Three-Terminal Positive-Voltage Regulator

L78L18

GENERAL DESCRIPTION

This Series of fixed-voltage monolithic integrated circuit voltage regulators is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power-pass elements to make high-current voltage regulators. One of these regulators can deliver up to 100 mA of output current. The internal limiting and thermal shutdown features of these regulators male them essentially immune to overload. When used as a replacement for a zener diode-resistor combination, an effective improvement in output impedance can be obtain-ed together with lower-bias current.

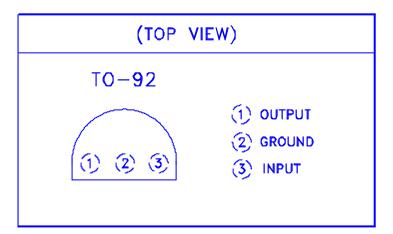
FEATURES

- 3-terminal regulators
- Output current up to 100 mA
- No external component
- Internal thermal overload protection
- Internal short-circuit current limiting

APPLICATIONS

- Linear regulator
- Instrumentation
- Switching power supplies
- PCs, Industrial equipment

PIN CONFIGURATIONS



DEVICE SELECTION GUIDE

Device	L78L18N		
Package	TO-92		
Marking	78L18		

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	VALUE
Input Voltage - V 1	35V
Continuous total power dissipation	(See Note 1)
Storage Temperature Range - T _{STG}	-55 to +150 °C
Junction Temperature - T _J	125 °C
Lead Temperature (Soldering, 10 Seconds) - T _L	260 °C

Note1: To avoid exceeding the design maximum virtual junction temperature, three ratings should not be exceeded. Due to variations in individual device electrical characteristics and thermal resistance, the built-in thermal overload protection may be activated at power levels slightly above or below the rated dissipation.

DISSIPATION RATING TABLE 1 – FREE-AIR TEMPERATURE					
PACKAGE	$T_A \le 25$ °C POWER RATING	DERATING FACTOR	DERATING ABOVE T_A	T _A = 70°C POWER RATING	
TO-92	650 mW	6.2 mW/°C	25 °C	350 mW	

[†] The TO-92 package dissipation rating is based on thermal resistance θ_{JA} measured in still air with the device mounted in an Augat socket. The bottom of the package is 10mm (0.375 in) above the stock.

DISSIPATION RATING TABLE 2 – CASE TEMPERATURE					
PACKAGE T _A ≤25°C POWER RATING		DERATING FACTOR	DERATING ABOVE T _C	T _C = 125°C POWER RATING	
TO-92	1600 mW	28.6 mW/°C	94 °C	713 mW	

RECOMMENDED OPERATING CONDITIONS

PARAMETER	VALUE
Input Voltage - V I	
L78L18	21V to 33V
Output Current - I _{OUT}	100 mA (Max)
Operating Virtual Junction Temperature - T _J	0 to 125 °C

NIKO-SEM

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ELECTRICAL SPECIFICATIONS (L78L18) (V_1 = 25V, V_2 = 40 mA, V_3 = 0.33 V_4 F, V_4 = 0.1 V_5 0°C < V_5 < +125 °C unless otherwise noted.)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	T _J = +25 °C	17.3	18	18.7	V
Line Regulation	$T_J = +25 ^{\circ}\text{C}$ 21V \le V_1 \le 33V 22V \le V_1 \le 33V		145 135	300 250	mV
Load Regulation	$T_J = +25 ^{\circ}\text{C}$ 1.0 mA $\leq I_O \leq$ 100 mA 1.0 mA $\leq I_O \leq$ 40 mA		30 15	170 85	mV
Output Voltage	$21V \le V_1 \le 33V$, $1.0 \text{ mA} \le I_0 \le 40 \text{ mA}$ $21V \le V_1 \le V_{MAX}$, $1.0 \text{ mA} \le I_0 \le 70 \text{ mA}$	17.1 17.1		18.9 18.9	V
Input Bias Current	T _J = +25 °C		2.0	6.0	mA
Input Bias Current Change	$21V \le V_1 \le 33V$ 1.0 mA $\le I_0 \le 40$ mA			1.5 0.1	mA
Output Noise Voltage	$T_A = +25 {}^{\circ}\text{C}$, 10 Hz \leq f \leq 100 KHz		150		μV
Ripple Rejection	$T_J = +25 ^{\circ}\text{C}, f = 120 \text{Hz}$ 23V \le V_1 \le 33V	34	48		dB
Dropout Voltage	T _J = +25 °C		1.7		V

TO-92 MECHANICAL DATA

Dimension	mm		Diamaia	mm			
	Min.	Тур.	Max.	Dimension	Min.	Тур.	Max.
Α	4.445		5.207	Н	2.413	2.540	2.667
В	4.318		5.334		0.356		0.533
С	12.7		15.5	J			
D	0.356		0.533	K			
E	1.143	1.27	1.397	L			
F	3.175		4.191	М			
G	0.762		1.270	N			

