



LAS 1400, 14U voltage regulators

- Guaranteed load regulation at 3A – 0.6% V_o
- Guaranteed temperature coefficient – 0.015% $V_o/^\circ\text{C}$

Performance specifications for LAS 1400 and LAS 14U voltage regulators

Parameter	Symbol	Test Conditions V_{in} (volts)	I_o	T_j	LAS 1400 Test Limits		LAS 14U Test Limits		Units
					Min.	Max.	Min.	Max.	
Input Voltage	V_{IN}	—	5mA	0-125°C	$V_o + 2.5V$	35[40] (1)	$V_o + 2.5$ (10)	35[40] (1)	Volts
Output Voltage (2)	V_o	V_1 to V_2	5mA to 3.0A	25°C	0.95 V_o (3)	1.05 V_o	2.65 (4)	30	Volts
Input Output Differential	$V_{IN} - V_o$		3.0A	0-125°C	2.5	25	2.5	25	Volts
Output Current	I_o			25°C		3.0		3.0	Amps
Standby Current	I_Q	V_1		25°C	6.5	14.0	6.5	14.0	mA
Standby Current Change with input	ΔI_Q	V_1 to V_3	5mA	25°C		1.3		1.3	mA
Standby Current Change with Load	ΔI_Q	V_1	5mA to 3.0A	25°C		1.5		1.5	mA
Maximum Current Limit	I_{LIM}	V_1	—	25°C		4.5		4.5	Amps
Short-Circuit Current	I_S	25V	—	25°C		2.0		2.0	Amps
Power Dissipation (6)	P_D					30		30	Watts
Thermal Resistance Junction-to-case	θ_{J-C}					2.25		2.75	°C per Watt
Storage Temperature	T_S				-65	+150	-65	+150	°C
Maximum Operating Junction Temperature	T_J				-55	+150	-55	+150	°C
Regulation — Load (5) (2)	(REG) _L	V_1	5mA to 3.0A	25°C		0.6		0.6	% V_o
Regulation — Line (5) (2)	(REG) _{IN}	V_1 to V_2	2.0A	25°C		1.0		1.0	% V_o
Temperature Coefficient	T_C	V_1	5mA	0-125°C		0.015		0.015	% V_o per °C
Output Noise Voltage (7)	V_N	V_1	0.1A	0-125°C		10		10	$\mu\text{Vrms/V}$
Ripple Attenuation	R_A	$V_o - 10V$	2.0A	0-125°C	60 (8)		66 (9)		dB
Control Voltage	V_C	V_1 to V_2	5mA	25°C	—	—	2.375	2.625	V

NOTES

1. Values of 35V applies to $V_o = 5V$ to 12V. Values of 40V applies to V_o of +15 volts.
2. $V_1 = V_o + 5V$, $V_2 = V_o + 15V$, $V_3 = V_o + 10V$.
3. Nominal output voltages are specified under ordering information.
4. $V_o = V_C [1 + \frac{R_1}{R_2}]$ R_1 — resistance from output to control.
 R_2 — resistance from control to common.
5. Instantaneous regulation average chip temperature changes must be accounted for separately.

6. Derate above $T_C = 80^\circ\text{C}$ 444mW per °C for LAS 1405-1415. Derate above $T_C = 70^\circ\text{C}$ 364 mW per °C for LAS-14U.
7. Specified in $\mu\text{Vrms/volt}$ output. BW = 10HZ-100K HZ.
8. Ripple attenuation is specified for a 1 Vrms, 120 HZ input ripple. Ripple attenuation is a minimum of 60 dB at 5 volts output and is 1 db less for each volt increase in output voltage.
9. Ripple attenuation is specified for a 1 Vrms, 120 HZ input ripple. Ripple attenuation is a minimum of 66 dB at 5 volts output and is 1 db less for each volt increase in output voltage.
10. Minimum input voltage is 6V.



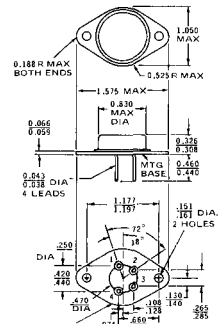
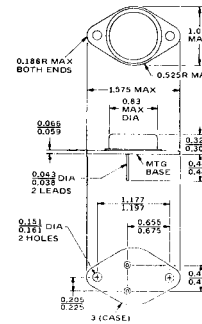
LAS 1405-1415



LAS 14U

Outline drawing — fixed output

Outline drawing — variable output



Note: Dimensions in inches.

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Ordering Information

Monolithic Voltage Regulators 30 watt 3A.

LAS 1400 Series — fixed output

Type	Output Voltage (Vdc)	£	£
		1-24	25-99
LAS 1405	+5	6.40	5.14
LAS 1406	+6	6.40	5.14
LAS 1408	+8	6.40	5.14
LAS 1410	+10	6.40	5.14
LAS 1412	+12	6.40	5.14
LAS 1415	+15	6.40	5.14

LAS 14U Series — variable output

Type	Output Voltage (Vdc)	£	£
		1-24	25-99
LAS 14U	+2.65 to +30	10.05	8.49

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

Prices do not include V.A.T.

Absolute maximum ratings

Input Voltage ($V_o = 5V$ to 12V)	35 volts
($V_o = 15V$ to 30V)	40 volts
Internal Power Dissipation	Internally Limited
Operating Junction Temperature Range	-55°C to +150°C
Storage Temperature Range	-65°C to +150°C
Terminal Temperature (1/16" from case)	+300°C for 10 sec.
Thermal Resistance, junction-to-case (LAS 1400)	2.25°C per watt
(LAS 14U)	2.75°C per watt
Derating (LAS 1400, T_C above 80°C)	444mW per °C
(LAS 14U, T_C above 70°C)	364mW per °C

- Guaranteed input-output differential—2.5 volts
- Guaranteed ripple attenuation—60dB

LAS 1400, 14U voltage regulators



Operational data LAS1400 and 14U monolithic 3A voltage regulators

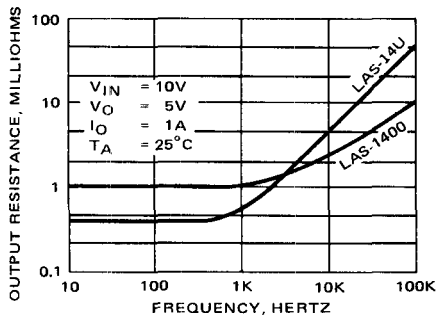


Fig. 1. Typical output resistance VS frequency.

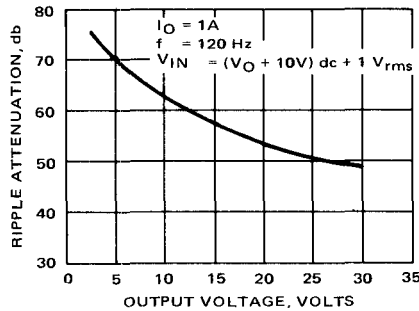


Fig. 2. Typical ripple attenuation VS output

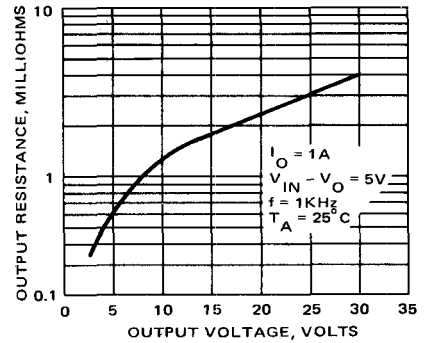


Fig. 3. Typical output resistance VS output voltage.

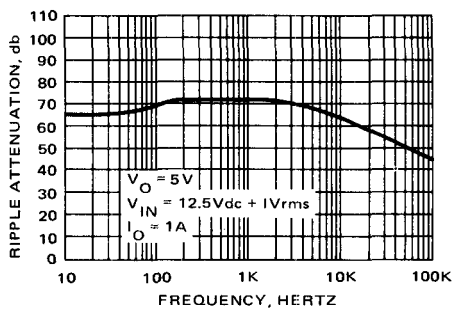


Fig. 4. Typical ripple attenuation VS frequency.

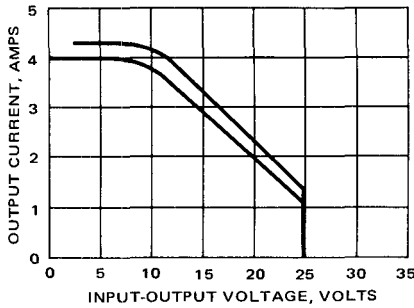


Fig. 5. Typical current limit VS input-output differential

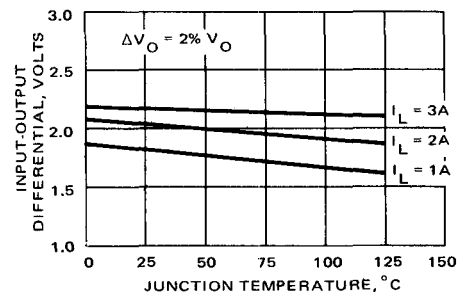
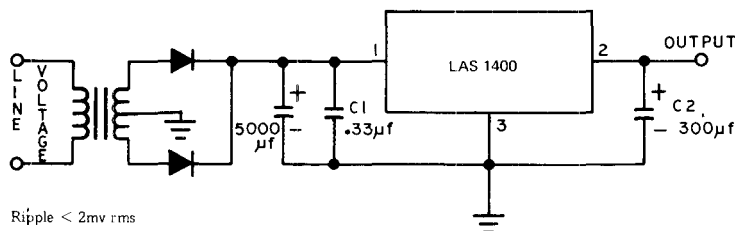


Fig. 6. Typical input-output differential voltage VS junction temperature.

Connection Diagrams



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

Fig. 7. 3.0 amp power supply circuit.

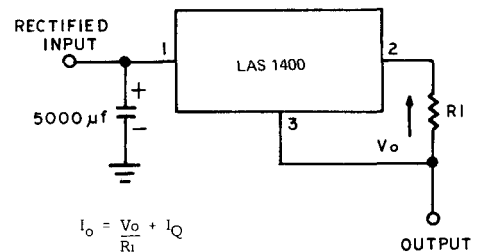


Fig. 8. Current regulator circuit.

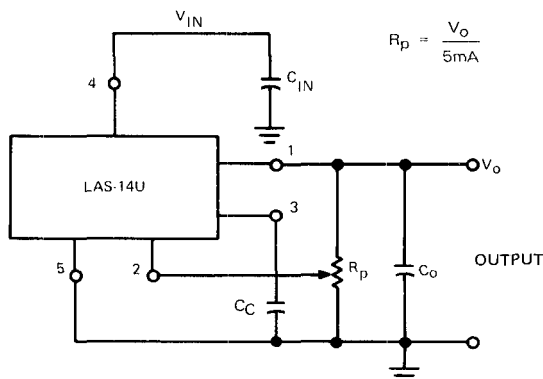


Fig. 9. 3.0 amp adjustable power supply.

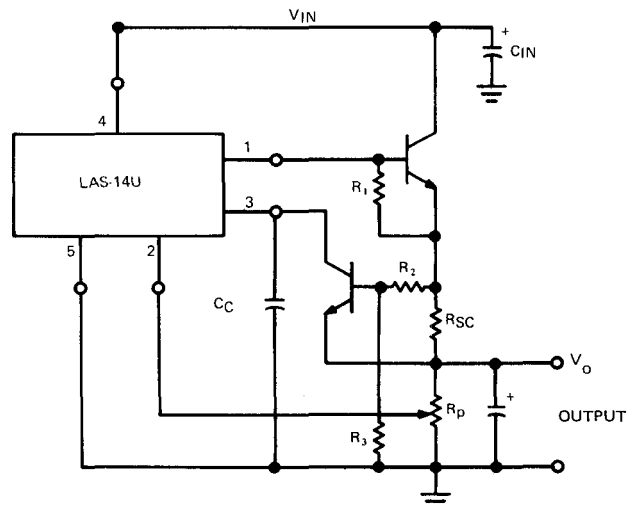


Fig. 10. 3.0 amp regulator used as driver for higher current.