



UCM102

Preliminary

CMOS IC

HIGH-SIDE CURRENT MONITOR

DESCRIPTION

The UTC **UCM102** is a high-side current sense monitor. It uses UTC's advanced technology to provide customers with a minimum operating current, high accuracy and high side voltage, etc.

The UTC **UCM102** is suitable for portable battery equipment.

FEATURES

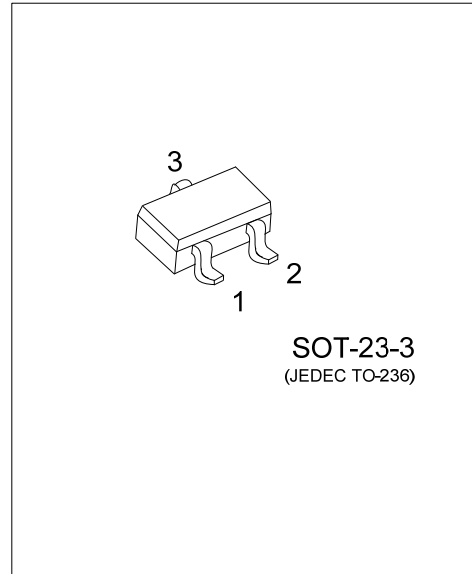
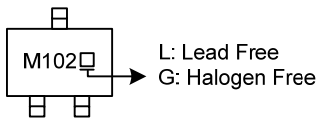
- * Low operating current
- * High side voltage (2.5~20V)
- * High accuracy (typ.=1%)

ORDERING INFORMATION

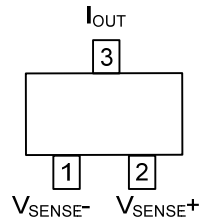
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCM102L-AE2-R	UCM102G-AE2-R	SOT-23-3	Tape Reel

<p>UCM102G-AE2-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AE2: SOT-23-3 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



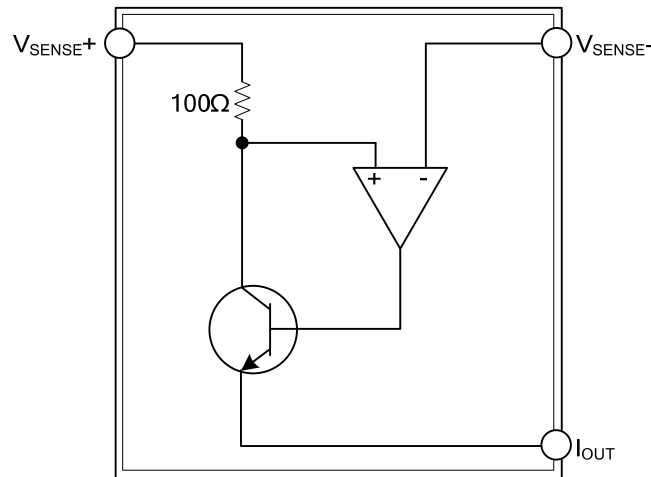
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	VSENSE-	Connection to load/battery
2	VSENSE+	Supply voltage
3	IOUT	Output current, proportional to $V_{IN}-V_{LOAD}$

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Voltage on any Pin (Relative to I _{OUT})		-0.6 ~ 20	V
Continuous Output Current	I _{OUT}	25	mA
Continuous Sense Voltage (Note 2)	V _{SENSE}	-0.5 ~ +5	V
Power Dissipation (T _A =25°C) Derate to Zero at 125°C	P _D	450	mW
Operating Temperature	T _A	-40 ~ +85	°C
Storage Temperature	T _{STG}	-55 ~ +125	°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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
V _{CC} Range	V _{IN}	2.5		20	V

■ ELECTRICAL CHARACTERISTICS (Test Conditions T_A=25°C, V_{IN}=5V, R_{OUT}=100Ω.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Current	I _{OUT} (Note 1)	V _{SENSE} =0V	1	4	15	μA
		V _{SENSE} =10mV	90	104	120	μA
		V _{SENSE} =100mV	0.975	1.002	1.025	mA
		V _{SENSE} =200mV	1.95	2.0	2.05	mA
		V _{SENSE} =1V	9.6	9.98	10.2	mA
Sense Voltage	V _{SENSE} (Note 2)		0		2500	mV
V _{SENSE} - input current	I _{SENSE-}				100	nA
Accuracy	Acc	R _{SENSE} =0.1Ω, V _{SENSE} =200mV	-2.5		2.5	%
Transconductance, I _{OUT} /V _{SENSE}	G _m			10000		μA/V
Bandwidth	BW	V _{SENSE(DC)} =10mV, Pin=-40dBm (Note 3)		300		kHz
		V _{SENSE(DC)} =100mV, Pin= -20dBm (Note 3)		2		MHz

Notes: 1. Includes input offset voltage contribution.

2. V_{SENSE} is defined as the differential voltage between V_{SENSE+} and V_{SENSE-}

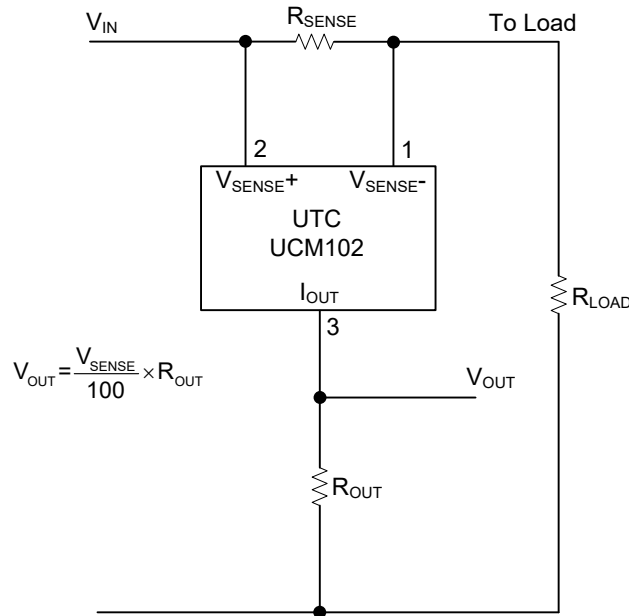
$$V_{SENSE} = V_{SENSE+} - V_{SENSE-}$$

$$= V_{IN} - V_{LOAD}$$

$$= I_{LOAD} \times R_{SENSE}$$

3. -20dBm=63mVp-p into 50Ω

■ TYPICAL APPLICATION CIRCUIT



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