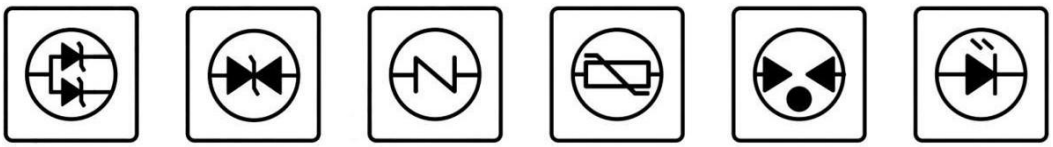
MSKSEMI 美森科
SEMICONDUCTOR



LM317D2T(MS))

Product specification

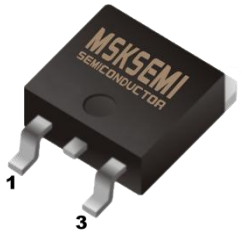
3-TERMINAL 1A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

DESCRIPTION

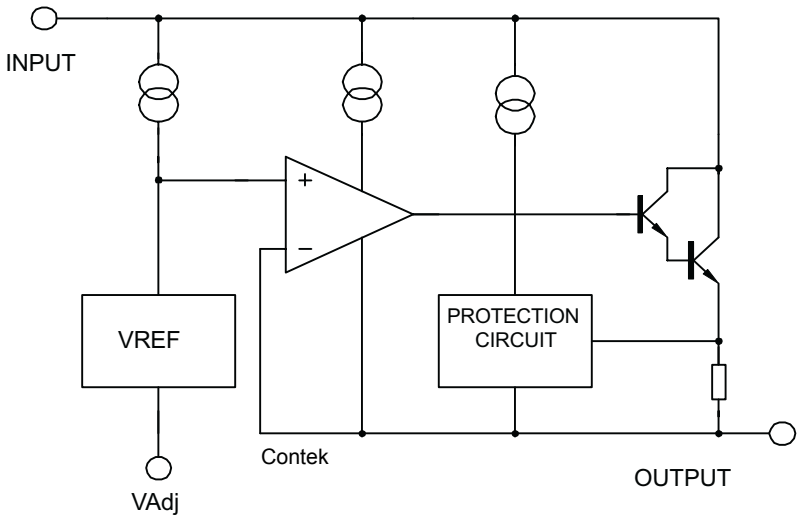
The Contek LM317 is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of output current with voltage adjustable from 1.3 to 37v

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.

PACKAGE OUTLINE	Marking
 1.IN 2.GND 3.OUT	MSKSEMI LM317D2T CHN MS**

BLOCKDIAGRAM



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

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

ELECTRICAL CHARACTERISTICS

(VI-VO=5V, 0℃ <Tj<125℃ ,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
		Ta=25 C	VO<=6V		18	25	mV
Load Regulation	ΔVO	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	ΔIADJ	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=10 μF			75		
Long-term Stability,TJ=THIGH	ST	TA=25 C,1000 hr		66	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.

TYPICALPERFORMANCECHARACTERISTICS

Fig.1. Load Regulation vs temperature

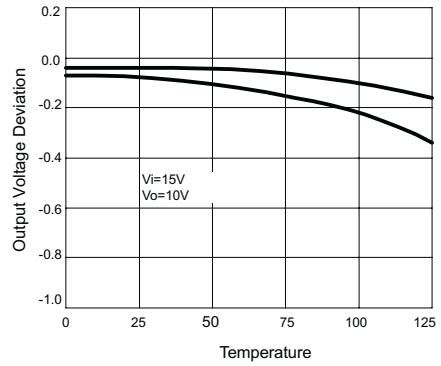


Fig.2 Adjustment Current vs Temperature

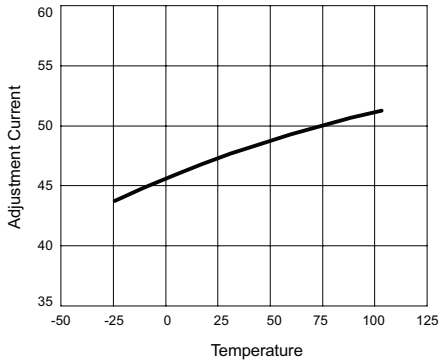


Fig.3. Dropout Voltage vs Input-Output Voltage Difference

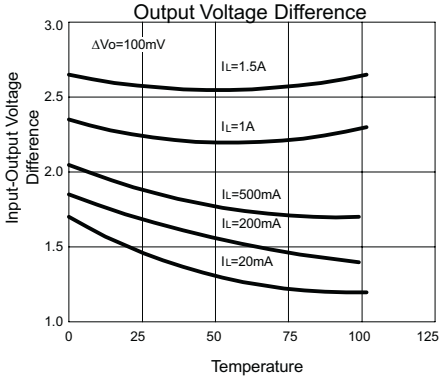
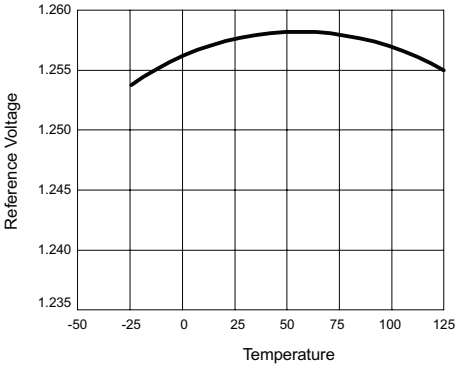


Fig.4 Reference Voltage vs Temperature



APPLICATIONCIRCUIT

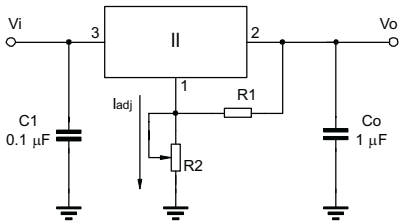


Fig.5 Programmable voltage regulator
Vo=1.25V*(1+R2/R1)+Iadj*R2
C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

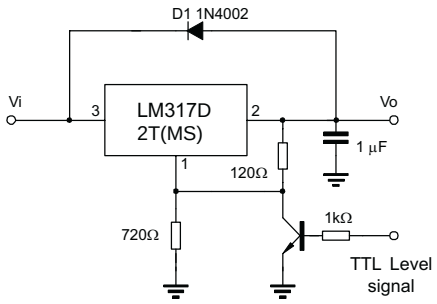


Fig.6 Regulator with On-off control

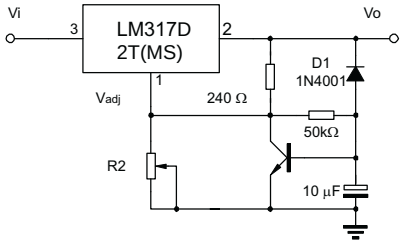
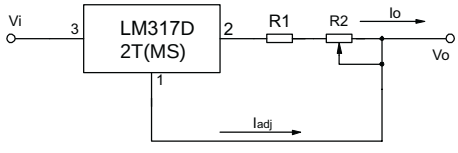


Fig.7 Soft start application



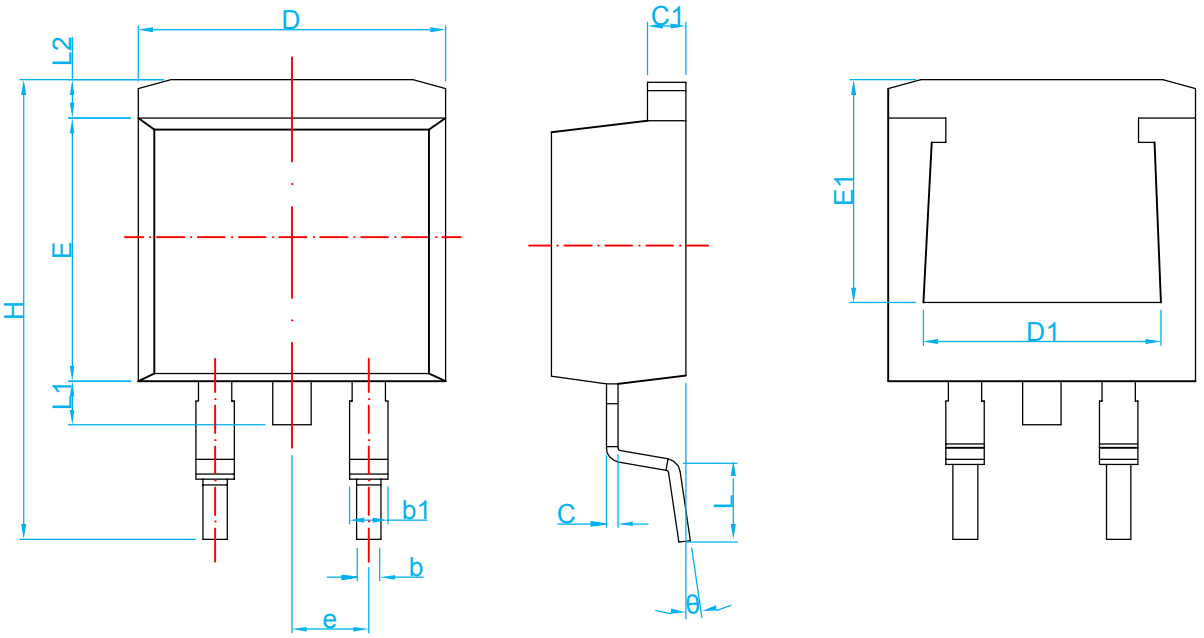
$$Iomax=(\frac{Vref}{R1})+Iadj=\frac{1.25V}{R1}$$

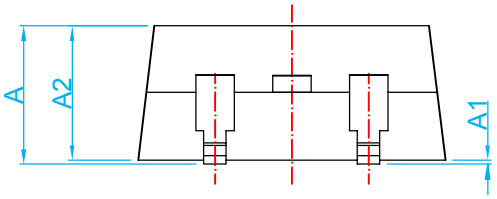
$$Iomin=(\frac{Vref}{R1+R2})+Iadj=\frac{1.25V}{R1+R2}$$

5mA<Io<100mA

Fig.8 Constant current application

Package Outline Dimensions





Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	4.06	5.08	0.160	0.200
A1	0.00	0.25	0.000	0.010
A2	4.06	4.83	0.160	0.190
b	0.50	1.00	0.020	0.039
b1	1.14	1.78	0.045	0.070
C	0.33	0.74	0.013	0.029
C1	1.14	1.67	0.045	0.066
D	9.65	10.67	0.380	0.420
D1	6.23	---	0.245	---
E	8.38	9.66	0.330	0.380
E1	6.86	---	0.270	---
H	14.60	15.88	0.575	0.625
e	2.54 TYP		0.100 TYP	
L	1.78	2.84	0.070	0.112
L1	1.20	1.78	0.047	0.070
L2	1.17	1.68	0.046	0.066
θ	0°	8°	0°	8°

REEL SPECIFICATION

P/N	PKG	QTY
LM317D2T(MS)	TO-263	1000

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