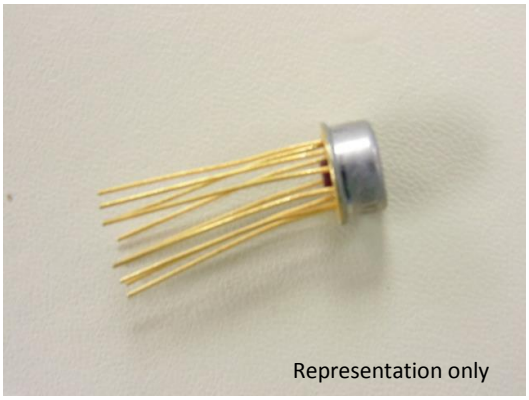
LM126H
Voltage Regulator


Representation only

ABSTRACT

LM126H dual polarity tracking regulators designed to provide balanced positive and negative output voltages at current up to 100mA, the devices are set for ±15V and ±12V outputs respectively. Input voltages up to ±30V can be used and there is provision for adjustable current limiting. These devices are available in two package types to accommodate various power requirements and temperature ranges. The LM126H comes in a metal can package.

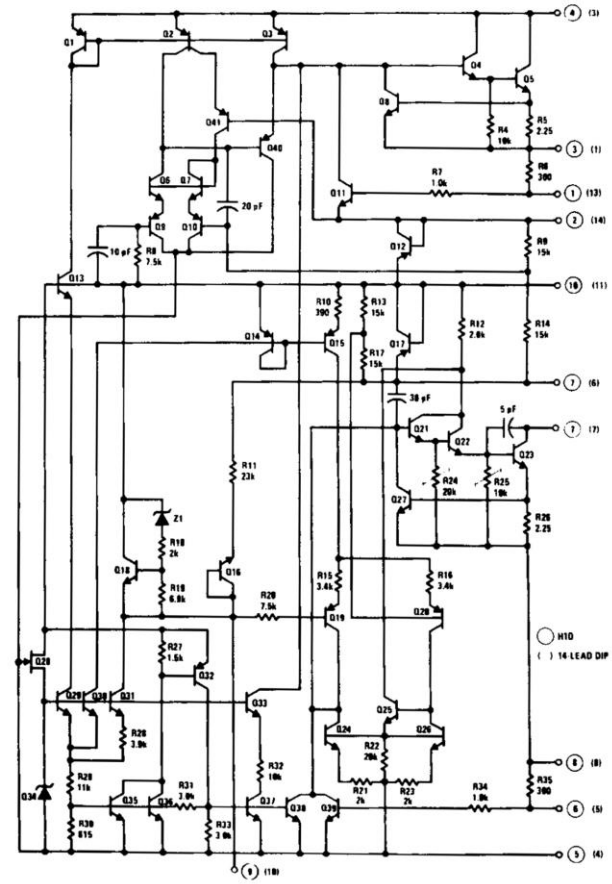
FEATURES

- ±15V and ±12V tracking outputs
- Output current to 100 mA
- Line and load regulation of 0.06%
- Internal thermal overload protection
- Standby current drain of 3 mA
- Externally adjustable current limit
- Internal current limit

ABSOLUTE MAXIMUM RATINGS

Input Voltage	±30V
Forced V_O^+ (Min)	-0.5V
Forced V_O^- (Max)	+0.5V
Power Dissipation	Internally Limited
Output Short-Circuit Duration	Continuous

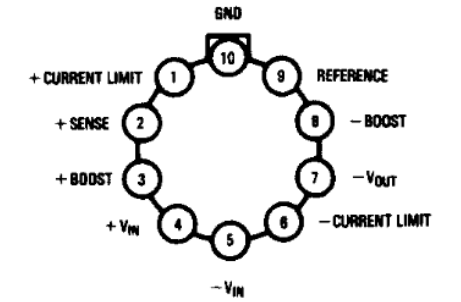
CIRCUIT DIAGRAM



OPERATING CONDITIONS

Typ. Operating Temp Range	-55°C to +125°C
Typ. Storage Temp. Range	-65°C to +150°C
Lead Temperature (soldering, 10sec.)	300°C

PIN CONFIGURATION



Case connected to $-V_{IN}$ TL/H/7776–3

Top View

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ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Min	Typ	Max	Units
Output Voltage LM126/LM326	T_j = 25°C	 11.8 11.5	 12	 12.2 12.5	 V V
Input-Output Differential		2.0			V
Line Regulation	V_{IN} = 15V to 30V I_L = 20 mA, T_j = 25°C		2.0	10	mV
Line Regulation Over Temperature Range	V_{IN} = 15V to 30V, I_L = 20 mA		2.0	20	mV
Load Regulation V_O+ V_O−	I_L = 0 to 50 mA, V_{IN} = ±30V, T_j = 25°C		 3.0 5.0	 10 10	 mV mV
Load Regulation Over Temperature Range V_O+ V_O−	I_L = 0 to 50 mA, V_{IN} = ±30V		 4.0 7.0	 20 20	 mV mV
Output Voltage Balance LM126, LM326	T_j = 25°C			 ±125 ±250	 mV mV
Output Voltage Over Temperature Range LM126 LM326	P ≤ P_{MAX}, 0 ≤ I_O ≤ 50 mA, 15V ≤ $\|V_{IN}\|$ ≤ 30	 11.68 11.32		 12.32 12.68	 V V
Temperature Stability of V_O			±0.3		%
Short Circuit Current Limit	T_j = 25°C		260		mA
Output Noise Voltage	T_j = 25°C, BW = 100 − 10 kHz		100		μVrms
Positive Standby Current	T_j = 25°C, I_L = 0		1.75	3.0	mA
Negative Standby Current	T_j = 25°C, I_L = 0		3.1	5.0	mA
Long Term Stability			0.2		%/kHr
Thermal Resistance Junction to Case (Note 4) LM126H, LM326H Junction to Ambient Junction to Ambient	 (Still Air) (400 Lf/min Air Flow)		 20 155 62		 °C/W °C/W °C/W
Junction to Ambient LM326N			150		°C/W

Note 1: That voltage to which the output may be forced without damage to the device.

Note 2: Unless otherwise specified these specifications apply for T_j = 55°C to +150°C on LM126, T_j = 0°C to +125°C on LM326, V_{IN} = ±20V, I_L = 0 mA, I_{MAX} = 100 mA, P_{MAX} = 2.0W for the H10 Package. I_{MAX} = 100 mA. I_{MAX} = 100 mA, P_{MAX} = 1.0W for the DIP N Package.

Note 3: If the junction temperature exceeds 150°C, the output short circuit duration is 60 seconds.

Note 4: Without a heat sink, the thermal resistance junction to ambient of the H10 Package is about 155°C/W. With a heat sink, the effective thermal resistance can only approach the junction to case values specified, depending on the efficiency of the sink.

Note 5: Refer to RETS126X drawing for military specification of LM126.

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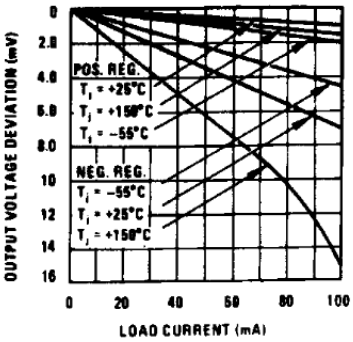
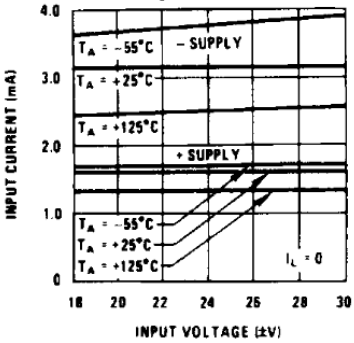
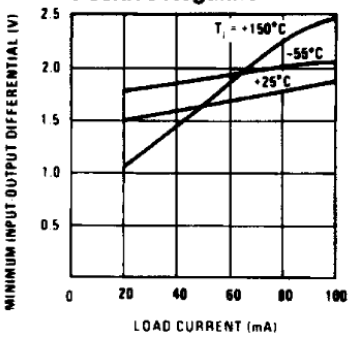
LM126 Load Regulation



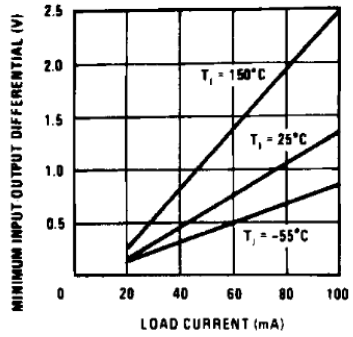
LM125/126 Standby Current Drain



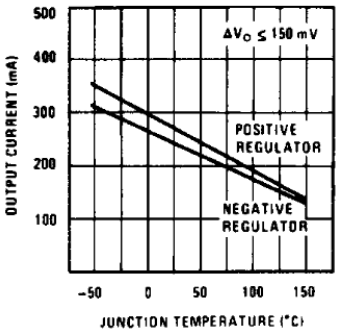
LM125/126 Regulator Dropout Voltage for Positive Regulator



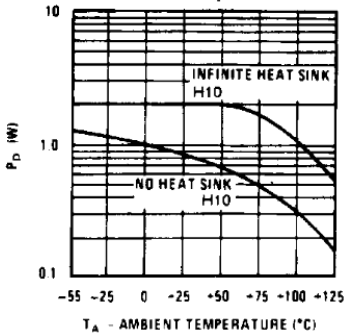
LM125/126 Regulator Dropout Voltage for Negative Regulator



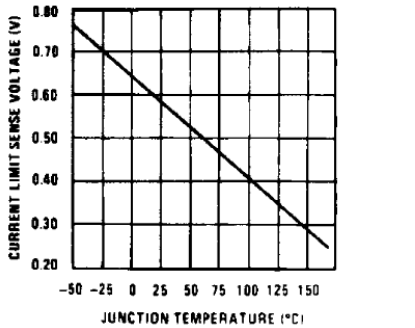
LM125/126 Peak Output Current vs Junction Temperature



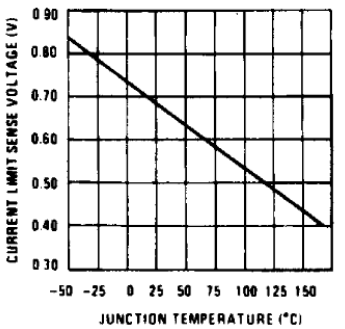
LM125/126 Maximum Average Power Dissipation vs Ambient Temperature



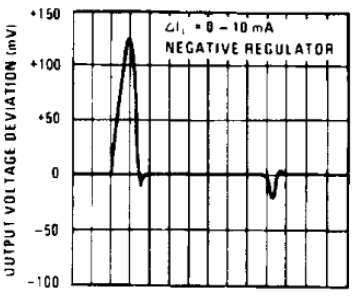
LM125/126 Current Limit Sense Voltage vs Temperature for Negative Regulator



LM125/126 Current Limit Sense Voltage vs Temperature for Positive Regulator



LM126 Load Transient Response



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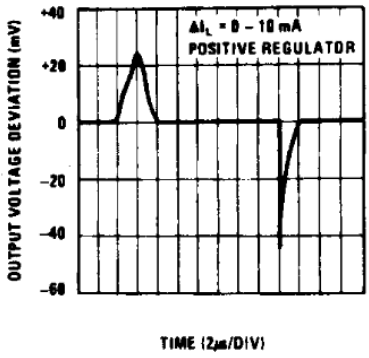
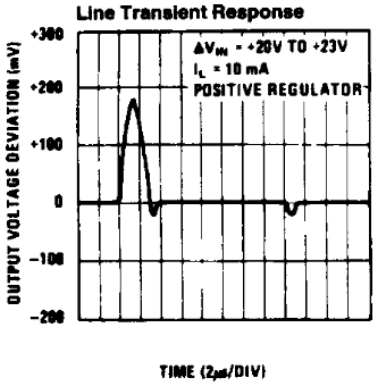
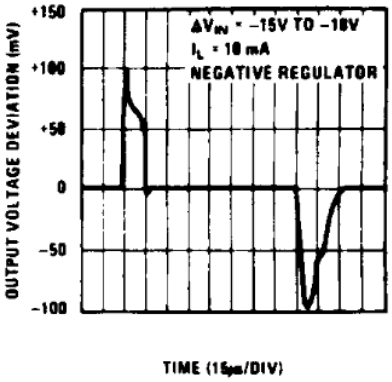
LM126
Load Transient Response



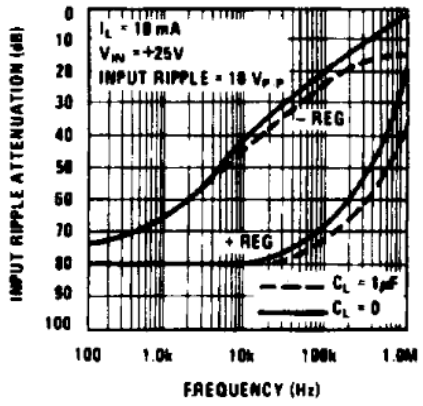
LM126
Line Transient Response



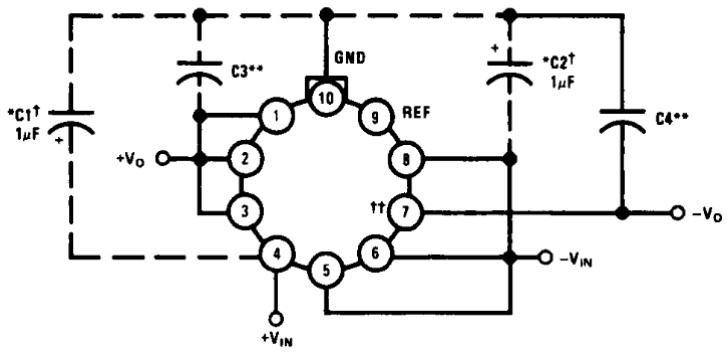
LM126
Line Transient Response



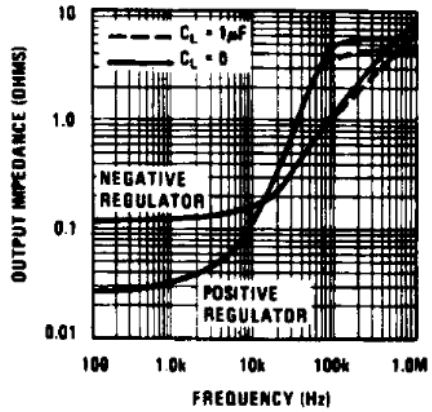
LM126
Ripple Rejection



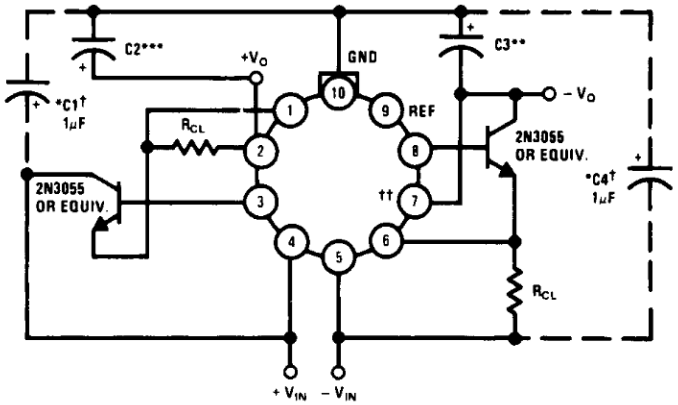
Basic Regulator†††



LM126
Output Impedance
vs Frequency



2.0 Amp Boosted Regulator With Current Limit



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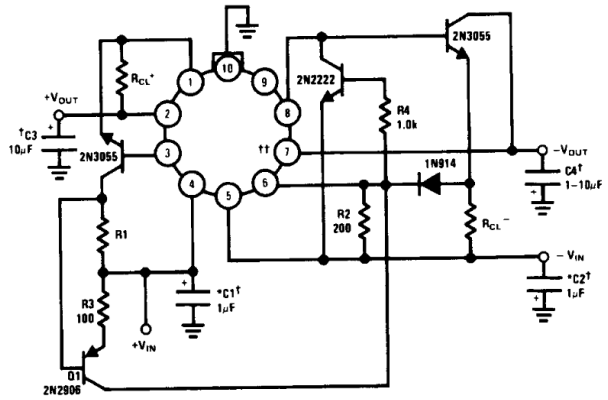
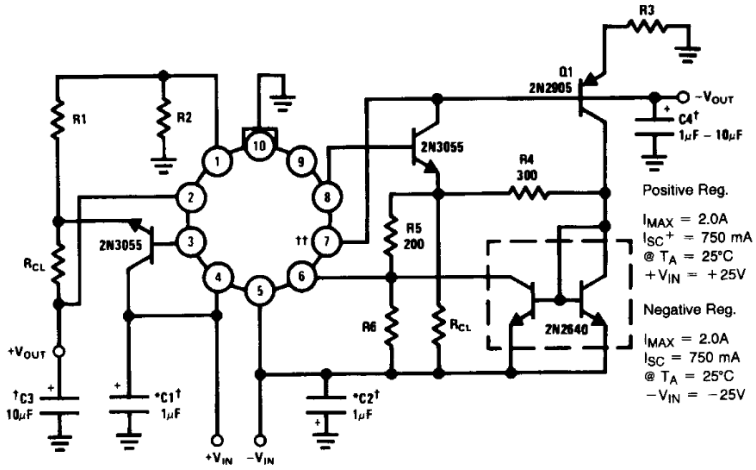
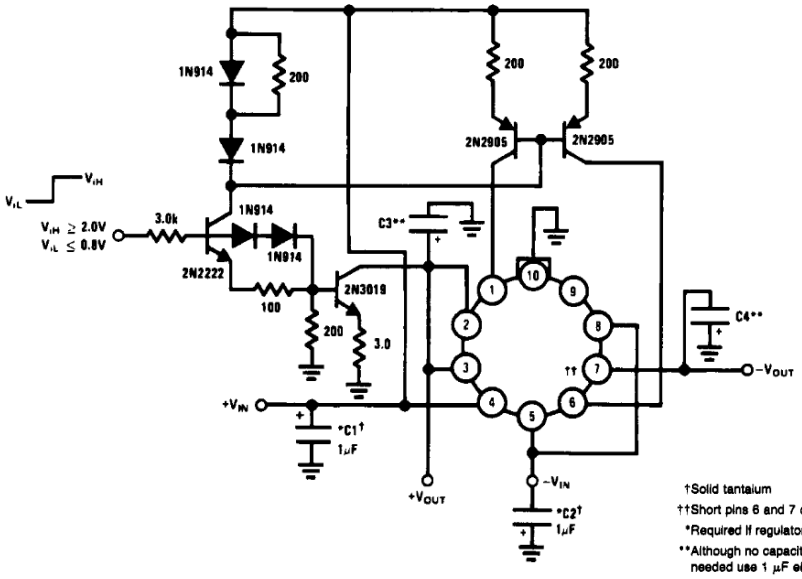




Resistor Values

	125	126
R1	18	20
R2	310	180
R3	2.4k	1.35k
R6	300	290
RCL	0.7	0.9

Electric Shutdown



†Solid tantalum
††Short pins 6 and 7 on dip
*Required if regulator is located an appreciable distance from power supply filter.
**Although no capacitor is needed for stability, it does help transient response. (If needed use 1 μF electrolytic).

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