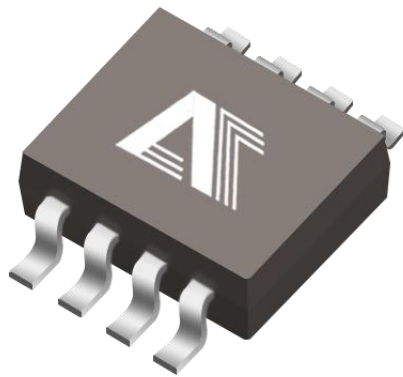




Linear regulator

LDO

LM317LG

Product Data Sheet

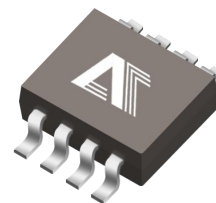
**AOTE DCC
RELEASE**

◆ Summary :

The LM317L is a monolithic integrated circuit, designed to supply 100mA of output current with voltage adjustable from 1.25V ~ 37V.

◆ Product features

- Output voltage adjustable from 1.25V ~ 37V
- Output current in excess of 100mA
- Internal thermal overload protection
- Internal short circuit current limiting
- Output transistor safe area compensation

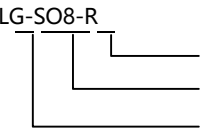


SOP-8

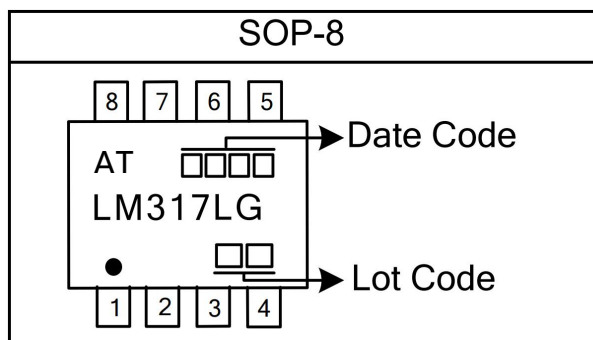
◆ Order Information

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
---	LM317LG-S08-R	SOP-8	I	O	O	A	N	O	O	N	Tape Reel
----	LM317LG-S08-T	SOP-8	I	O	O	A	N	O	O	N	Tube

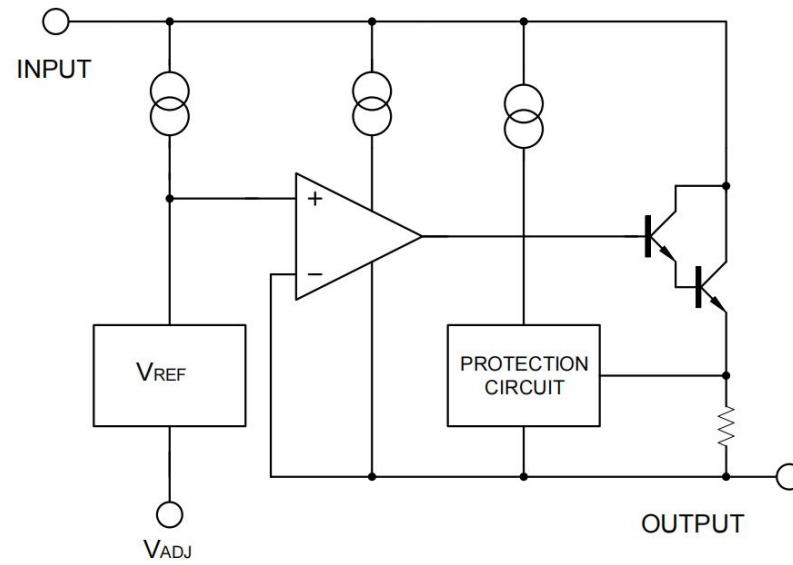
Note: Pin Assignment: A: ADJ I: VIN O: VOUT N: No Connection

LM317LG-S08-R  (1)Packing Type (2)Package Type (3)Green Package	(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube (2) SO8: SOP-8 (3) K: Lead Free, G: Halogen Free and Lead Free
--	---

◆ Mark



◆ **Block diagram**



◆ Absolute maximum rated value

Parameter	Symbol	Rated value	Unit
Input-Output Differential Voltage	$V_{IN}-V_{OUT}$	40	V
Power Dissipation	P_D	Internally Limited	
Junction Temperature	T_J	+125	°C
Operating Junction Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature Range	T_{STR}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

◆ Electrical Characteristics

($V_{IN}-V_{OUT}=5V$, $I_{OUT}=40mA$, $T_a=25^{\circ}C$, unless otherwise specified.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Line Regulation	$\Delta V_{OUT}/V_{OUT}$	$3V \leq V_{IN}-V_{OUT} \leq 40V$, $I_{LOAD} < 20mA$		0.01	0.04	%/V
Load Regulation	ΔV_{OUT}	$5mA \leq I_{OUT} \leq 100mA$	$V_{OUT} \leq 5V$	5	25	mV
			$V_{OUT} \geq 5V$	0.1	0.5	%
Adjustable Pin Current	I_{ADJ}			50	100	μA
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_{IN}-V_{OUT} \leq 40V$, $5mA \leq I_{OUT} \leq 100mA$, $P_D < 625mW$		0.2	5	μA
Reference Voltage	V_{REF}	$3V \leq V_{IN}-V_{OUT} \leq 40V$, $5mA \leq I_{OUT} \leq 100mA$, $P_D < 625mW$	1.20	1.25	1.30	V
Temperature Stability		$T_{MIN} \leq T_J \leq T_{MAX}$		0.7		%/ V_{OUT}
Minimum Load Current for Regulation	$I_{L(MIN)}$	$V_{IN}-V_{OUT}=40V$		3.5	10	mA
Maximum Output Current	$I_{O(MAX)}$	$V_{IN}-V_{OUT} < 40V$, $P_D < 625mW$		15		mA
RMS Noise vs. % of V_{OUT}	eN	$10HZ \leq f \leq 10KHZ$		0.003	0.01	%/ V_{OUT}
Ripple Rejection	RR	$V_{OUT}=10V, f=120HZ$	$C_{ADJ}=0$		65	dB
			$C_{ADJ}=10\mu F$	66	80	dB

Note: C_{ADJ} is connected between Adjust pin and Ground.

◆ Application Circuit

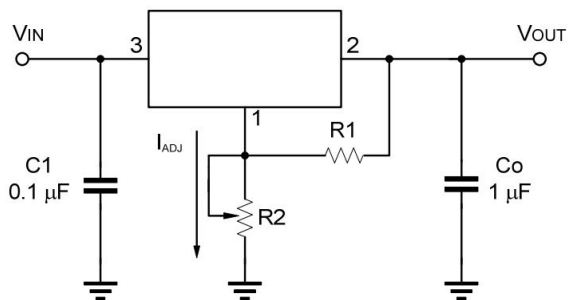


Fig.1 Programmable voltage regulator

$$V_{OUT} = 1.25V * (1 + R2/R1) + I_{ADJ} * R2$$

C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

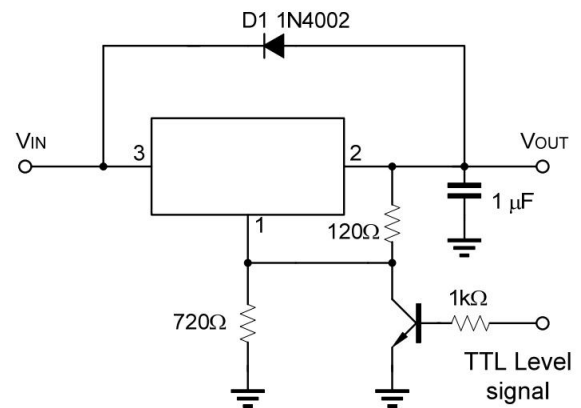


Fig.2 Regulator with On-off control

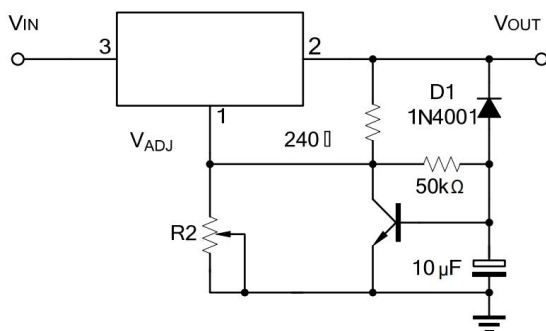
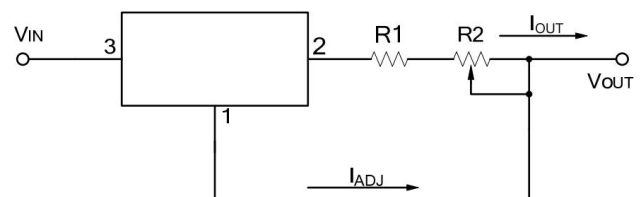


Fig.3 Soft Start Application



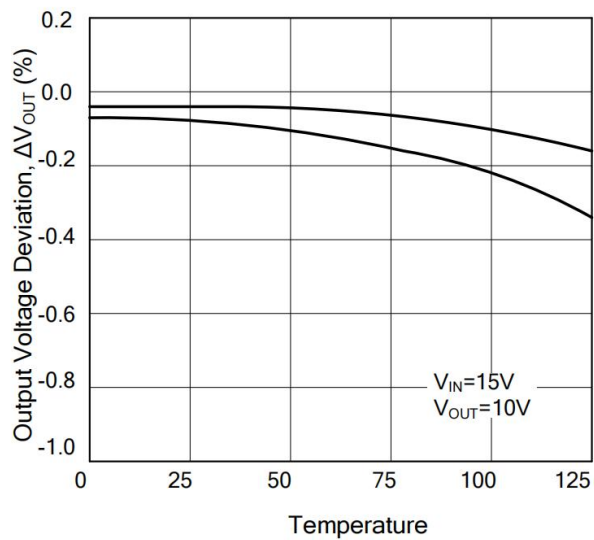
$$I_{O(MAX)} = \left(\frac{V_{REF}}{R1} \right) + I_{ADJ} = \frac{1.25V}{R1}$$

$$I_{O(MIN)} = \left(\frac{V_{REF}}{R1+R2} \right) + I_{ADJ} = \frac{1.25V}{R1+R2}$$

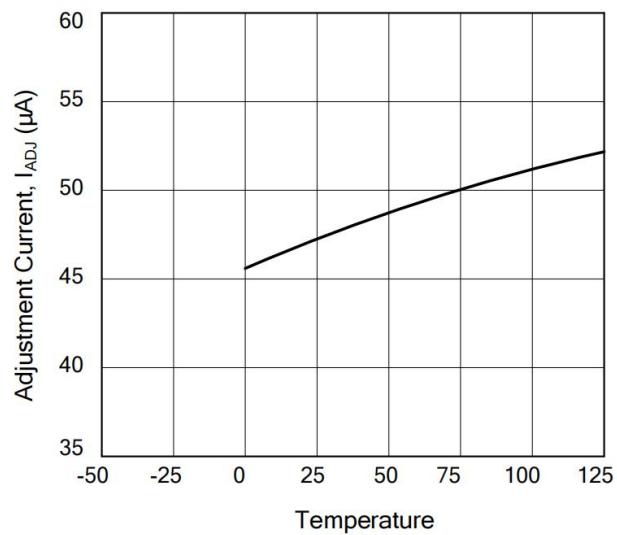
Fig.4 Constant Current Application

◆ Typical characteristics

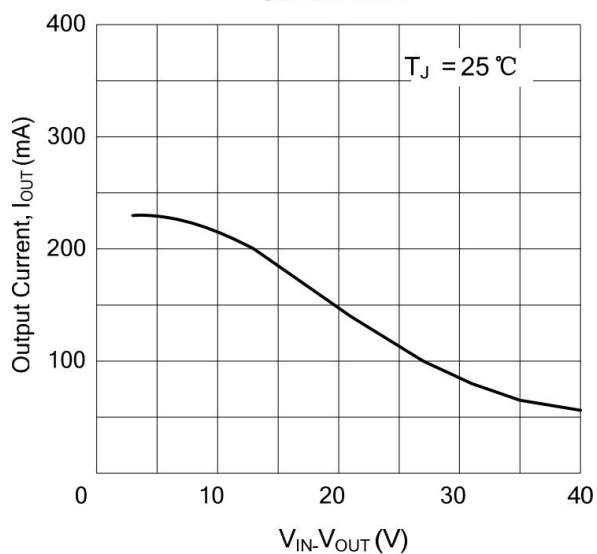
Load Regulation vs. temperature



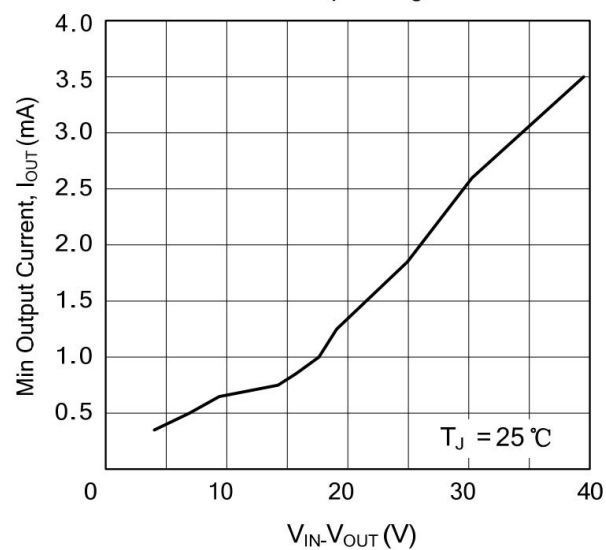
Adjustment Current vs. Temperature



Current Limit

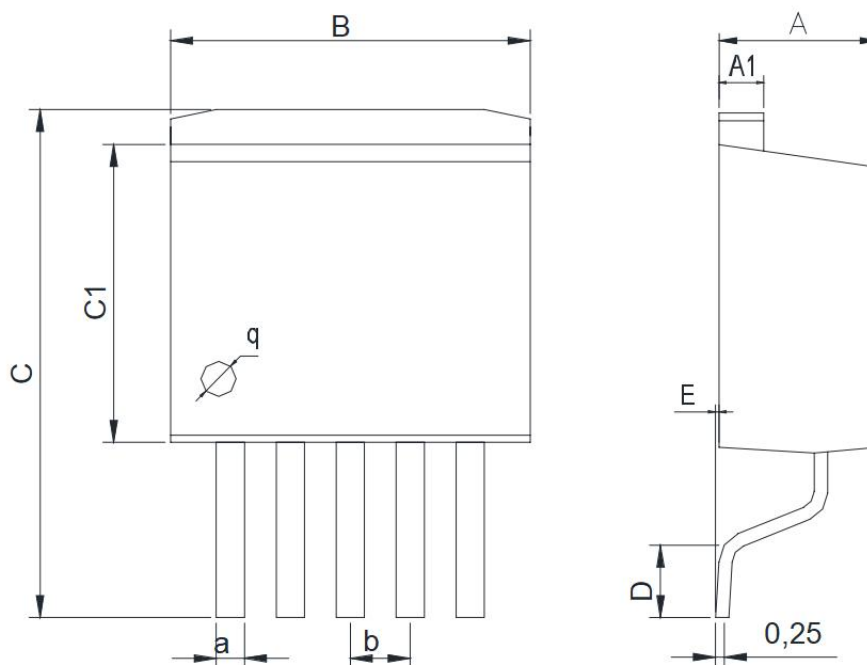


Minimum Operating Current



◆ **PACKAGE OUTLINE DIMENSIONS**

TO-263-5



Dimensions In Millimeters(SOP-8)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27BSC
Max:	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

◆ Attention

- AOTE implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.
- Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.
- Contact technical support for customized validation in critical applications (medical devices, industrial control).
- This document is valid until December 31, 2026. Updates will be notified on the official website.
- For further clarification on technical specifications or application solutions, please contact us through official channels: