

PRELIMINARY - July 6, 1999

TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

DESCRIPTION

The SC1460 is a versatile charge pump designed for use in battery operated power supply applications requiring up to 5mA. It enables a simple low current boost circuit to be implemented without the costly inductors or capacitors associated with regular switching circuits. Features include internal MOSFETs, control circuitry and charge pump capacitor, requiring only two external capacitors for a total solution. With a very high operating frequency (8MHz free running at 2.5V in typically), the SC1460 does not require large input or output capacitors, and therefore uses very little board space. Two versions of the SC1460 are available: the -3.3 produces a regulated 3.3V output from 2.5V in, and the -5.0 produces a regulated 5V output from 3.3V in. It is supplied in the popular 3 lead, SOT-23 package.

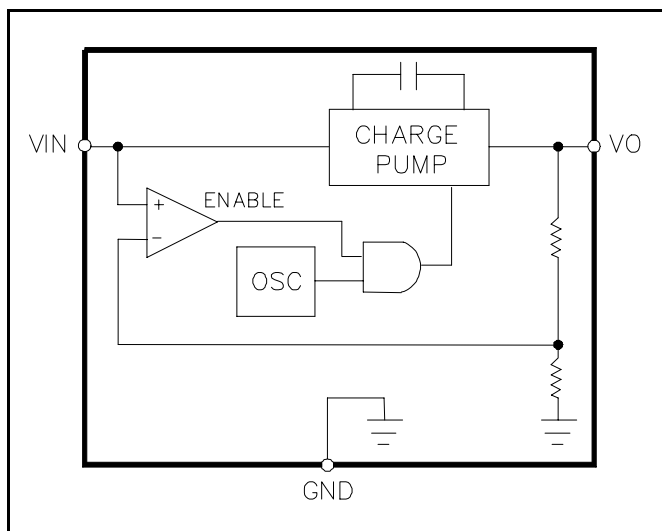
FEATURES

- Small size - SOT-23 package
- 4% voltage accuracy
- Typical 100uA quiescent current

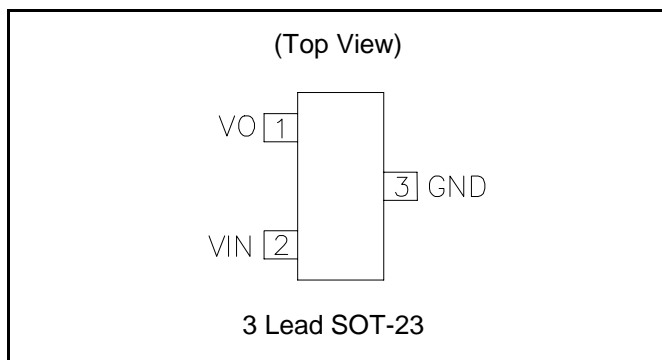
APPLICATIONS

- Handheld Power Supplies
- PDA Power Supplies
- Notebook Power Supplies
- Peripheral Card Supplies
- Industrial Power Supplies
- High Density DC/DC Conversion

BLOCK DIAGRAM



PIN CONFIGURATION



ORDERING INFORMATION

DEVICE ⁽¹⁾⁽²⁾	PACKAGE
SC1460CSK-X.X	SOT-23

Notes:

(1) Where X.X denotes voltage options. Available voltages are: 3.3V and 5.0V.

(2) Add suffix 'TR' for tape and reel.

ABSOLUTE MAXIMUM RATINGS

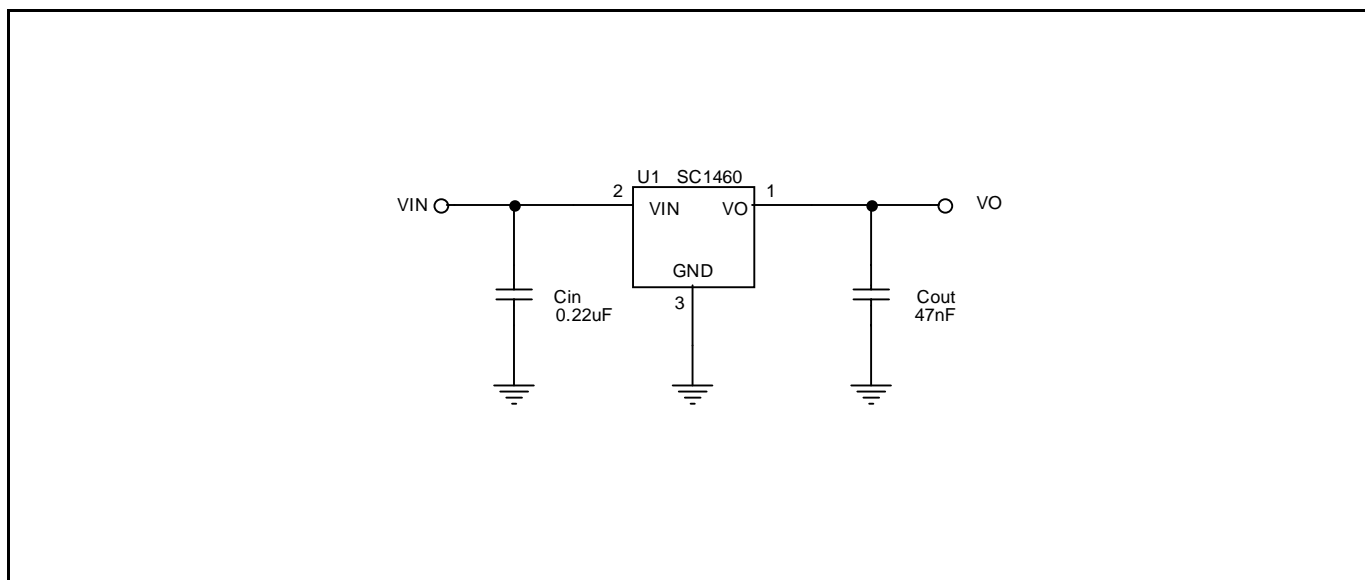
Parameter	Symbol	Maximum	Units
Supply Voltage	VIN	-0.3 to +4	V
Output Voltage	VO	-0.3 to +6.0	V
Thermal Resistance Junction to Ambient	θ_{JA}	410	°C/W
Operating Temperature	T _A	0 to +70	°C
Temperature Range	T _J	0 to 125	°C
Storage Temperature	T _{STG}	-65 to +150	°C
Lead Temperature (Soldering) 10 seconds	T _L	300	°C

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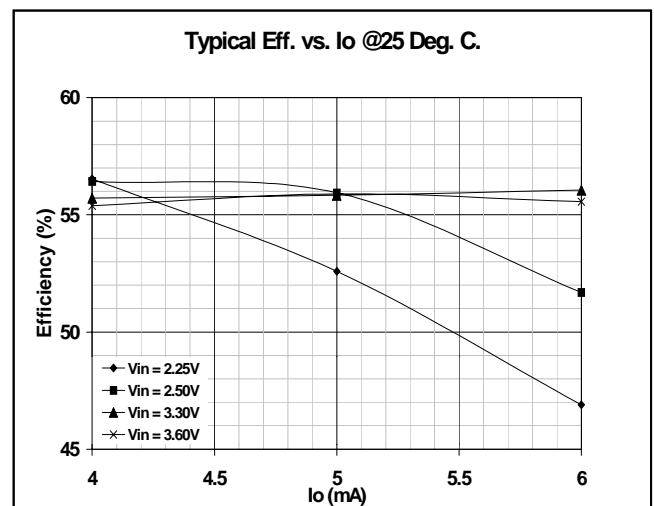
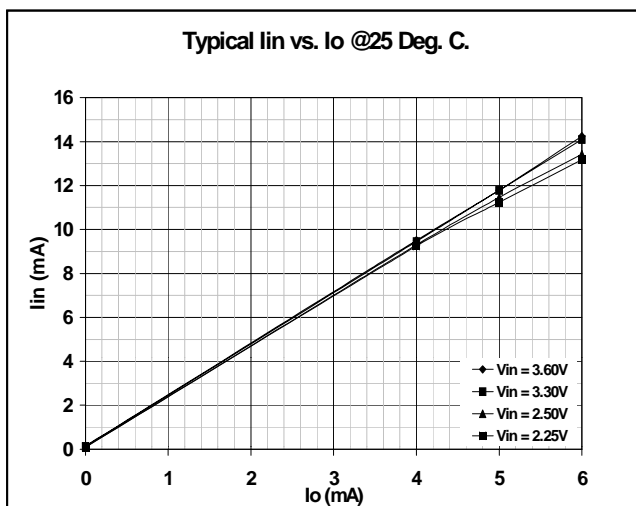
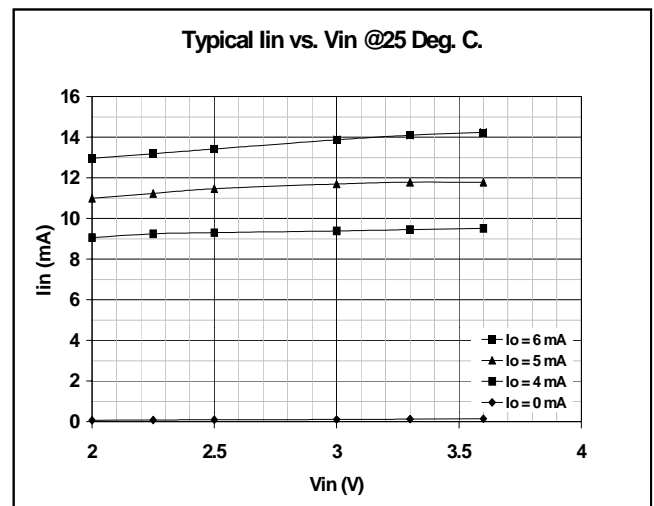
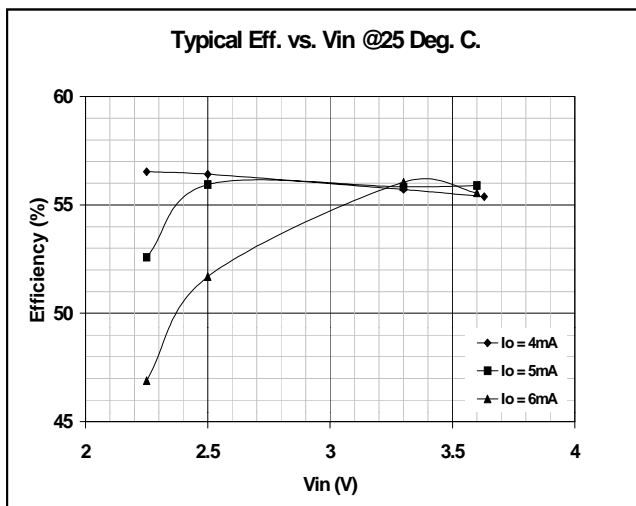
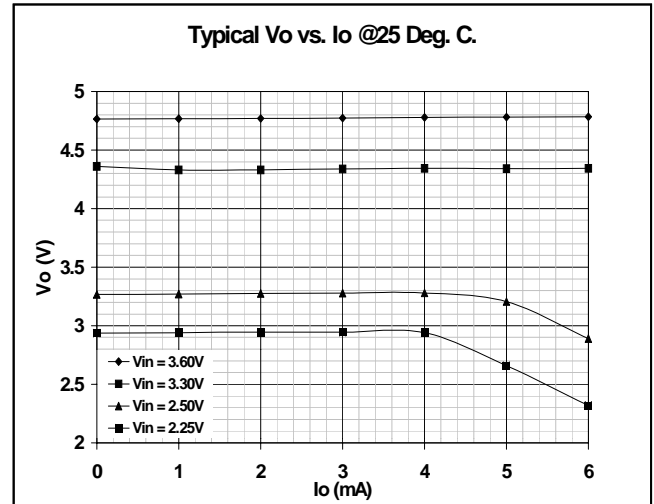
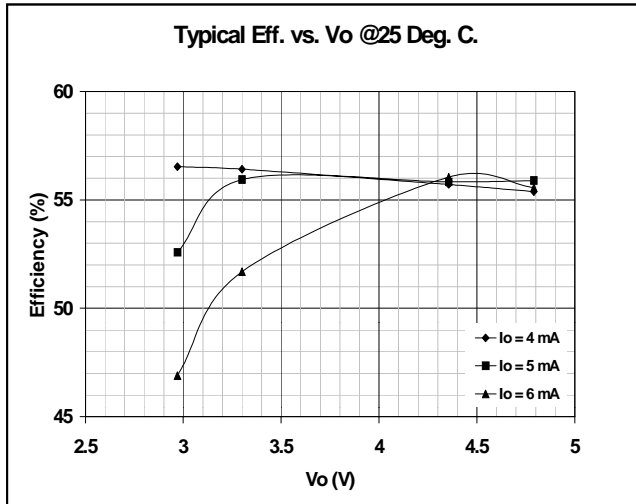
ELECTRICAL CHARACTERISTICS

 Unless specified: $V_{IN} = 3.3V$ (-5.0 parts), $V_{IN} = 2.5V$ (-3.3 parts), $0 \leq I_O \leq 4mA$, $C_{IN} = 0.22\mu F$, $C_{OUT} = 47nF$, $T_A = 25^\circ C$. Values in **bold** apply over full operating temperature range

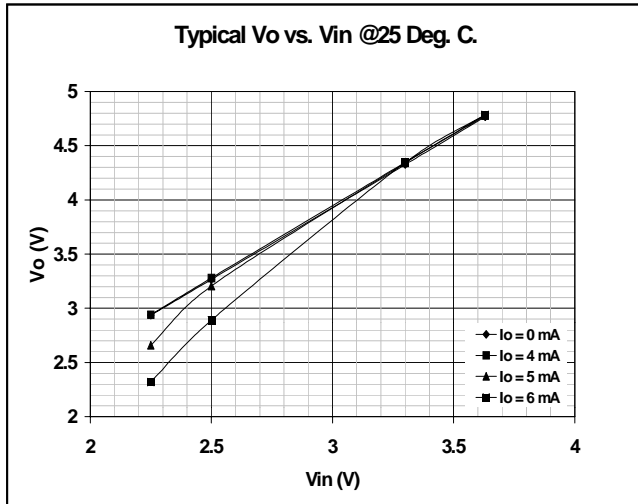
Parameter	Symbol	Conditions	MIN	TYP	MAX	Units
Input Supply Voltage	V_{IN}		2.25		3.63	V
Input Supply Current	I_{IN}	$I_O = 0mA$ $V_{IN} = 2.5V$		100	150	μA
Output Voltage	V_O	SC1460CSK - 3.3, $V_{IN} = 2.5V$	-4	$1.32 \times V_{IN}$	4	%
		SC1460CSK - 5.0, $V_{IN} = 3.3V$	4	$1.515 \times V_{IN}$	4	%
Output Ripple (pk-pk)	V_R	$I_O = 4mA$, $C_{OUT} = 47nF$		50		mV
Output Current	I_O		4	5		mA
Efficiency	η	$I_O = 4mA$	50	56		%
Oscillator Frequency	OSC	SC1460CSK - 3.3, $V_{IN} = 2.5V$		8		MHz
		SC1460CSK - 5.0, $V_{IN} = 3.3V$		8.75		
Time to Regulation at Turn-On	t_{ON}	Power Up with $I_O = 4mA$		100		μs

APPLICATION CIRCUIT


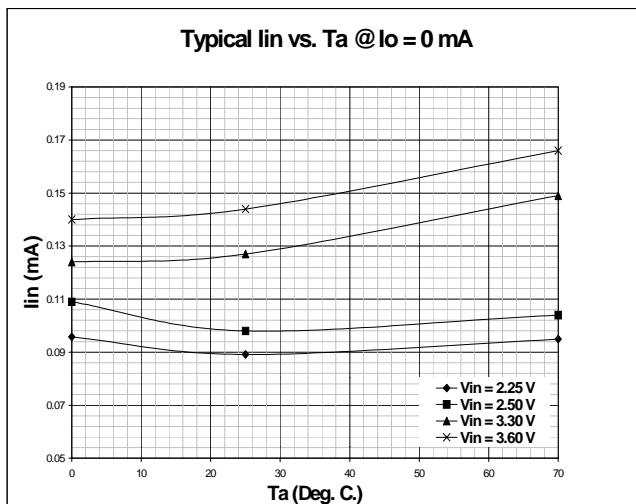
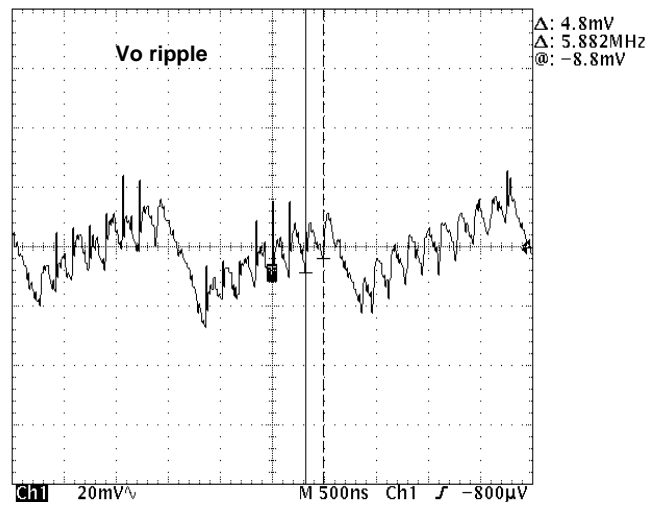
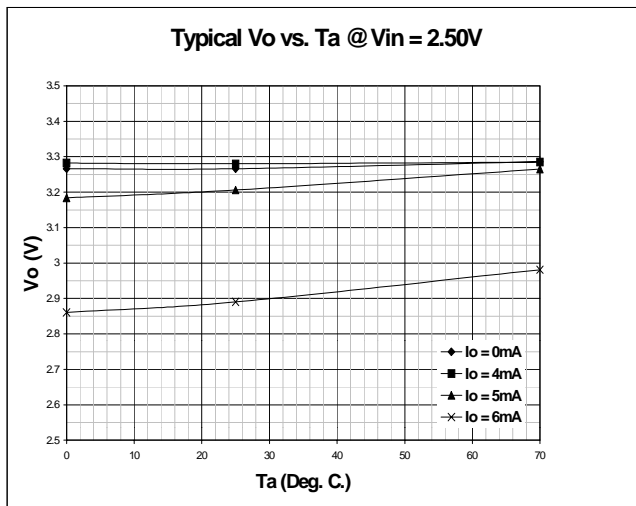
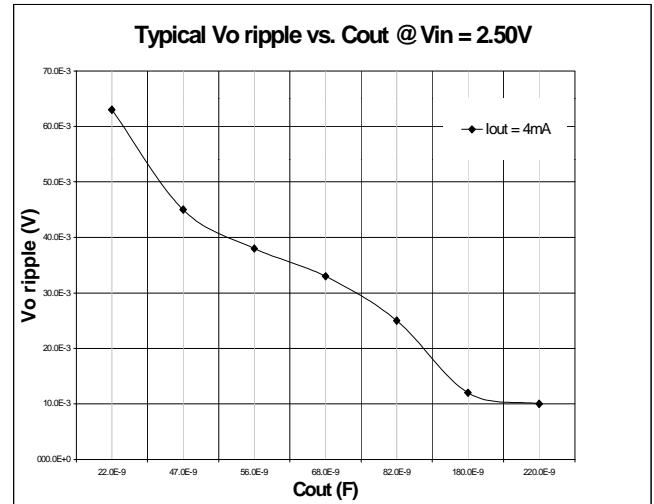
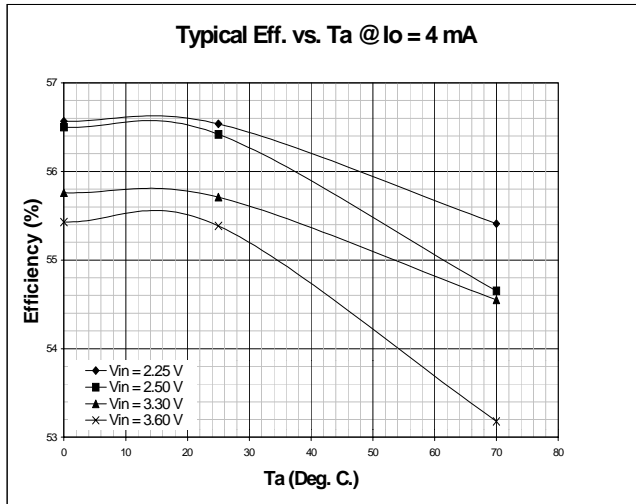
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OUTLINE DRAWING SOT-23-3L
