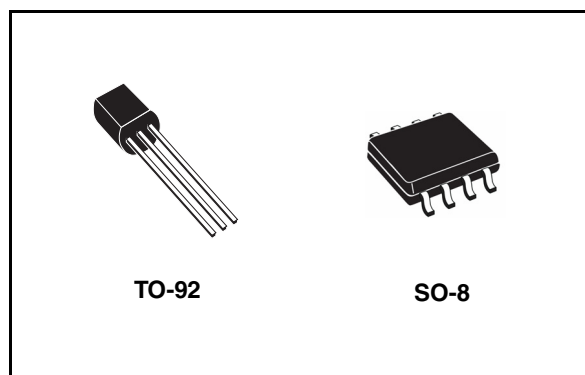


Low current 1.2 to 37V adjustable voltage regulator

Features

- Output voltage range: 1.2 to 37V
- Output current in excess of 100 mA
- Line regulation typ. 0.01%
- Load regulation typ. 0.1%
- Thermal overload protection
- Short circuit protection
- Output transition safe area compensation
- Floating operation for high voltage applications



Description

The LM217L/LM317L are monolithic integrated circuit in SO-8 and TO-92 packages intended for use as positive adjustable voltage regulators.

They are designed to supply until 100 mA of load current with an output voltage adjustable over a 1.2 to 37V range.

The nominal output voltage is selected by means of only a resistive divider, making the device exceptionally easy to use and eliminating the stocking of many fixed regulators.

Order codes

Part numbers	Packages	
	SO-8 (Tape & reel)	TO-92 (BAG) ⁽¹⁾
LM217L	LM217LD13TR	LM217LZ
LM317L	LM317LD13TR	LM317LZ

1. Available in tape & reel with the suffix "-TR" and in Ammopak with the suffix "-AP". Please note that in these cases pins are shaped according to tape & reel specifications

3 Maximum ratings

Table 1. Absolute maximum ratings

Symbol	Parameter		Value	Unit
V_I-V_O	Input-output differential voltage		40	V
P_D	Power dissipation		Internally Limited	mW
T_{OP}	Operating junction temperature range	for LM217L	-40 to 125	°C
		for LM317L	0 to 125	
T_{STG}	Storage temperature range		-55 to 150	°C

Figure 3. Test circuit

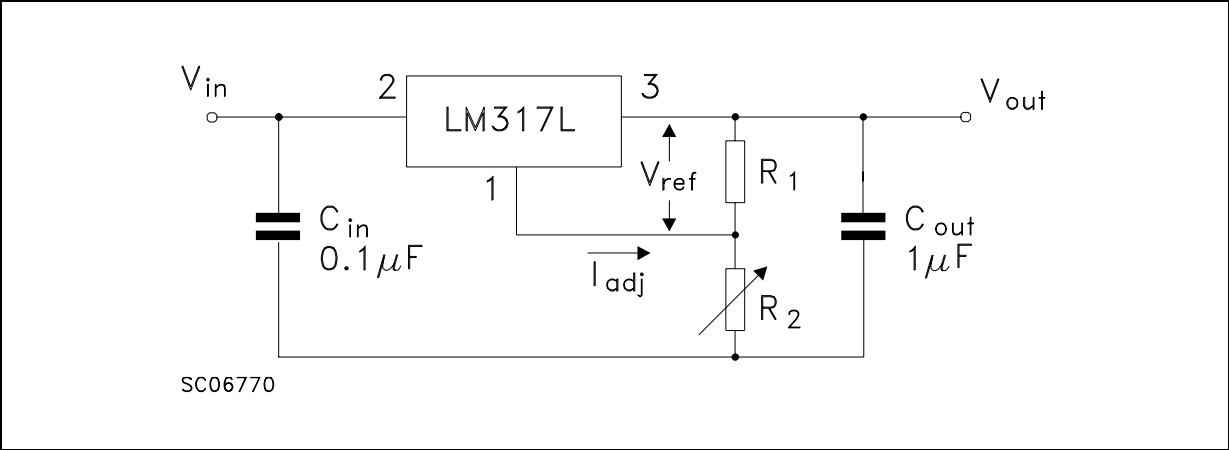


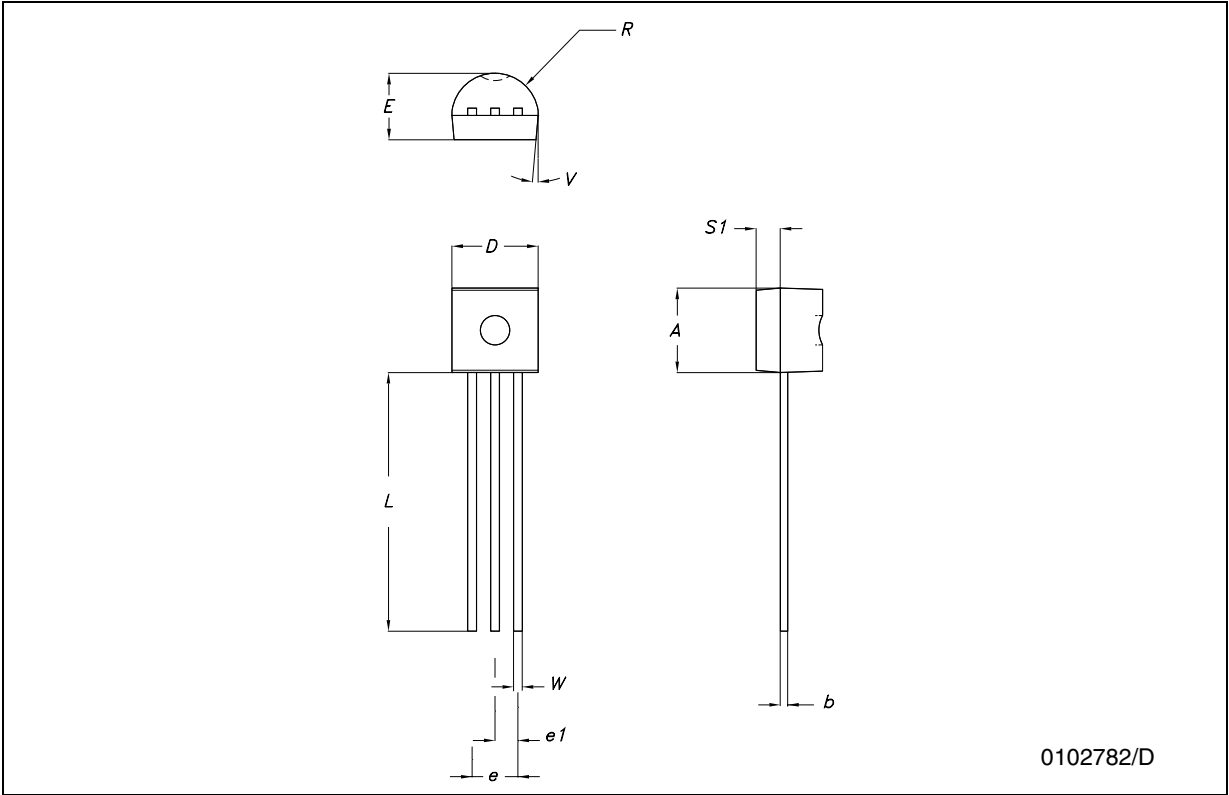
Table 3. Electrical characteristics of LM317L (refer to the test circuits, $T_J = 0$ to 125°C , $V_I - V_O = 5\text{ V}$, $I_O = 40\text{ mA}$, unless otherwise specified)

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
ΔV_O	Line regulation	$V_I - V_O = 3$ to 40 V $I_L < 20\text{ mA}$	$T_J = 25^\circ\text{C}$		0.01	0.04	%V
					0.02	0.07	
ΔV_O	Load regulation	$V_O \leq 5\text{ V}$ $I_O = 5$ to 100 mA	$T_J = 25^\circ\text{C}$		5	25	mV
					20	70	
		$V_O \geq 5\text{ V}$ $I_O = 5$ to 100 mA	$T_J = 25^\circ\text{C}$		0.1	0.5	%
					0.3	1.5	
I_{ADJ}	Adjustment pin current				50	100	μA
ΔI_{ADJ}	Adjustment pin current	$V_I - V_O = 3$ to 40 V , $I_O = 5$ to 100 mA $P_d < 625\text{ mW}$			0.2	5	μA
V_{REF}	Reference voltage	$V_I - V_O = 3$ to 40 V , $I_O = 5$ to 100 mA $P_d < 625\text{ mW}$		1.2	1.25	1.3	V
$\Delta V_O/V_O$	Output voltage temperature stability				0.7		%
$I_{O(\min)}$	Minimum load current	$V_I - V_O = 40\text{ V}$			3.5	5	mA
$I_{O(\max)}$	Maximum output current	$V_I - V_O = 3$ to 13 V		100	200		mA
		$V_I - V_O = 40\text{ V}$			50		
eN	Output noise voltage	$B = 10\text{ Hz}$ to 10 KHz , $T_J = 25^\circ\text{C}$			0.003		%
SVR	Supply voltage rejection ⁽¹⁾	$T_J = 25^\circ\text{C}$ $f = 120\text{ Hz}$	$C_{ADJ} = 0$		65		dB
			$C_{ADJ} = 10\text{ }\mu\text{F}$	66	80		

1. C_{ADJ} is connected between adjust pin and ground.

TO-92 MECHANICAL DATA

DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.32		4.95	170.1		194.9
b	0.36		0.51	14.2		20.1
D	4.45		4.95	175.2		194.9
E	3.30		3.94	129.9		155.1
e	2.41		2.67	94.9		105.1
e1	1.14		1.40	44.9		55.1
L	12.7		15.49	500.0		609.8
R	2.16		2.41	85.0		94.9
S1	0.92		1.52	36.2		59.8
W	0.41		0.56	16.1		22.0
α		5°			5°	



Tape & Reel for TO-92 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A1		4.80			0.189	
T		3.80			0.150	
T1		1.60			0.063	
T2		2.30			0.091	
d		0.48			0.019	
P0	12.5		12.9	0.492		0.508
P2	5.65		7.05	0.222		0.278
F1, F2	2.44	2.54	2.94	0.096	0.100	0.116
delta H		±2			0.079	
W	17.5	18.00	19.0	0.689	0.709	0.748
W0	5.7		6.3	0.224		0.248
W1	8.5		9.25	0.335		0.364
W2		0.50			0.20	
H		18.50	18.70		0.728	0.726
H0	15.50		16.50	0.610		0.650
H1		25.00			0.984	
D0	3.8		4.2	0.150		0.165
t		0.90			0.035	
L1		3			0.118	
delta P		±1			0.039	
u		50			1.968	
Φ1		360			14.173	
Φ2		30			1.181	

