

LAS 1500, 15U, 1800, 18U voltage regulators

- Guaranteed input-output differential at 1A 2.4V pos. and 2.1V neg.
- Guaranteed output noise voltage 10 $\mu\text{V}/\text{volt}$ of output

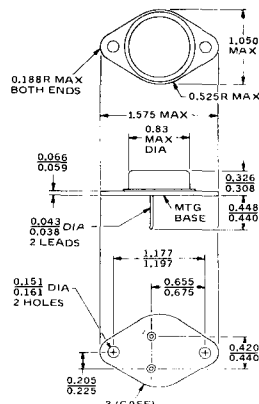
Performance specifications for LAS 1500, 15U, 1800 and 18U voltage regulators

Parameter	Symbol	V_{IN} (volts)	I_O	T_J	LAS 1500 Test Limits		LAS 15U Test Limits		LAS 1800 Test Limits		LAS 18U Test Limits		Units
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Input Voltage	V_{IN}	—	5mA	0-125°C	$V_O+2.4V$	35 [40] (2)	$V_O+2.4V$	35 [40] (2)	-35 [-40] (2)	$V_O-2.1(1)$	-35 [-40] (2)	$V_O-2.1(1)$	Volts
Output Voltage(3)	V_O	V_1 to V_2	5mA to 1.0A	25°C	0.95 V_O (4)	1.05 V_O (4)	4(5)	30	0.95 V_O (4)	1.05 V_O (4)	-30	-2.6(5)	Volts
Input Output Differential	$V_{IN}-V_O$	—	1.0A	0-125°C	2.4	—	2.4	—	2.1	—	2.1	—	Volts
Output Current	I_O	—	—	25°C	—	1.5	—	1.5	—	1.5	—	1.5	Amps
Standby Current	I_Q	V_1	—	25°C	—	10	—	10	—	10	—	10	mA
Standby Current Change with input (6)	ΔI_Q	V_1 to V_2	5mA	25°C	—	1.3	—	1.3	—	1.3	—	1.3	mA
Standby Current Change with Load	ΔI_Q	V_1	5mA to 1.5A	25°C	—	0.75	—	0.5	—	0.5	—	0.75	mA
Maximum Current Limit	I_{LIM}	V_1	—	0-125°C	—	2.8	—	2.8	—	2.8	—	2.8	Amps
Short Circuit Current (7)	I_S	20V [-20V]	—	0-125°C	—	1.6	—	1.6	—	1.6	—	1.6	Amps
Short-Circuit Current (8)	I_S	30V [-30V]	—	0-125°C	—	0.8	—	0.8	—	0.8	—	0.8	Amps
Power Dissipation (10)	PD	—	—	—	—	15	—	15	—	15	—	15	Watts
Thermal Resistance Junction-to-case	θ_{JC}	—	—	—	—	3	—	3	—	3	—	3	°C per watt
Storage Temperature	T_S	—	—	—	-65	+150	-65	+150	-65	+150	-65	+150	°C
Maximum Operating Junction Temperature	T_J	—	—	—	-55	+150	-55	+150	-55	+150	-55	+150	°C
Regulation -- Load (9)	(REG) _L	V_1	5mA to 1.5A	25°C	—	0.6	—	0.6	—	0.6	—	0.6	% V_O
Regulation -- Line (9)	(REG) _{LN}	V_1 to V_3	0.1A	25°C	—	1.0	—	1.0	—	1.0	—	1.0	% V_O
		V_1 to V_3	0.5A	25°C	—	2.0	—	2.0	—	2.0	—	2.0	% V_O
		V_1 to V_2	1.0A	25°C	—	2.0	—	2.0	—	2.0	—	2.0	% V_O
Temperature Coefficient	T_C	V_1	0.1A	0-125°C	—	0.03	—	0.03	—	0.03	—	0.03	% V_O per °C
Output Noise Voltage (11)	V_N	V_1	0.1A	0-125°C	—	10	—	10	—	10	—	10	$\mu\text{Vrms}/\text{V}$
Ripple Attenuation	R_A	V_O-10V	1.0A	0-125°C	58(12)	—	58(12)	—	59(13)	—	59(13)	—	dB
Control Voltage	V_C	V_1 to V_2	5mA	25°C	—	—	3.50	4.0	—	—	-2.6	-2.25	V

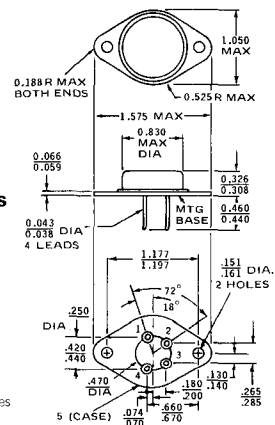
NOTES

- Maximum input voltage is -6 volts.
- Values of 35V (-35V) applies to V_O 4V to 12V for 1500 Series and -2V to -12V for 1800 Series. Values of 40V (-40V) applies to V_O of +15 to +30 volts.
- For positive regulator $V_1 = V_O + 5V$, $V_2 = V_O + 15V$ or the maximum input voltage whichever is less. For negative regulators $V_1 = V_O - 5V$, $V_2 = V_O - 15V$ or the minimum value of input voltage whichever is smaller in magnitude.
- Nominal output voltage are specified under ordering information.
- $V_O = V_C \{1 + \frac{R_1}{R_2}\}$, R_1 - resistance from output to control, R_2 - resistance from control to common.
- For positive regulator $V_3 = V_O + 20V$ or the maximum input voltage whichever is less. For negative regulator $V_3 = V_O - 20V$ or the minimum value of input voltage whichever is smaller in magnitude.
- Applies to those devices with $|V_O| = 2V$ to 18V.
- Applies to those devices with $|V_O| = 20V$ to 30V.
- Instantaneous regulation.
- Derate above $T_C = 105^\circ\text{C}$ 333mW per °C.
- Specified in $\mu\text{Vrms}/\text{volt}$ output. BW = 10HZ - 100K HZ.
- Ripple attenuation is specified for a 1 Vrms, 120 HZ input ripple. Ripple attenuation is a minimum of 58 db at 5 volts output and is 1 db less for each volt increase in output voltage.
- Ripple attenuation is specified for a 1 Vrms, 120 HZ input ripple. Ripple attenuation is a minimum of 59 db at -2 volts output and is 1 db less for each volt increase in output voltage.

Outline drawings - fixed output LAS 1500-1528, 1802-1828



Outline drawings - variable output LAS 15U, 18U



Connections

- LAS 1500**
1. Input
 2. Output
 3. Common (Case)
- LAS 1800**
1. Common
 2. Output
 3. Input (Case)

Note: Dimensions in inches

Connections

- LAS 15U**
1. Common
 2. Control
 3. Output
 4. Input
 5. Common (Case)
- LAS 18U**
1. Input
 2. Control
 3. Output
 4. Common
 5. Input (Case)

Ordering information - Monolithic voltage regulators

15 watt 1.5A positive regulators LAS 1500 Series - fixed output

Type	Output Voltage (Vdc)	£	£
LAS 1500	+5	2.43	1.94
LAS 1506	+6	2.43	1.94
LAS 1508	+8	2.43	1.94
LAS 1510	+10	2.43	1.94
LAS 1512	+12	2.43	1.94
LAS 1515	+15	2.43	1.94
LAS 1518	+18	2.43	1.94
LAS 1520	+20	2.43	1.94
LAS 1524	+24	2.43	1.94
LAS 1528	+28	2.43	1.94

LAS 15U - variable output

Type	Output Voltage (Vdc)	£	£
LAS 15U	+4 to +30	4.03	3.22

15 watt 1.5A negative regulators LAS 1800 Series - fixed output

Type	Output Voltage (Vdc)	£	£
LAS 1802	-2	3.22	2.57
LAS 1805	-5	3.22	2.57
LAS 1805-2	-5.2	3.22	2.57
LAS 1806	-6	3.22	2.57
LAS 1808	-8	3.22	2.57
LAS 1810	-10	3.22	2.57
LAS 1812	-12	3.22	2.57
LAS 1815	-15	3.22	2.57
LAS 1818	-18	3.22	2.57
LAS 1820	-20	3.22	2.57
LAS 1824	-24	3.22	2.57
LAS 1828	-28	3.22	2.57

LAS 18U - variable output

Type	Output Voltage (Vdc)	£	£
LAS 18U	-4 to -30	5.30	4.25

Absolute maximum ratings

- Input Voltage ($V_O = 5V$ to 12V)
($V_O = 15V$ to 30V)
- Internal Power Dissipation
- Operating Junction Temperature Range
- Storage Temperature Range
- Terminal Temperature (1/16" from case)
- Thermal Resistance, junction-to-case
- Derate above $T_C = 105^\circ\text{C}$
- 35 volts or -35 volts
40 volts or -40 volts
Internally Limited
-55°C to +150°C
-65°C to +150°C
+300°C for 10 sec.
3°C per watt
333mW per °C

Please contact Lambda (High Wycombe 36386) or our distributors for higher quantity prices. Device configurations, specifications and prices are subject to change without notice.

Prices do not include V.A.T.

- Guaranteed 0.6% load regulation at 1.5A
- Thermal and safe area protection

LAS 1500, 15U, 1800, 18U voltage regulators



Operational Data LAS1500 and LAS15U series — Positive Regulators

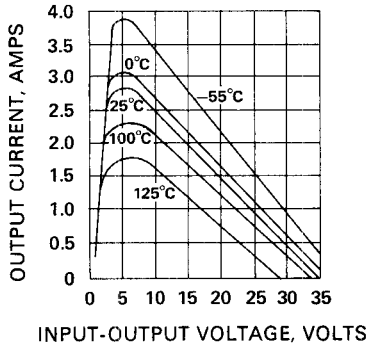


Fig. 1. Typical current limit specifications.

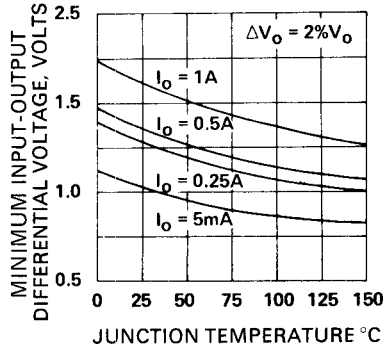


Fig. 2. Typical minimum input-output differential voltage VS temperature.

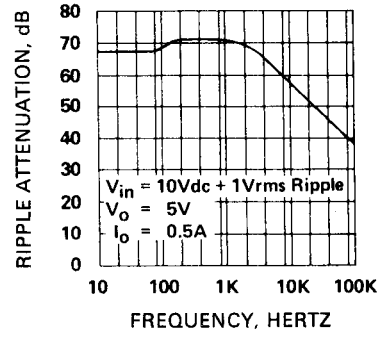


Fig. 3. Typical ripple attenuation VS frequency.

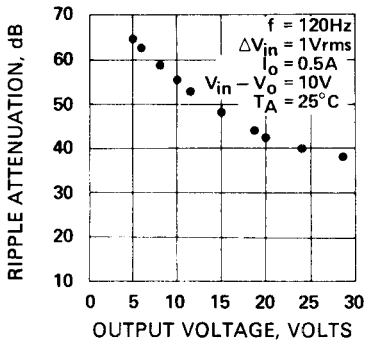


Fig. 4. Typical ripple attenuation VS output voltage.

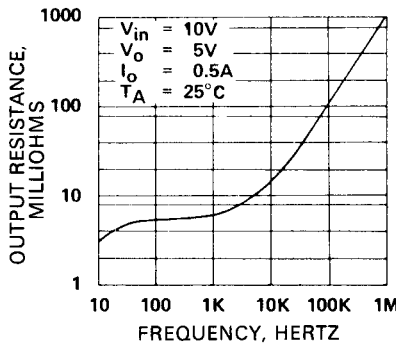


Fig. 5. Typical output resistance VS frequency.

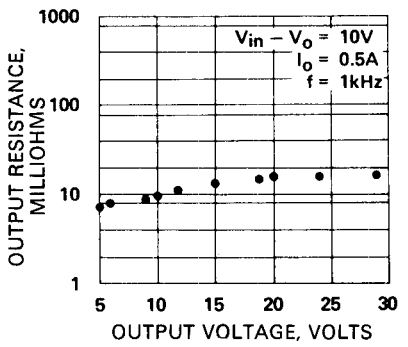


Fig. 6. Typical output resistance VS voltage.

Operational Data LAS1800 and LAS18U series — Negative regulators

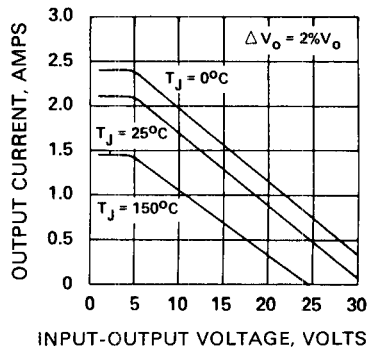


Fig. 7. Typical current limit specifications.

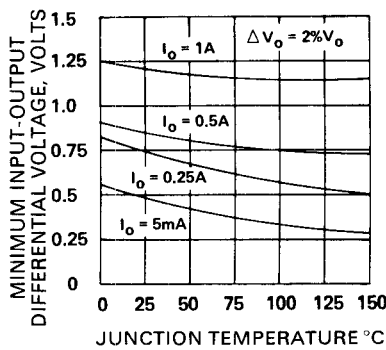


Fig. 8. Typical minimum input-output differential voltage VS temperature.

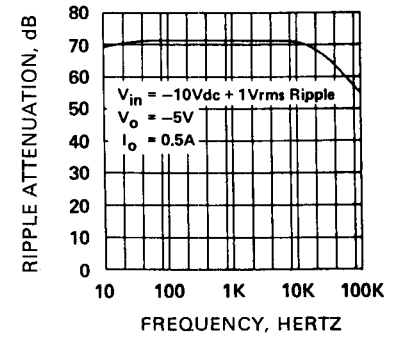


Fig. 9. Typical ripple attenuation VS frequency.

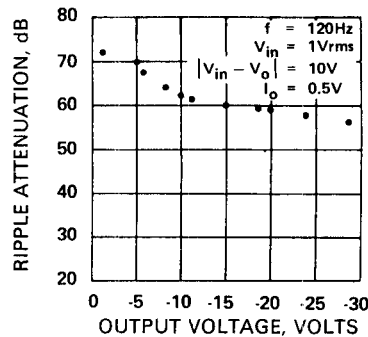


Fig. 10. Typical ripple attenuation VS output voltage.

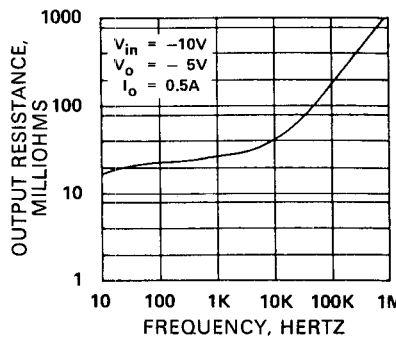


Fig. 11. Typical output resistance VS frequency.

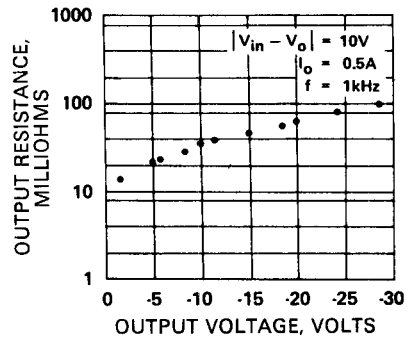


Fig. 12. Typical output resistance VS voltage.

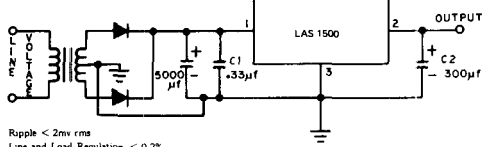


LAS 1500, 15U, 1800, 18U voltage regulators

- 4 to 30V output (positive),
- 2 to 30V output (negative)

Typical applications- 1.5 A regulators

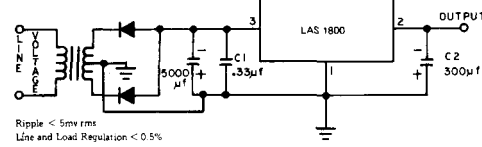
Positive



Ripple < 2mv rms
Line and Load Regulation < 0.2%

Fig. 1. 1.5 Amp power supply fixed output.

Negative



Ripple < 5mv rms
Line and Load Regulation < 0.5%

Fig. 7. 1.5 Amp power supply fixed output.

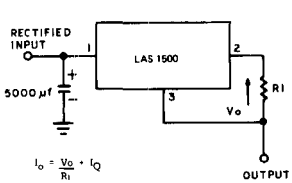


Fig. 2. Current regulator fixed output.

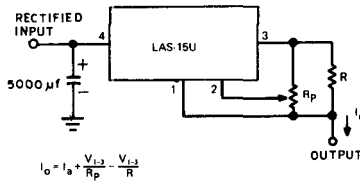


Fig. 3. Current regulator variable output.

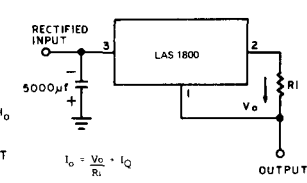


Fig. 8. Current regulator fixed output.

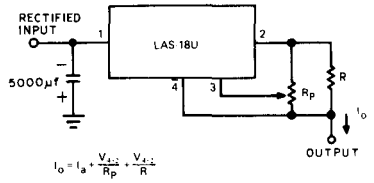


Fig. 9. Current regulator variable output.

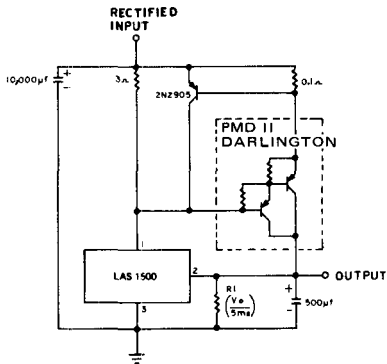


Fig. 4. 5 Amp voltage regulator fixed output.

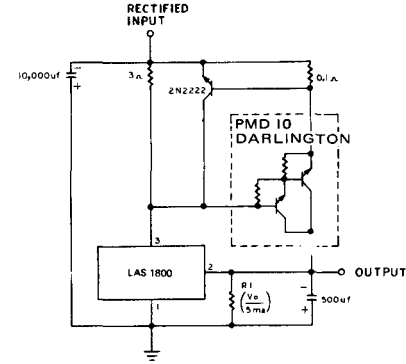
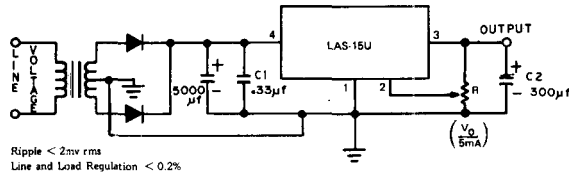
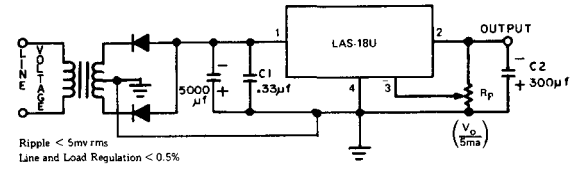


Fig. 10. 5 Amp voltage regulator fixed output.



Ripple < 2mv rms
Line and Load Regulation < 0.2%

Fig. 5. 1.5 Amp adjustable power supply.



Ripple < 5mv rms
Line and Load Regulation < 0.5%

Fig. 11. 1.5 Amp adjustable power supply.

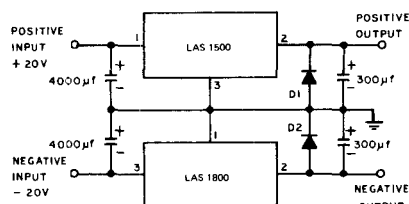


Fig. 6. ±15 Volt regulators fixed output.

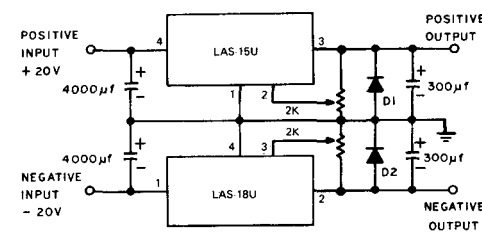


Fig. 12. ±15 Volt adjustable regulators.