

UTC LM317 LINEAR INTEGRATED CIRCUIT

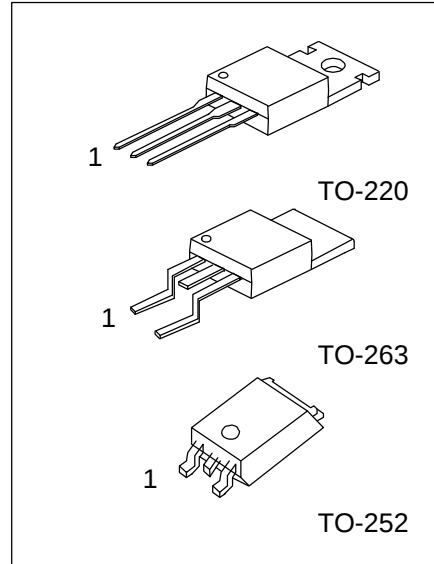
3-TERMINAL 1A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

DESCRIPTION

The UTC LM317 is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of output current with voltage adjustable from 1.3 to 37V.

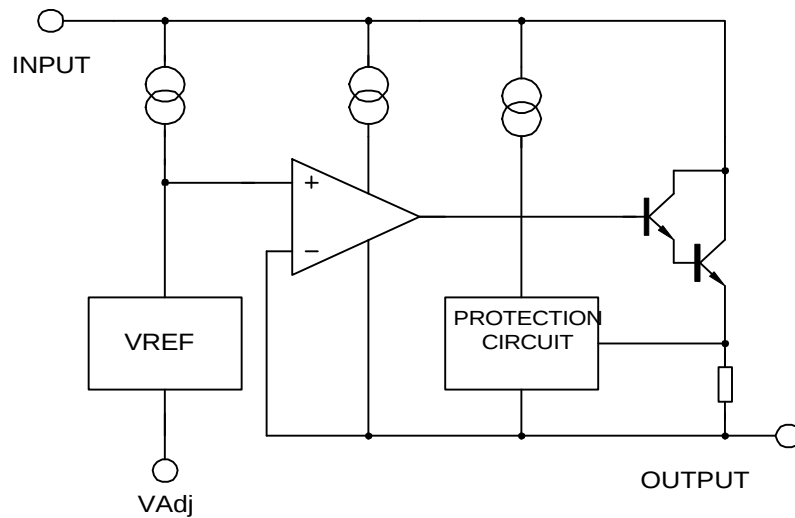
FEATURES

- *Output current up to 1.5A.
- *Output voltage adjustable from 1.3V to 37V.
- *Internal short circuit protection.
- *Internal over temperature protection.
- *Safe-Area compensation for output transistor.



1:ADJ 2:Output 3:Input

BLOCK DIAGRAM



UTC LM317 LINEAR INTEGRATED CIRCUIT

ABSOLUTE MAXIMUM RATINGS(Ta=25°C, UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	VALUE	UNIT
Input - Output Voltage Difference	VI-VO	40	V
Lead Temperature	TLEAD	230	°C
Power Dissipation	PD	Internal limited	
Operating Temperature Range	TOPR	0~125	°C
Storage Temperature Range	TSTG	-65~150	°C

ELECTRICAL CHARACTERISTICS

(VI-VO=5V, 0°C <Tj<125°C, IO=500mA, IMAX=1.5A, PMAX=20W , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Line Regulation	ΔVO	Ta=25°C, 3V<=VI-VO<=40V		0.01	0.04	%/V
		Ta=0 - 125°C, 3V<=VI-VO<=40V		0.02	0.07	%/V
Load Regulation	ΔVO	Ta=25°C	VO<=6V	18	25	mV
		10mA<=IO<=IMAX	VO>=5V	0.4	0.5	%/VO
		10mA<=IO<=IMAX	VO<=5V	40	70	mV
			VO>=6V	0.8	1.5	%/VO
Adjustable Pin Current	IADJ			46	100	μA
Adjustable Pin Current Change	$\Delta IADJ$	2.5V<=VI-VO<=40V, 10mA<=IO<=IMAX, PD<=PMAX		2.0	5	μA
Reference Voltage	VREF	3V<=VI-VO<=40V, 10mA<=IO<=IMAX, PD<=PMAX	1.20	1.25	1.30	V
Temperature Stability	STT			0.7		%/VO
Minimum Load Current for Regulation	IL(MIN)	VI-VO=40V		3.5	10	mA
Maximum Output Current	IO(MAX)	VI-VO<=15V, PD<=PMAX	1.5	2.2		A
		VI-VO<=15V, PD<=PMAX, Ta=25°C	0.15	0.4		
RMS Noise v.s. %of Vout	eN	TA=25°C, 10HZ<=f<=10KHZ		0.003	0.01	%/VO
Ripple Rejection	RR	VO=10V, f=120HZ,		60		dB
		VO=10V, f=120HZ, CADJ=10μF	66	75		
Long-term Stability, TJ=THIGH	ST	TA=25°C, 1000 hr		0.3	1	%
Junction to Case Thermal Resistance	R θ JC			5		°C/W

Note: Testing with low duty pulse should be used to avoid heating effect.

UTC LM317 LINEAR INTEGRATED CIRCUIT

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1. Load Regulation vs temperature

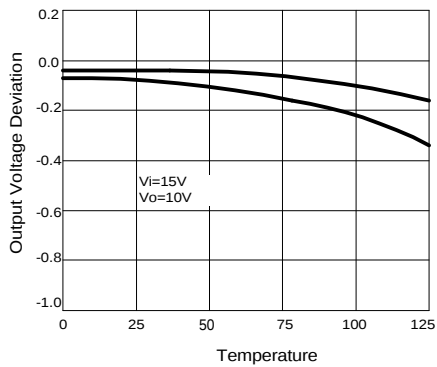


Fig.2 Adjustment Current vs Temperature

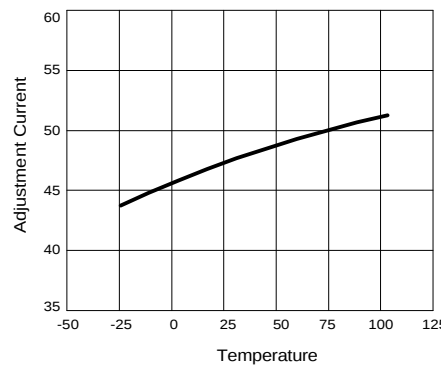


Fig.3. Dropout Voltage vs Input-Output Voltage Difference

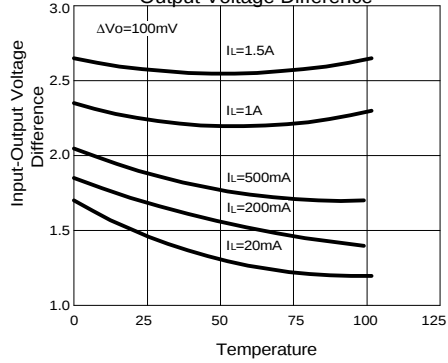
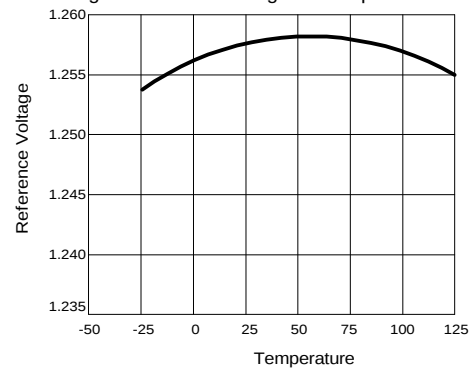


Fig.4 Reference Voltage vs Temperature



UTC LM317 LINEAR INTEGRATED CIRCUIT

APPLICATION CIRCUIT

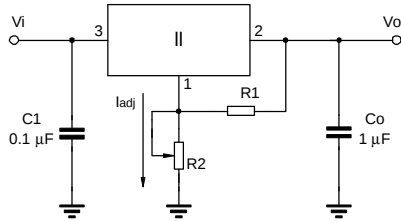


Fig.5 Programmable voltage regulator
 $V_o = 1.25V \cdot (1 + R_2/R_1) + I_{adj} \cdot R_2$
 C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

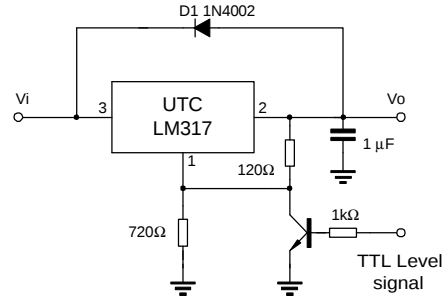


Fig.6 Regulator with On-off control

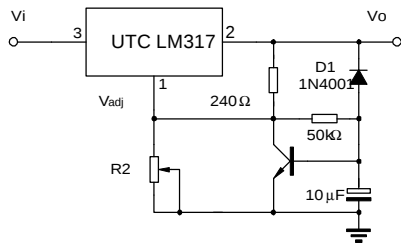


Fig.7 Soft start application

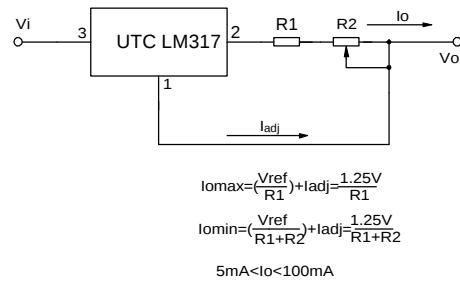


Fig.8 Constant current application