

General Description

The LM317G are monolithic integrated circuit in SOT-223 packages intended for use as positive adjustable voltage regulators. They are designed to supply more than 1.5A of load current with an output voltage adjustable over a 1.2 to 37V range.

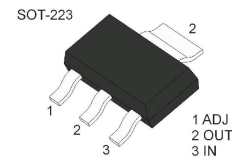
The nominal output voltage is selected by means of only a resistive divider, making the device exceptionally easy to use and eliminating the stocking of many fixed regulators



LOGO GK xxx CODE

Features

- Output Voltage Range : 1.2 TO 37V
- Output Current in excess of 1.5A
- 0.1% Line and Load Regulation Voltages
- Floating Operation For High
- Complete Series of Protections:
Current Limiting, Thermal Shutdown and SOA Control



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

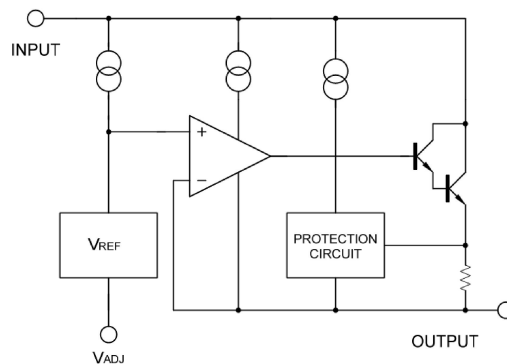
Symbol	Parameter	Value	Unit
V_{i-o}	Input-output Differential Voltage	40	V
I_o	Output Current	Internally Limited	
V_o	Output Voltage	5	V
T_{OP}	Operating Junction Temperature	$0 \sim +125$	$^\circ\text{C}$
T_{STG}	Storage Temperature	$-60 \sim +150$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

(Vi - Vo = 5 V, Io = 500 mA, I_{MAX} = 1.5A and P_{MAX} = 20W, unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Line Regulation	ΔV_O	Vi-Vo=3 to 40V			0.04	%V
					0.07	
Load Regulation	ΔV_O	$V_o \leq 5V$ $I_o = 10mA \sim I_{Max} 1.5A$	Tj=25°C		25	mV
					70	
		$V_o \geq 5V$ $I_o = 10mA \sim I_{Max} 1.5A$	Tj=25°C		0.5	%V
					1.5	
Adjustment Pin Current	I _{ADJ}	Tj=25°C			100	μA
Adjustment Pin Current	ΔI_{ADJ}	Vi-Vo = 2.5 to 40V Io = 10mA~I _{Max} 1.5A			5	μA
Output Voltage Drift	$\Delta V / \Delta T$	Io = 5mA		-0.8		mV/°C
Reference Voltage (between pin3 and pin1)	V _{REF}	Vi-Vo = 2.5 to 40V Io = 10mA~I _{Max} 1.5A P _D ≤ P _{MAX}	1.2	1.25	1.3	V
Output Voltage Temperature Stability	$\Delta V_O / \Delta V_O$			1		%
Minimum Load Current	I _{O(min)}	Vi-Vo = 40V			10	mA
Maximum Load Current	I _{O(max)}	Vi-Vo ≤ 15V, P _D < P _{MAX}	1.5			A
		Vi-Vo = 40V, P _D < P _{MAX} , Tj=25°C		0.4		

Block Diagram



Application Circuits

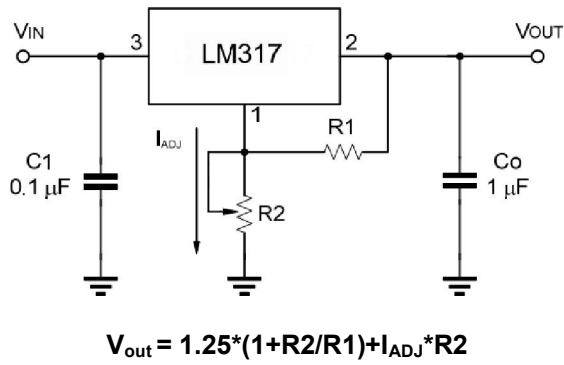


Fig.1 Programmable Voltage Regulator

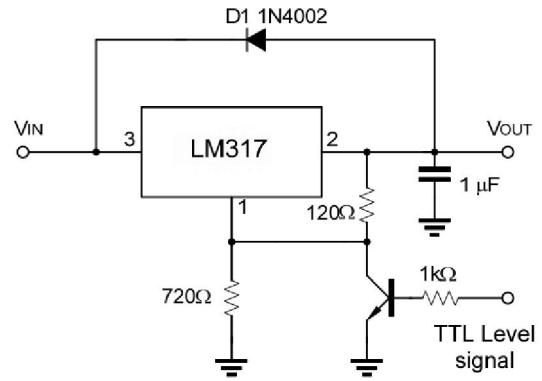


Fig.2 Regulator with ON-off control

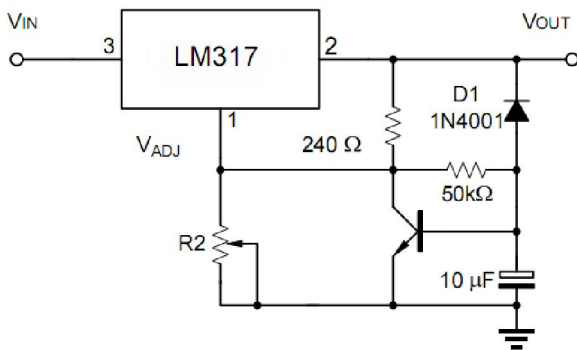


Fig.3 Soft Start Application

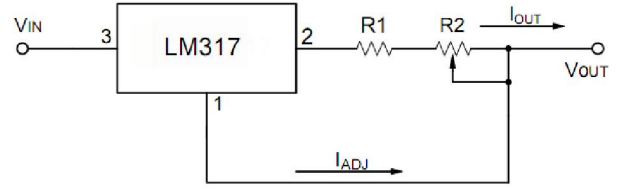


Fig.4. Constant Current Application

RATING AND CHARACTERISTIC CURVES

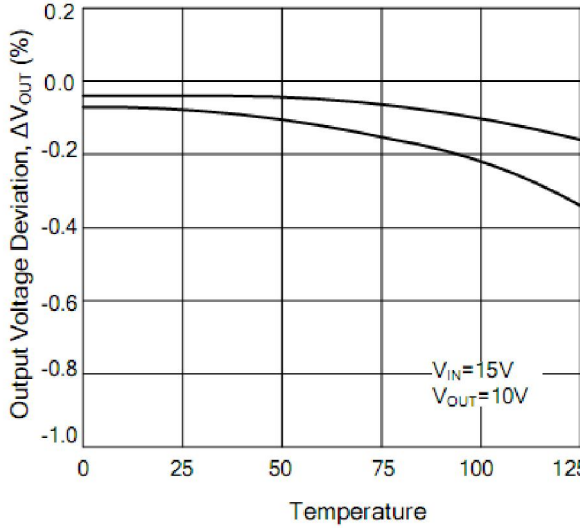


Fig.1. Load Regulation vs. temperature

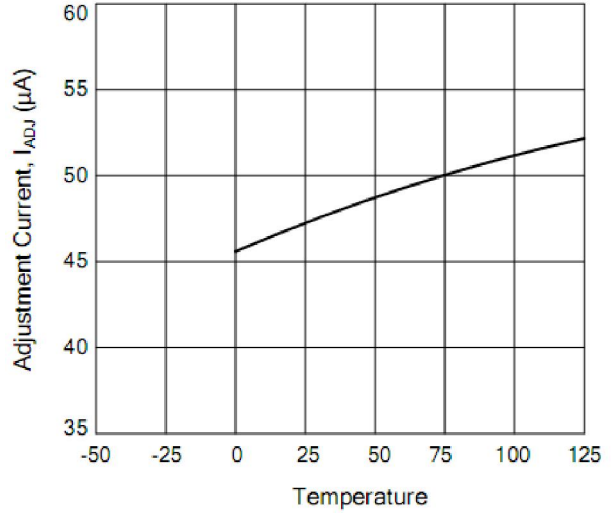


Fig.2. Adjustment Current vs. Temperature

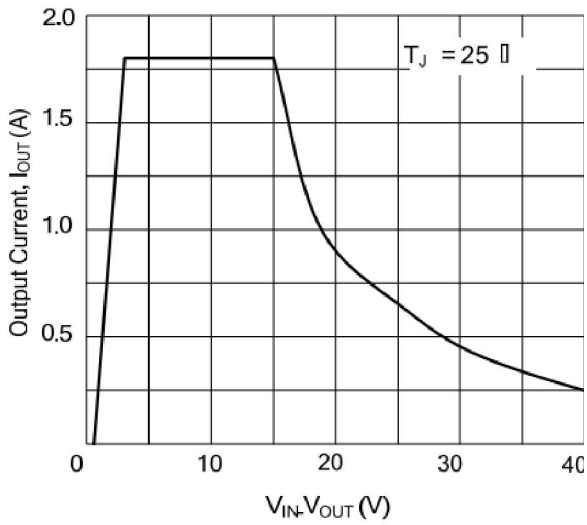


Fig.3. Currents Limit

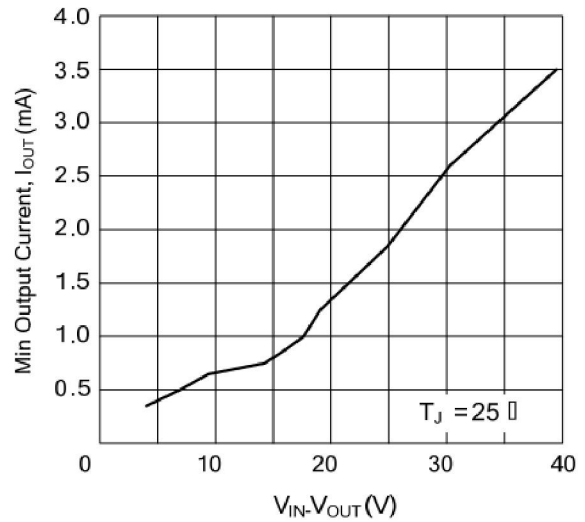
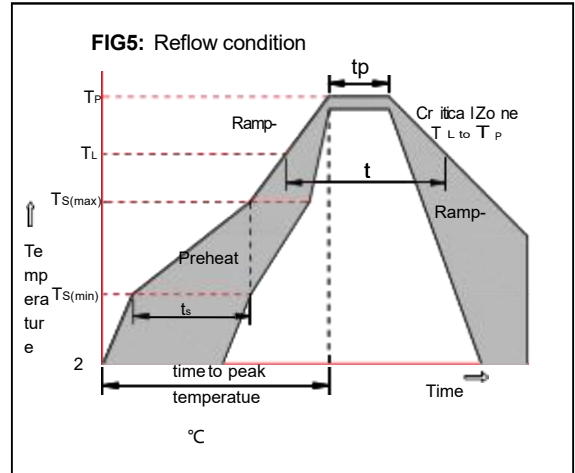


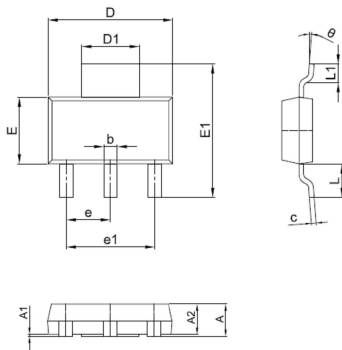
Fig.4. Minimum Operating Current

Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

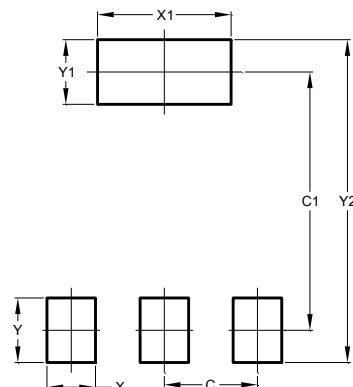


Package Dimensions & Suggested Pad Layout



SOT-223

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	0.00	0.10	0.000	0.004
A2	1.50	1.70	0.059	0.067
b	0.65	0.75	0.026	0.030
c	0.20	0.30	0.008	0.012
D	6.40	6.60	0.252	0.260
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.85	7.15	0.270	0.281
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	1.65	1.85	0.065	0.073
L1	0.90	1.15	0.035	0.045



Dimensions	Value (in mm)
C	2.30
C1	6.00
X	1.20
X1	3.60
Y	1.70
Y1	1.70
Y2	7.70