

3-Terminal 100mA Positive Adjustable Regulator

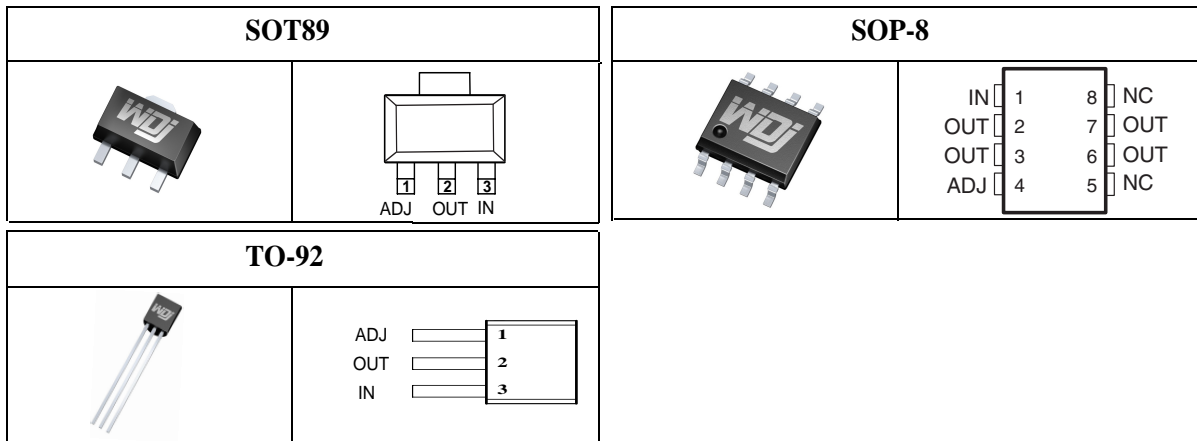
DESCRIPTION

This monolithic integrated circuit is an adjustable 3-terminal positive voltage regulator designed to supply more than 100mA of load current with an output voltage adjustable over a 1.2 to 37V. It employs internal current limiting, thermal shut-down and safe area compensation.

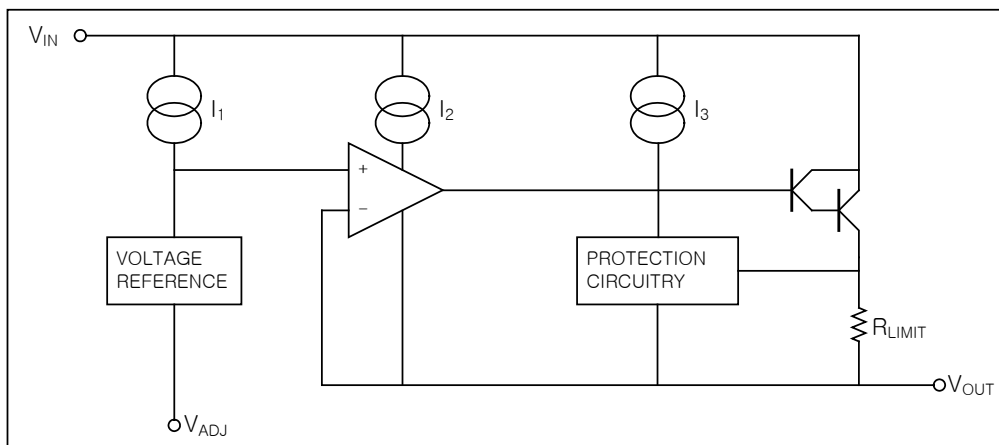
FEATURES

- Output Current Excess of 100mA
- Output Adjustable Between 1.2V and 37V
- Internal Thermal Overload Protection
- Internal Short Current Limiting
- Output Transistor Safe-Area Compensation
- Moisture Sensitivity Level 3

PIN CONFIGURATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	Value	UNIT
Input-output Voltage Differential	V_I-V_O	40	V
Lead Temperature (Soldering, 10 sec)	T_{SOL}	230	°C
Power Dissipation	P_D	Internally limited	-
Operating Junction Temperature Range	T_{JOPR}	-40 ~ 125	°C
Storage Temperature Range	T_{STG}	-65 ~ 125	°C

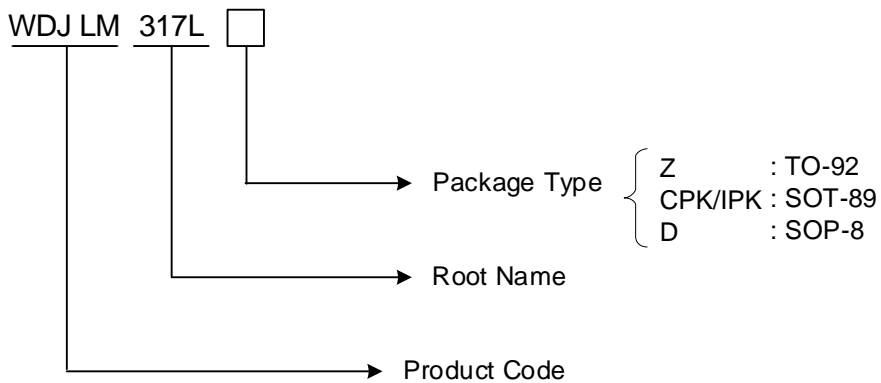
RECOMMENDED OPERATING RATINGS ($V_I-V_O=5V$, $I_O=40mA$, $-40^\circ C \leq T_J \leq 125^\circ C$, unless otherwise specified)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	Unit	
Line Regulation	ΔV_o	$T_A=-40 \sim 125^\circ C$	$3V \leq V_I-V_O \leq 40V$		0.01	0.04	%/V
			$3V \leq V_I-V_O \leq 40V$		0.02	0.07	%/V
Load Regulation	ΔV_o	$T_A=25^\circ C$, $10mA \leq I_O \leq I_{MAX}$	$V_O \leq 5V$		10	25	mV
			$V_O \geq 5V$		0.1	0.5	%/V
		$10mA \leq I_O \leq I_{MAX}$	$V_O \leq 5V$		20	80	mV
			$V_O \geq 5V$		0.3	1.7	%/V
Adjustable Pin Current	I_{ADJ}			46	100	μA	
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_I-V_O \leq 40V$ $10mA \leq I_O \leq I_{MAX}$ $P \leq P_{MAX}$		0.2	5	μA	
Reference Voltage	V_{REF}	$3V \leq V_{IN}-V_{OUT} \leq 40V$ $10mA \leq I_O \leq I_{MAX}$ $P_D \leq P_{MAX}$	1.20	1.25	1.30	V	
Temperature Stability	ST_T			0.7		%/V _O	
Minimum Load Current to Maintain Regulation	$L_{(MIN)}$	$V_I-V_O=40V$		3.5	10	mA	
Maximum Output Current	$I_{O(MAX)}$	$V_I-V_O \leq 5V$, $P_D \leq P_{MAX}$	100	200		mA	
		$V_I-V_O \leq 40V$, $P_D \leq P_{MAX}$, $T_A=25^\circ C$	0.156	0.4			
RMS Noise, % of V _{OUT}	e_N	$T_A=25^\circ C$, $10Hz \leq f \leq 10KHz$		0.003	0.01	%/V _O	
Ripple Rejection	RR	$V_O=10V$, $f=120Hz$ without C_{ADJ} $C_{ADJ}=10\mu F$		60		dB	
				66	75		
Long-Term Stability, $T_J=T_{HIGH}$	ST	$T_A=25^\circ C$, for end point measurements, 1000HR		0.3	1	%	

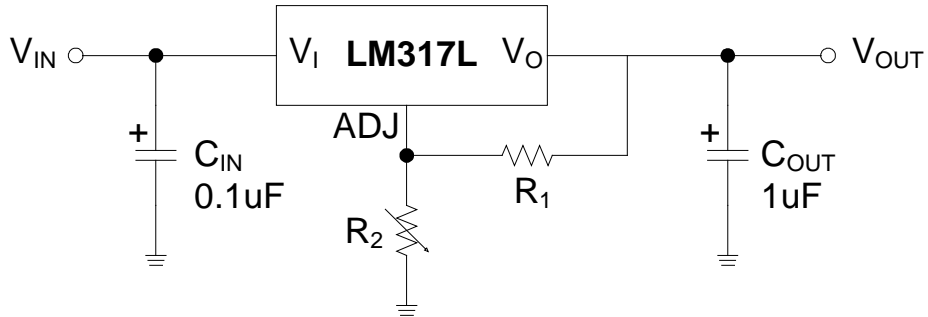
* Load and line regulation are specified at constant junction temperature. Change in VD due to heating effects must be taken into account separately. Pulse testing with low duty is used.

ORDERING INFORMATION

PACKAGE	ORDER NO.	DESCRIPTION	SUPPLIED AS	STATUS
TO-92	WDJ LM317LZ	100mA, Adjustable, Positive	Reel	Active
SOT-89	WDJ LM317LCPK/LIPK	100mA, Adjustable, Positive	Reel	Active
SOP-8	WDJ LM317LD	100mA, Adjustable, Positive	Reel	Active


PIN DESCRIPTION

PIN NO.	TO-92 / SOT-89 3 LEAD		SOP-8 8LEAD	
	NAME	FUNCTION	NAME	FUNCTION
1	ADJ	Adjustable	V _{IN}	Input Voltage
2	V _{OUT}	Output Voltage	V _{OUT}	Output Voltage
3	V _{IN}	Input Voltage	V _{OUT}	Output Voltage
4	-	-	ADJ	Adjustable
5	-	-	-	N.C.
6	-	-	V _{OUT}	Output Voltage
7	-	-	V _{OUT}	Output Voltage
8	-	-	-	N.C.

TYPICAL APPLICATION


$$V_{OUT} = 1.25V(1+R_2/R_1)+I_{ADJ}R_2$$

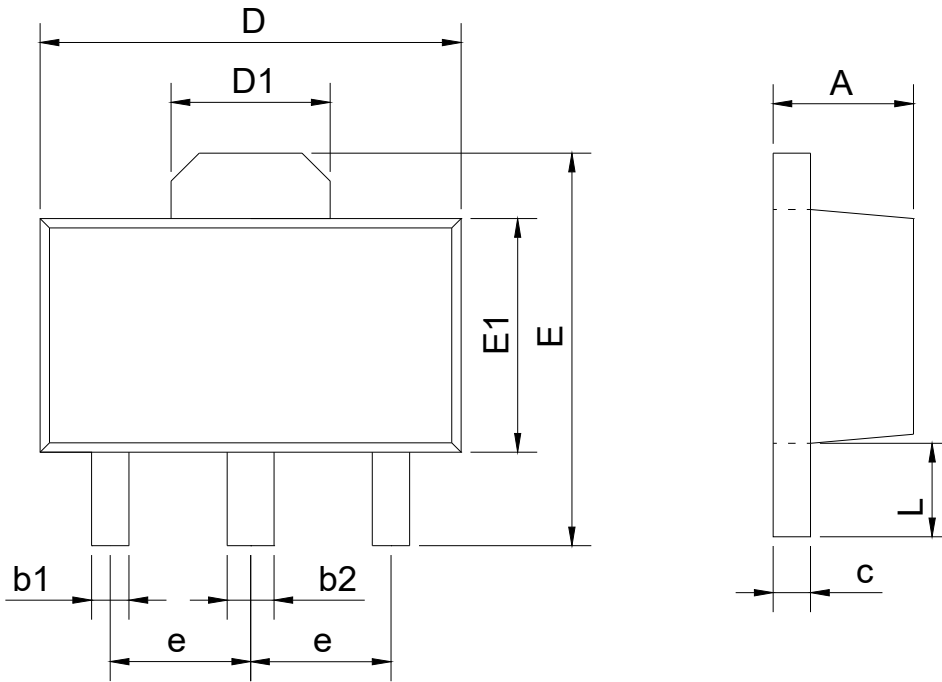
Note 1. C_{IN} is required when regulator is located in appreciable distance from power supply filter.

Note 2. C_{OUT} is not needed for stability, however, it does improve transient response.

Note 3. I_{ADJ} is controlled to less than 100uA, the error associated with this term is negligible in most applications.

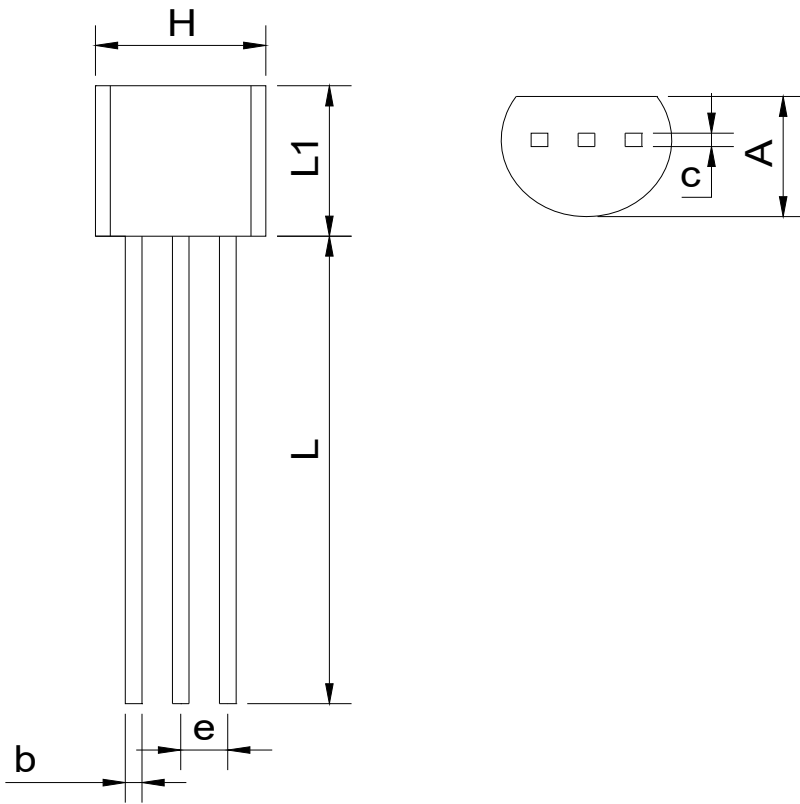
PACKAGE INFORMATION

SOT89

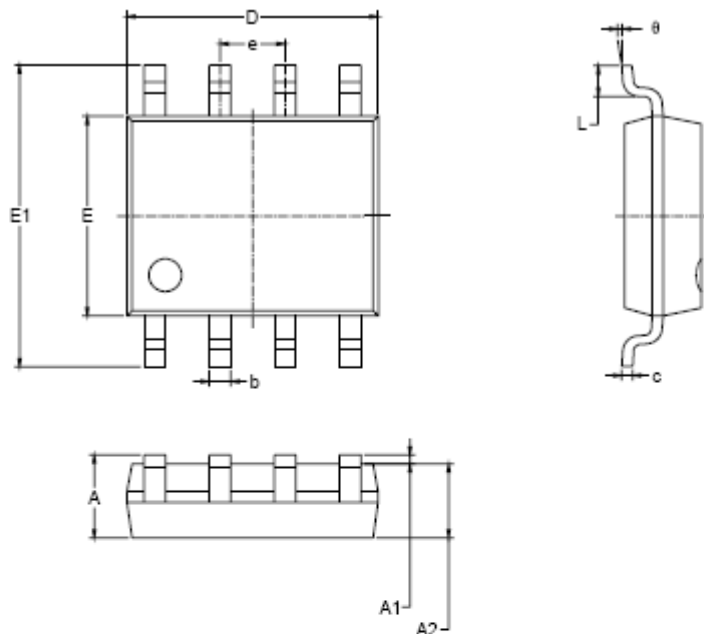


SYMBOL	mm	
	min	max
A	1.40	1.60
b1	0.35	0.50
b2	0.45	0.60
c	0.36	0.46
D	4.30	4.70
D1	1.40	1.80
E	4.00	4.40
E1	2.30	2.70
e	1.50BSC	
L	0.80	1.20

TO92



SYMBOL	mm	
	min	max
A	3.40	3.80
b	0.40	0.50
c	0.35	0.45
e	1.27BSC	
H	4.40	4.80
L	13.00	15.00
L1	4.30	4.70

SOP-8


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.008	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



CAUTION:
 These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.
 For additional product information, or full datasheet, please contact with our Sales Department or Representatives.