Elektronische Bauelemente

SELM317

3-Terminal 1A Positive Adjustable Voltage Regulator

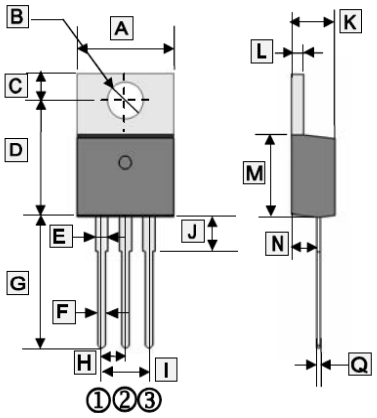
RoHS Compliant Product

A suffix of “-C” specifies halogen free

DESCRIPTION

This monolithic integrated circuit is an adjustable 3-terminal positive voltage regulator designed to supply more than 1.5A 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.

TO-220J

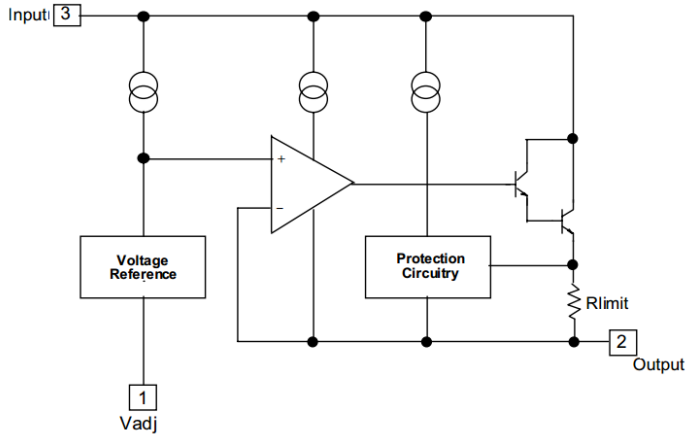


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	10.010	10.350	I	4.980	5.180
B	3.735	3.935	J	3.560	3.960
C	2.590	2.890	K	4.470	4.670
D	12.060	12.460	L	1.200	1.400
E	1.170	1.370	M	8.500	8.900
F	0.710	0.910	N	2.520	2.820
G	13.400	13.800	Q	0.330	0.650
H	2.540 TYP.				

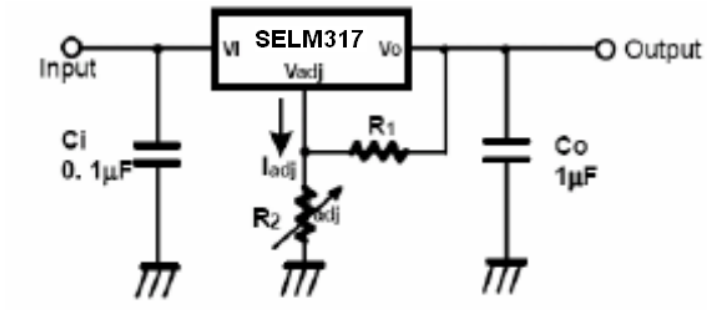
FEATURES

- Internal thermal overload protection
- Internal short circuit current limiting
- Output transistor safe operating area compensation

BLOCK DIAGRAM



APPLICATION



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

Note:

1. Ci is required when regulator is located an appreciable distance from power supply filter.
2. Co is not needed for stability , however, it does improve transient response.
3. Since IADJ is controlled to less than 100μA, the error associated with this term is negligible in most applications

ABSOLUTE MAXIMUM RATINGS at Ta = 25°C

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

ELECTRICAL CHARACTERISTICS

(V_O-V_I =5V, I_O =0.5A, 0℃≤T_J≤125℃, I_{MAX}=1.5A,P_{DMAX}=20W, unless otherwise specified)

Parameter	Symbol	Test Conditions		Min.	Typ.	Max	Unit
Line Regulation [1]	R_{LINE}	T_A=25°C, 3V≦V_I-V_O=40V		-	0.01	0.04	%/V
		3V≦V_I-V_O≦40V		-	0.02	0.07	
Load Regulation [1]	R_{LOAD}	T_A=25°C, 10mA≦I_O≦I_{MAX}	V_O<5V	-	18	25	mV%/V_O
			V_O≧5V	-	0.4	0.5	
		10mA≦I_O≦I_{MAX}	V_O<5V	-	40	70	
			V_O≧5V	-	0.8	1.5	
Adjustable Pin Current	I_{ADJ}	-		-	46	100	uA
Adjustable Pin Current Change	ΔI_{ADJ}	3V≦V_I-V_O≦40V, 10 mA≦I_O≦I_{MAX},P_D≦P_{MAX}		-	2	5	uA
Reference Voltage	V_{REF}	3V≦V_I-V_O≦40V, 10 mA≦I_O≦I_{MAX},P_D≦P_{MAX}		1.2	1.25	1.3	V
Temperature Stability	ST_T	-		-	0.7	-	%/V_O
Minimum Load Current for Regulation	$I_{L(MIN)}$	V_I-V_O=40V		-	3.5	12	mA
Maximum Output Current	$I_{O(MAX)}$	V_I-V_O≦15V, P_D<P_{MAX}, T_A=25°C		1	2.2	-	A
		V_I-V_O≦40V, P_D<P_{MAX}, T_A=25°C		-	0.3	-	
RMS Noise vs.% of Vout	eN	T_A=25°C,10 HZ≦f≦10 KHz		-	0.003	0.01	%/V_O
Ripple Rejection	RR	V_O=10V, f=120Hz,		-	60	-	dB
		V_O=10V, f=120Hz, Without C_{ADJ}, C_{ADJ}=10uF [2]		66	75	-	
Long-term Stability,T_J=T_{HIGH}	ST	T_A=25°C, for end point mesasurements,1000HR		-	0.3	1	%
Junction to Case Thermal Resistance	$R_{\theta JC}$	-		-	5	-	°C/W

Note:

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.(P_{MAX}=20W)
2. C_{ADJ}. when used, is connected between the adjustment pin and ground.