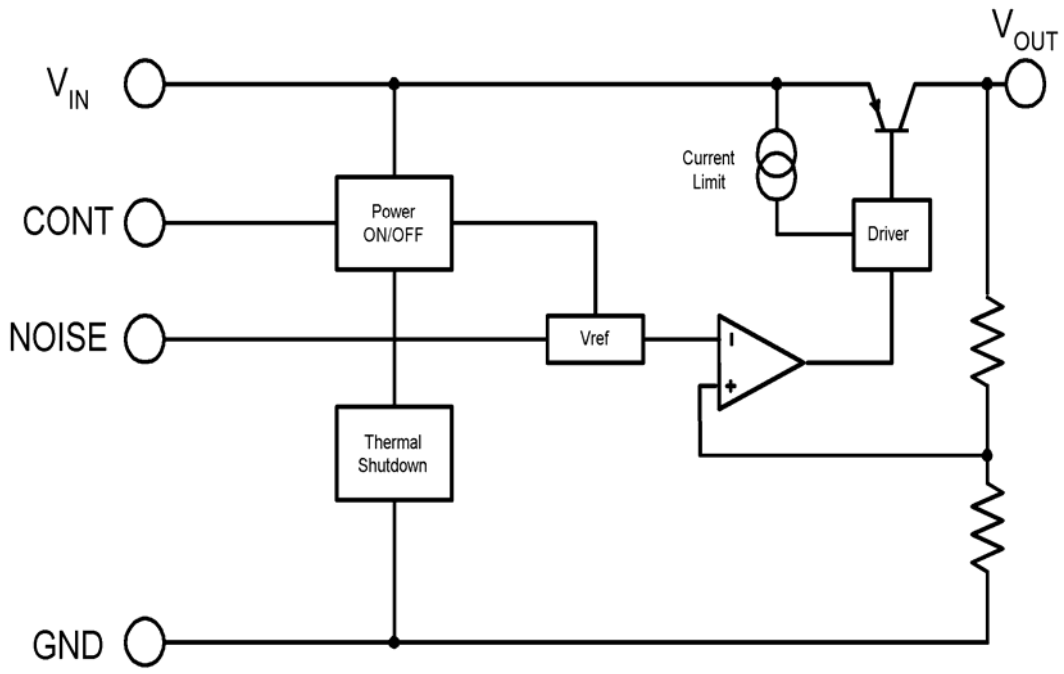
General Description

The AT1201 is a low-noise, low-dropout, low-quiescent-current linear regulator designed for battery-powered applications. The output voltage precision is within ±2% and output currents of up to 150mA；the input/output voltage difference at 50mA is only 0.1V.

Applications

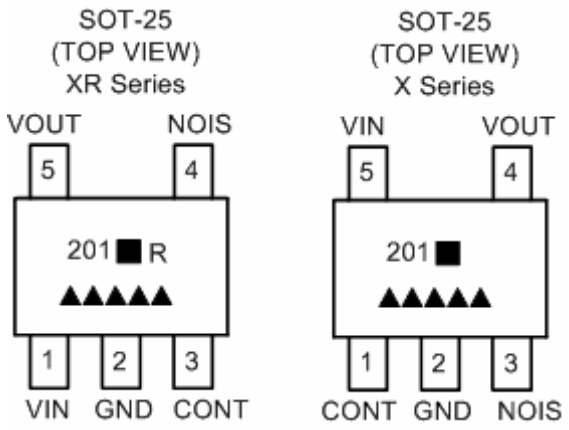
- Cordless phones
- Portable phones, PHS
- Other battery operating system

Block Diagram



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

Pin Assignment



Ordering Information

Part number	Package	Marking
AT1201-□□X	SOT-25	▲▲▲▲▲ Date Code
AT1201-□□X_Green	SOT-25, Green	▲▲▲▲▲ ,Date Code with one bottom line
AT1201-□□XR	SOT-25	▲▲▲▲▲ Date Code
AT1201-□□XR_Green	SOT-25, Green	▲▲▲▲▲ ,Date Code with one bottom line

□□:Output Voltage 25::2.5V 27::2.7V 28:2.8V 30:3.0V 33:3.3V 45::4.5V 50:5.0V

■: A:5V B:3.3V C:3.0V D:2.8V E:2.7V F:4.5V G:2.5V

▲▲▲▲▲ : Date Code

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

Absolute Maximum Ratings

Item	Symbol	Ratings	Units
Storage temperature	T_{STG}	-40～+125	℃
Operating temperature	T_{OPR}	-30～+85	℃
Power supply voltage	V_{CC}	-0.3～+14	V
Output current	I_{OUT}	200	mA
Power consumption	Pd	150	mW

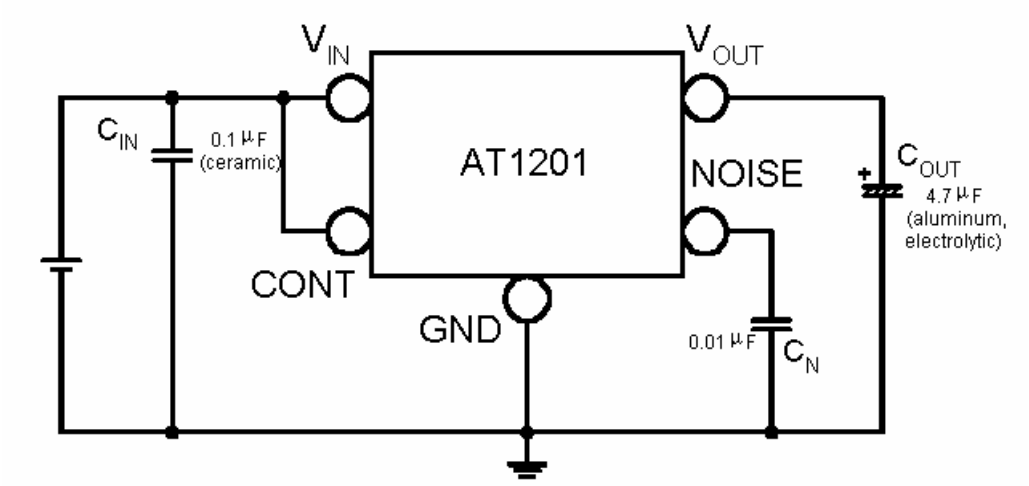
Recommended Operating Condition

Item	Symbol	Ratings	Units
Operating temperature	T_{OP}	-20～+75	℃
Output current	I_{OP}	0～150	mA
Operating voltage	V_{OP}	3.4～10	V

Electrical Characteristics (Except where noted otherwise, Ta＝25℃)

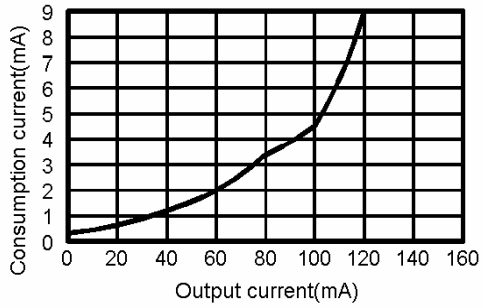
Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Units
Output voltage	V_O	$V_{IN}=V_O+1V$, $I_O=30mA$	V_{OUT} -2%	V_{OUT}	V_{OUT} +2%	V
No-load consumption current	Iccq1	$V_{IN}=V_O+1V$, $I_O=0mA$		90	180	μA
Input current while off	Iccq2	$V_{IN}=V_O+1V$, $V_{CONT}=0V$			0.1	μA
I/O voltage difference	Vd min	$V_{IN}=V_O-0.2V$, $I_O=50mA$		0.1	0.2	V
Input fluctuations	ΔV1	$V_{IN}=V_O+1V\sim10V$, $I_O=50mA$		10	20	mV
Load fluctuation	ΔV2	$V_{IN}=V_O+1V$, $I_O=0\sim100mA$		30	60	mV
Output voltage temperature coefficient	$\Delta V_O/\Delta T$	Tj=-20~+75℃, $V_{IN}=V_O+1V$, $I_O=30mA$		100		ppm/℃
Ripple rejection rate	RR	$V_{IN}=V_O+1V$, $I_O=30mA$, $V_{RIPPLE}=1V_{P-P}$, f=120Hz	50	70		dB
Output noise voltage	Vn	$V_{IN}=V_O+1V$, f=20~80kHz, $I_O=30mA$, Cn=0.01 μF		35 (3V item)		μVrms
C_{ONT} pin current while on	I_{CONT}	$V_{CONT}=1.6V$		5	15	μA
C_{ONT} pin high level	H		1.6		V_{IN} +0.3V	V
C_{ONT} pin low level	L		-0.3		0.4	V

Measuring Circuit

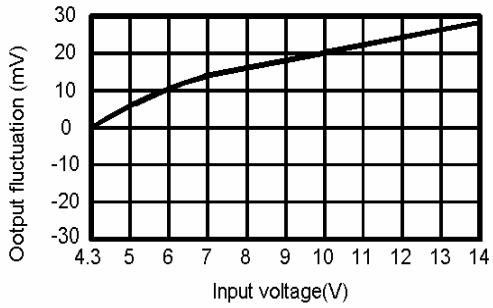


Characteristics (33X,33XR Series)

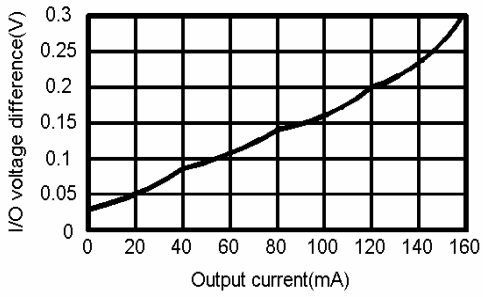
• **Consumption current (V_{IN}=4.3V)**



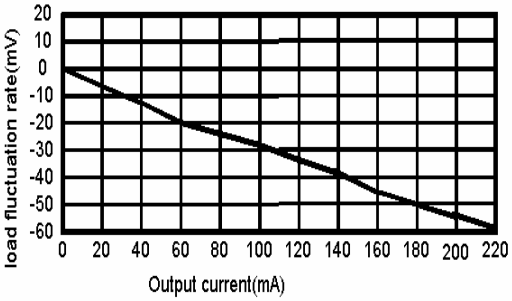
• **Output fluctuation (I_O=30mA)**



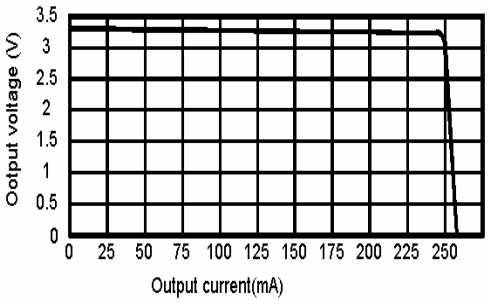
• **I/O voltage difference (V_{IN}=3.1V)**



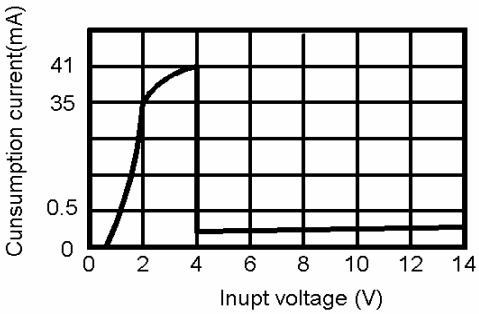
• **Load fluctuation (V_{IN}=4.3V)**



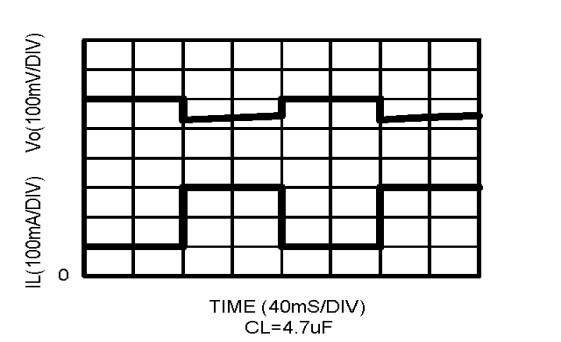
• **Current limit (V_{IN}=4.3V)**



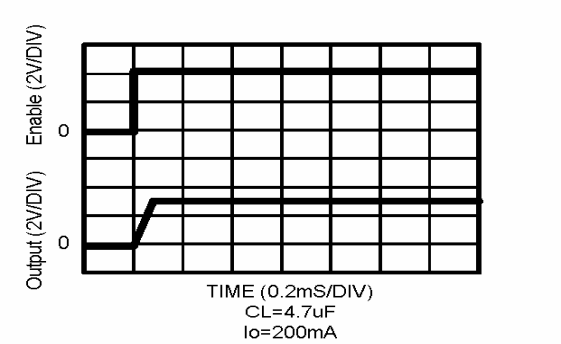
• **No-load input current**



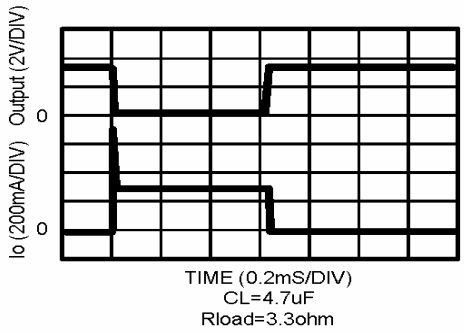
• **Load step (1mA-200mA)**



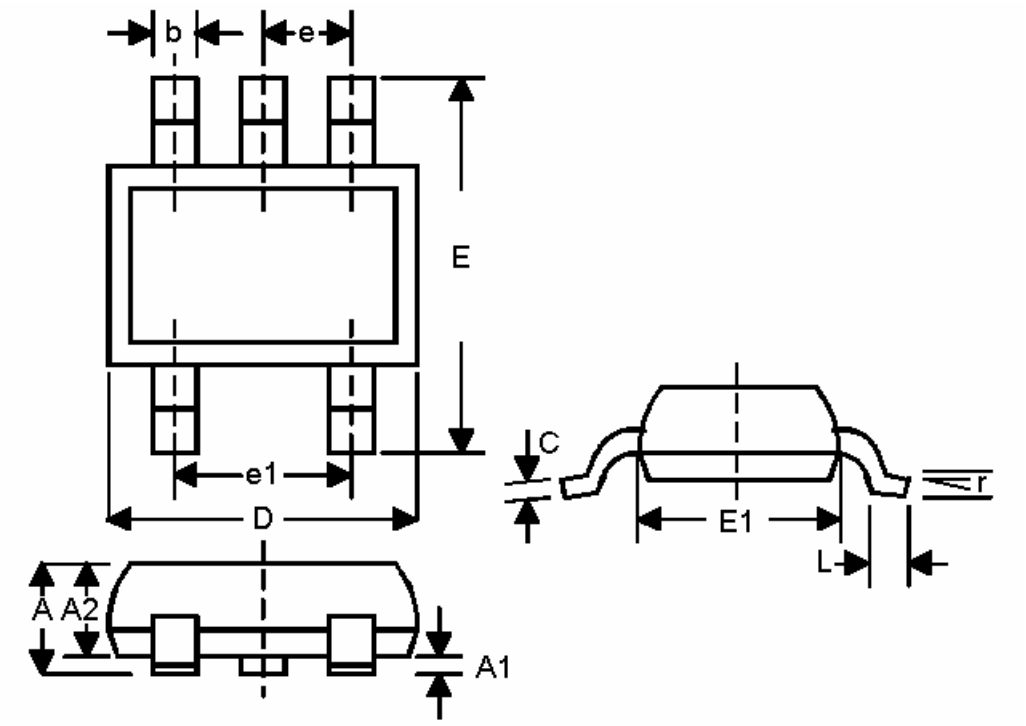
• **Chip enable transient response**



• **Current limit response**

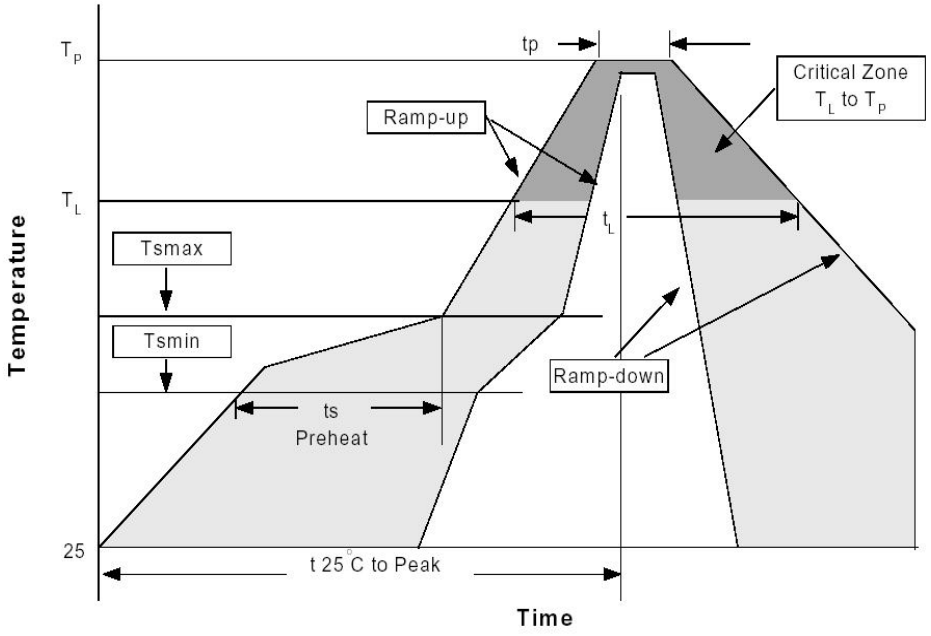


Small Outline SOT-25



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.**