

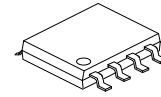
**LM39102****LINEAR INTEGRATED CIRCUIT****1A LOW-VOLTAGE
LOW-DROPOUT REGULATOR****DESCRIPTION**

The UTC **LM39102** is a low-dropout linear voltage regulator that provide low-voltage, high-current output.

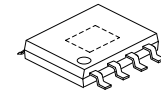
The UTC **LM39102** can be used in a wide field because of Adjustable Output. UTC **LM39102** is fully protected with over current limiting, thermal shutdown, and reversed-battery protection.

FEATURES

- * Adjustable output voltages refer to 1.24V
- * Dropout Voltage 410mV at 1A output
 - Ideal for 3.0V~2.5V conversion
 - Ideal for 2.5V~1.8V or 1.5V conversion
- * ON/OFF control function
- * 1% initial accuracy
- * Built-in current limiting and thermal shutdown
- * Reversed-battery protection
- * Reversed-leakage protection
- * Fast transient response



SOP-8

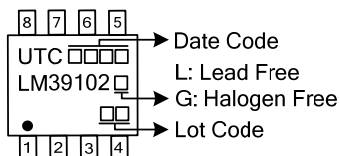


HSOP-8

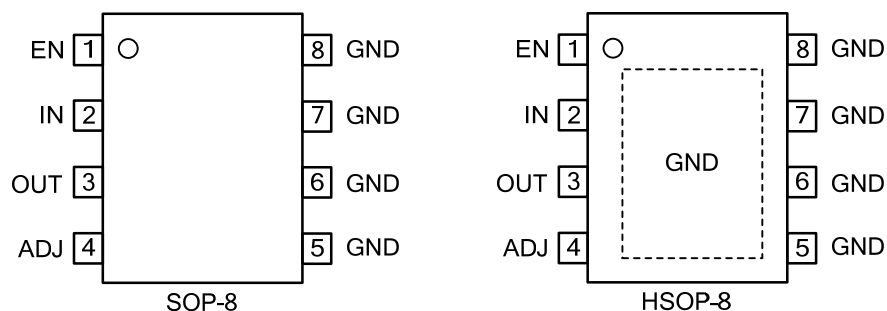
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
LM39102L-S08-R	LM39102G-S08-R	SOP-8	Tape Reel
LM39102L-SH2-R	LM39102G-SH2-R	HSOP-8	Tape Reel

LM39102G-S08-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) S08: SOP-8, SH2: HSOP-8
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

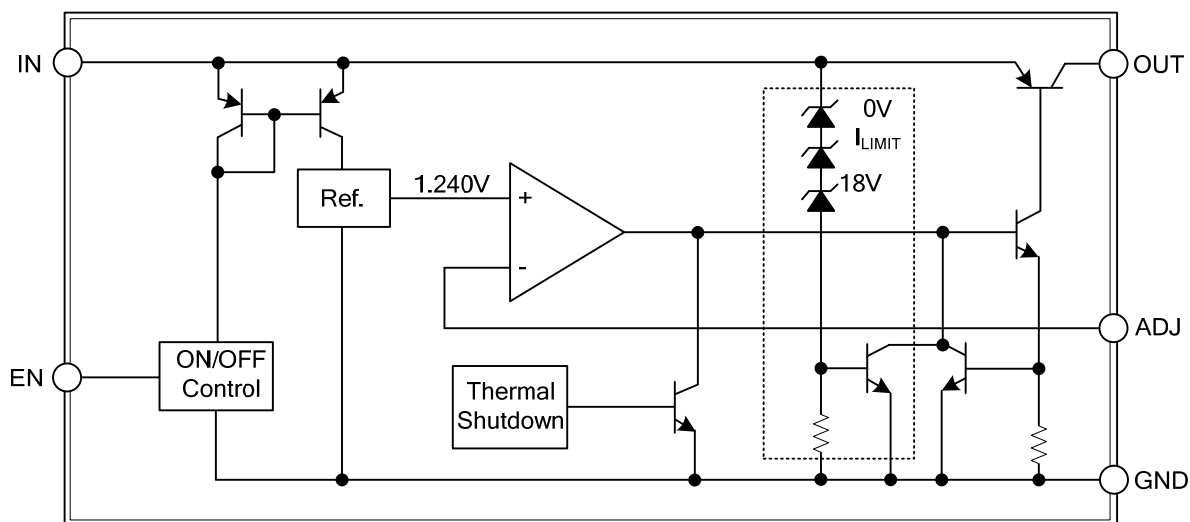
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
SOP-8	HSOP-8		
1	1	EN	ON/OFF control terminal
2	2	IN	Power Supply
3	3	OUT	Regulator output
4	4	ADJ	Adjustment terminal: feedback input
5, 6, 7, 8	5, 6, 7, 8	GND	Ground
-	Exposed Pad	GND	Ground

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	18V	V
Enable Voltage	V_{EN}	+20	V
Junction Temperature	T_J	-40 ~ +125	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ OPERATING RATINGS (Note 1)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	+2.25 ~ +16	V
Enable Voltage	V_{EN}	+16	V
Maximum Power Dissipation	P_D	Note 2	

Notes: 1. The device is not guaranteed to function outside its operating rating.

2. $P_{D(max)} = (T_J(max) - T_A) / \theta_{JA}$, where θ_{JA} - junction-to-ambient thermal resistance.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOP-8	θ_{JC}	50	°C/W
	HSOP-8		45	°C/W

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=V_{OUT}+1V, V_{EN}=2.25V, T_J=25°C, bold values indicate 0°C≤T_J≤+125°C, unless noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _{OUT}	10mA	-1		1	%
		10mA≤I _{OUT} ≤1A, V _{OUT} +1V≤V _{IN} ≤8V	-2		2	%
Line Regulation		I _{OUT} =10mA, V _{OUT} +1V≤V _{IN} ≤16V		0.06	0.5	%
Load Regulation		V _{IN} =V _{OUT} +1V, 10mA≤I _{OUT} ≤1A		0.2	1	%
Output Voltage Temperature Coefficient (Note 1)	ΔV _{OUT} /ΔT			40	100	ppm/°C
Dropout Voltage (Note 2)	V _{DO}	I _{OUT} =100mA, ΔV _{OUT} =-1%		150	200	mV
					250	mV
		I _{OUT} =500mA, ΔV _{OUT} =-1%		275		mV
		I _{OUT} =750mA, ΔV _{OUT} =-1%		330	500	mV
		I _{OUT} =1A, ΔV _{OUT} =-1%		410	550	mV
Ground Current (Note 3)	I _{GND}	I _{OUT} =100mA, V _{IN} =V _{OUT} +1V		700		μA
		I _{OUT} =500mA, V _{IN} =V _{OUT} +1V		12		mA
		I _{OUT} =750mA, V _{IN} =V _{OUT} +1V		25		mA
		I _{OUT} =1A, V _{IN} =V _{OUT} +1V		45	70	mA
Current Limit	I _{OUT(lim)}	V _{OUT} =0V, V _{IN} =V _{OUT} +1V		1.8	2.5	A
Enable Input						
Enable Input Voltage	V _{EN}	Logic Low (Off)			0.8	V
		Logic High (On)	2.25			V
Enable Input Current	I _{EN}	V _{EN} =2.25V	1	15	30	μA
					75	μA
		V _{EN} =0.8V			2	μA
					4	μA
Reference Voltage			1.228	1.240	1.252	V
			1.215		1.265	V
		Note 4	1.203		1.277	V
Adjust Pin Bias Current				40	80	nA
					120	nA
Reference Voltage Temperature Coefficient (Note 1)				20		ppm/°C
Adjust Pin Bias Current Temperature Coefficient				0.1	99.2	nA/°C

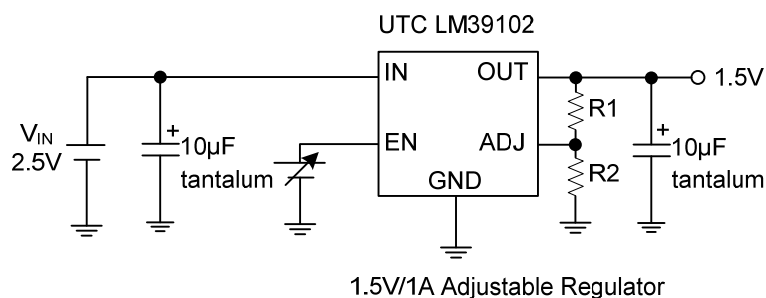
Notes: 1. Output voltage temperature coefficient is ΔV_{OUT(worst case)}+(T_{J(max)}-T_{J(min)}) where T_{J(max)} is +125°C and T_{J(min)} is 0°C.

2. V_{DO}=V_{IN}-V_{OUT} when V_{OUT} decreases to 99% of its nominal output voltage with V_{IN}=V_{OUT}+1V. For output voltages below 2.25V, dropout voltage is the input-to-output voltage differential with the minimum input voltage being 2.25V. Minimum input operating voltage is 2.25V.

3. I_{GND} is the quiescent current. I_{IN}=I_{GND}+I_{OUT}.

4. V_{REF}≤V_{OUT}≤(V_{IN}-1V), 2.25V≤V_{IN}≤16V, 10mA≤I_L≤1A.

■ TYPICAL APPLICATION CIRCUIT



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