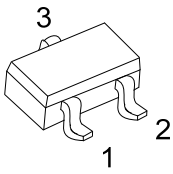
HIGH-SIDE CURRENT MONITOR



SOT-23-3
(JEDEC TO-236)

■ 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

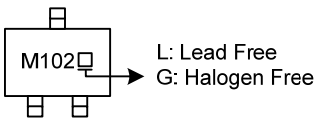
* Low operating current
* High side voltage (2.5~20V)
* High accuracy (typ.=1%)

■ ORDERING INFORMATION

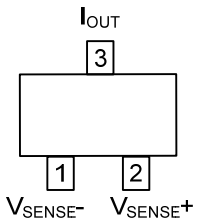
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCM102L-AE2-R	UCM102G-AE2-R	SOT-23-3	Tape Reel

UCM102G-AE2-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



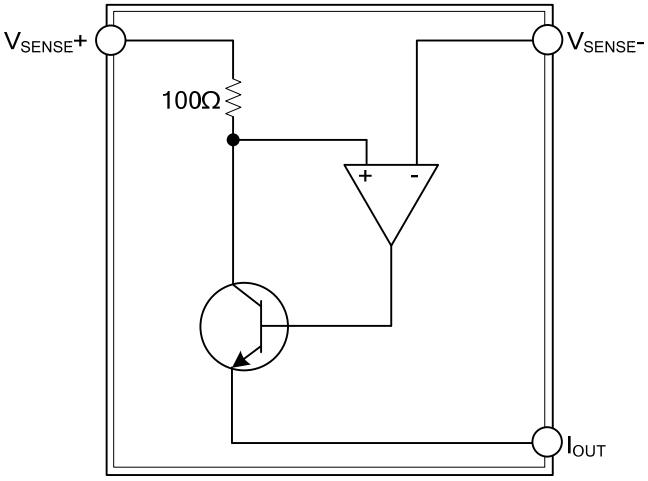
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{SENSE-}	Connection to load/battery
2	V_{SENSE+}	Supply voltage
3	I_{OUT}	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}	Gm			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