

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

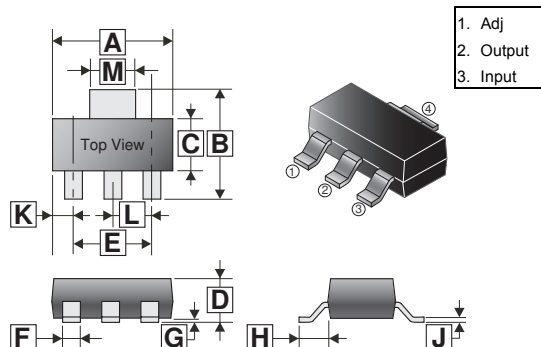
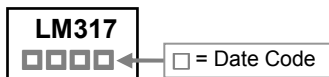
The SLMJ317 is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of load current with an output voltage adjustable from 1.2V to 37V. It employs internal current limiting, thermal shut-down, and safe area compensation.

SOT-223

FEATURES

- Output Transistor Safe Operating Area Compensation
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.90	6.70	G	-	0.18
B	6.70	7.30	H	2.00 REF.	
C	3.30	3.80	J	0.20	0.40
D	1.40	1.90	K	1.10 REF.	
E	4.45	4.75	L	2.30 REF.	
F	0.60	0.85	M	2.80	3.20

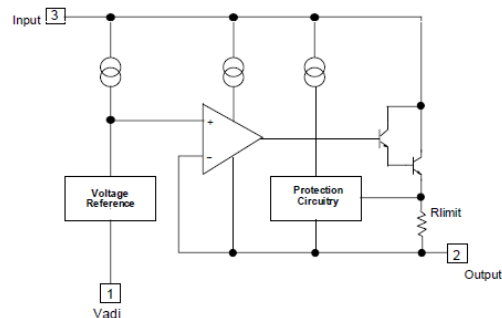
ORDER INFORMATION

Part Number	Type
SLMJ317	Lead (Pb)-free
SLMJ317-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	$V_I - V_O$	40	V
Load Temperature	T_{LEAD}	230	°C
Power Dissipation	P_D	Internally limited	W
Temperature Coefficient of Output Voltage	$\Delta V_O / \Delta T$	±0.02	%/°C
Junction & Storage Temperature Range	T_J, T_{STG}	0~125, -55~150	°C

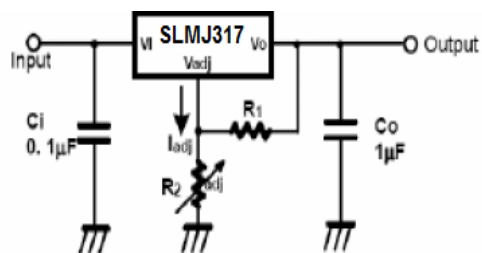
BLOCK DIAGRAM



Notes:

1. C_i is required when a regulator is located at a position which has an appreciable distance from power supply filter.
2. C_o is not needed for the stability; however, it does improve the transient response.
3. Since I_{ADJ} is controlled to be lower than 100µA, the error occurred with this term is negligible in most applications.

APPLICATION CIRCUIT



$$V_O = 1.25V (1 + R_2 / R_1) + I_{adj} R_2$$

ELECTRICAL CHARACTERISTICS

($V_I - V_O = 5V$, $I_O = 0.5A$, $0^\circ C \leq T_J \leq 125^\circ C$, $I_{MAX} = 1.5A$, $P_{MAX} = 20W$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Line Regulation ¹	R_{line}	$T_A = 25^\circ C$, $3V \leq V_I - V_O \leq 40V$	-	0.01	0.04	%V	
		$3V \leq V_I - V_O \leq 40V$	-	0.02	0.07		
Load Regulation ¹	R_{load}	$T_A = 25^\circ C$, $10mA \leq I_O \leq I_{MAX}$	$V_O < 5V$	-	18	25	mV%/V _O
			$V_O \geq 5V$	-	0.4	0.5	
		$10mA \leq I_O \leq I_{MAX}$	$V_O < 5V$	-	40	70	
			$V_O \geq 5V$	-	0.8	1.5	
Adjustable Pin Current	I_{ADJ}		-	46	100	μA	
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_I - V_O \leq 40V$, $10mA \leq I_O \leq I_{MAX}$, $P_D \leq P_{MAX}$	-	2	5	μA	
Reference Voltage	V_{REF}	$3V \leq V_I - V_O \leq 40V$, $10mA \leq I_O \leq I_{MAX}$, $P_D \leq P_{MAX}$	1.2	1.25	1.3	V	
Temperature Stability	ST_T		-	0.7	-	%V _O	
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	$V_I - V_O = 40V$	-	3.5	12	mA	
Maximum Output Current	$I_{O(MAX)}$	$V_I - V_O \leq 15V$, $P_D \leq P_{MAX}$	1	2.2	-	A	
		$V_I - V_O \leq 40V$, $P_D \leq P_{MAX}$, $T_A = 25^\circ C$	-	0.3	-		
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}	-	60	-	dB
			$C_{ADJ} = 10\mu F$ ²	66	75	-	
Long-term Stability @ $T_J = T_{HIGH}$	ST	$T_A = 25^\circ C$ for end point measurements, 1000hr	-	0.3	1	%	
Thermal Resistance from Junction-Case	$R_{\theta JC}$		-	5	-	$^\circ C/W$	

Notes:

1. Load and line regulation are specified at constant junction temperature. The change in V_D due to heating effects must be taken into account separately. Pulse testing with low duty is used. ($P_{MAX} = 20W$)
2. C_{ADJ} is used at the position connecting the adjustment pin with ground.