

Features

- 1.3V maximum dropout at full load currentFast transient response
- Output current limiting for each channel
- Built-in thermal shutdown each channel
- Good noise rejection
- Dual output ch1=3.3V, ch2=2.5V (1.8V for B version)
- Lead Free Package: SOP-8L
- Lead Free Finish/ RoHS Compliant (Note 1)

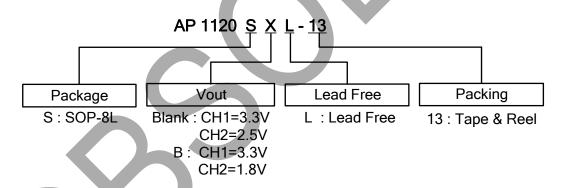
General Description

AP1120 series are low dropout positive regulator to provide 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 3.3V/2.5V or 3.3V/1.8V logic supply. AP1120 series are guaranteed to have <1.3V dropout at full load current making it ideal to provide well regulated outputs dual channels with up to 18V input supply.

Applications

- PC peripheral
- Communication

Ordering Information



	Device	Package Code	Packaging (Note 2)	13" Tape and Reel		
	Device			Quantity	Part Number Suffix	
o l	AP1120SXL-13	S	SOP-8L	2500/Tape & Reel	-13	

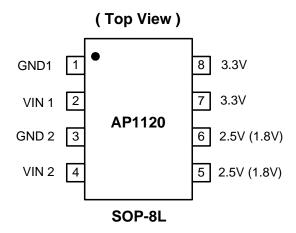
Notes:

Pb

- 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html.
- Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be on found our website at http://www.diodes.com/datasheets/ap02001.pdf.



Pin Assignments

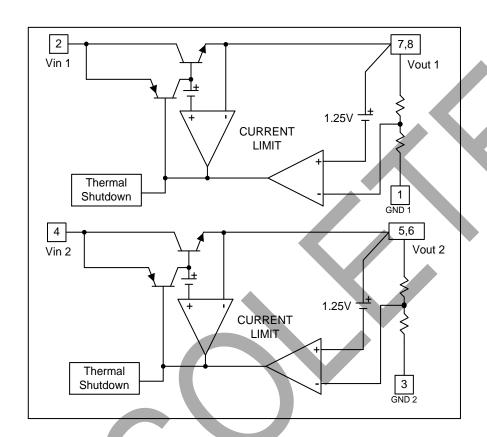


Pin Descriptions

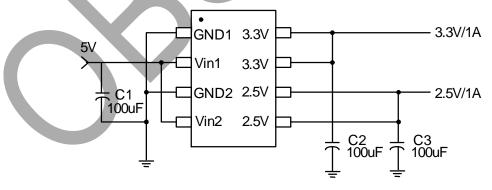
Pin Name	Description			
GND1/2	Ground			
3.3V (Vout1)	The output of the regulator. A minimum of 10uF capacitor (0.15 Ω \leq ESR \leq 20 Ω) must be			
2.5V/1.8V (Vout2)	connected from this pin to ground to insure stability.			
VIN1/2	The input pin of regulator. Typically a large storage capacitor $(0.15\Omega \le \text{ESR} \le 20\Omega)$ is connected from this pin to ground.			



Block Diagram



Typical Circuit





Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{IN}	DC Supply Voltage	-0.3 to 18 V	V
P _D	Power Dissipation	Internally Limited	
T _{ST}	Storage Temperature	-65 to +150	ပိ
T _{OP}	Operating Junction Temperature Range	0 to +150	°C

Electrical Characteristics (Under Operating Conditions)

Parameter	Conditions		Min	Тур.	Max	Unit
	AP1120(B) - V _{OUT1}	$I_{OUT} = 10 \text{mA}, T_A = 25^{\circ}\text{C}, 4.8 \text{V} \le \text{V}_{IN} \le 12 \text{V}$	3.235	3.300	3.365	V
Output Voltage	AP1120 - V _{OUT2}	$\begin{aligned} I_{OUT} &= 10 \text{mA}, \ T_A = 25^{\circ}\text{C}, \\ 4V &\leq V_{1N} \leq 12 \text{V} \end{aligned}$	2.450	2.500	2.550	V
	AP1120B - V _{OUT2}	$\begin{split} I_{OUT} &= 10 mA, \ T_A = 25^{\circ}C, \\ 4V &\leq V_{IN} \leq 12V \end{split}$	1.764	1.800	1.836	V
Line Regulation	$I_O=10$ mA, $V_{OUT}+1.5$ V $<$ V			0.2	%	
Load Regulation	AP1120 series V _{OUT1}	$V_{IN} = 5V, 0 \le I_{OUT} \le 1A,$ $T_A = 25^{\circ}C \text{ (Note 3, 4)}$		26	33	mV
J	AP1120 series V _{OUT2}	V_{IN} =4V, 0mA <lo<1a, T_A =25°C (Note 3, 4)</lo<1a, 		20	25	mV
Dropout Voltage (V _{IN} -V _{OUT})	$I_{OUT} = 1A, \Delta V_{OUT} = 0.1\% V_{OUT}$			1.3	1.4	V
Current Limit	$(V_{IN}-V_{OUT})=5V$		1. 1			Α
Minimum Load Current	0°C≤Tj≤125°C (Note 5)			5	10	mA
Thermal Regulation	T _A =25 °C, 30ms pulse			0.008	0.04	%/W
Ripple Rejection	F=120Hz,C _{OUT} =25uF Tantalum, I _{OUT} =1A			60	70	dB
Temperature Stability	ermal Resistance (Note 6) n-to-Ambient (No CH1 or CH2 only			0.5		%
$\theta_{\rm JA}$ Thermal Resistance Junction-to-Ambient (No heat sink; No air flow)				50 45		°C/W
$\theta_{\rm JC}$ Thermal Resistance Junction-to-Case	SOP-8L: Control Circuitry/Power Transistor (Note 6) CH1 or CH2 only CH1 & CH2 and PD1=PD2			20 12		°C/W

Notes:

- See thermal regulation specifications for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead = 1/18" from the package.
- 4. Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the input/output differentially and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range.
- 5. Quiescent current is defined as the minimum output current that requires maintaining regulation. At 12V input/output
- differential the device is guaranteed to regulate if the output current is greater than 10mA.

 6. Vout1 and Vout2 are connected to the PCB copper area 5.5mm*5.5mm separately. If you need large PD or lower Tc & Tj, please connect to the large copper area >> 5.5mm*5.5mm (like 10mm*10mm).

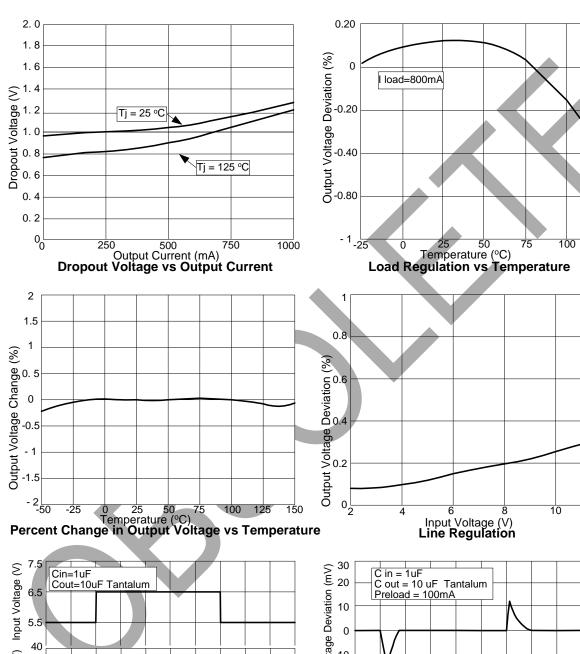
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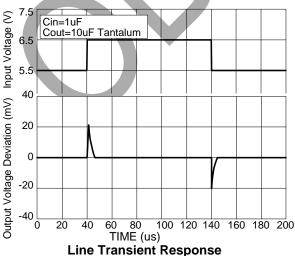
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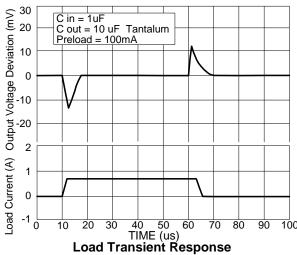


DUAL 1A LOW DROPOUT POSITIVE REGULATOR

Typical Performance Characteristics



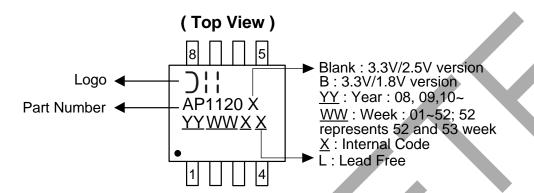






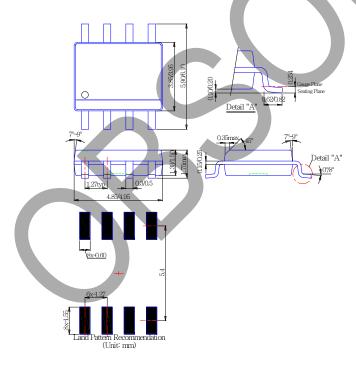
Marking Information

(1) SOP-8L



Package Information (All Dimensions in mm)

(1) Package type: SOP-8L





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