

PFM Step-up DC/DC Converter

● Features

- Low Start-up Voltage, 1.1V at 1mA
- Minimal Number of External Components (Only an Inductor, a Diode, a MOSFET and two Capacitors)
- Adjustable version ($V_{REF} = 1.25V$ $V_{REF} = 2.7V$ or $V_{REF} = 3.3V$)
- Ultra Low Input Current (12 μ A at Switch Off)
- $\pm 2\%$ High Output Voltage Accuracy
- Low Ripple and Low Noise
- 75% Efficiency with Low Cost Inductor
- SOT23-5L Small Packages

● General Description

The RCR2562 Series are PFM Step-up DC/DC ICs with ultra low supply current by CMOS process and suitable for use with

battery-powered instruments.

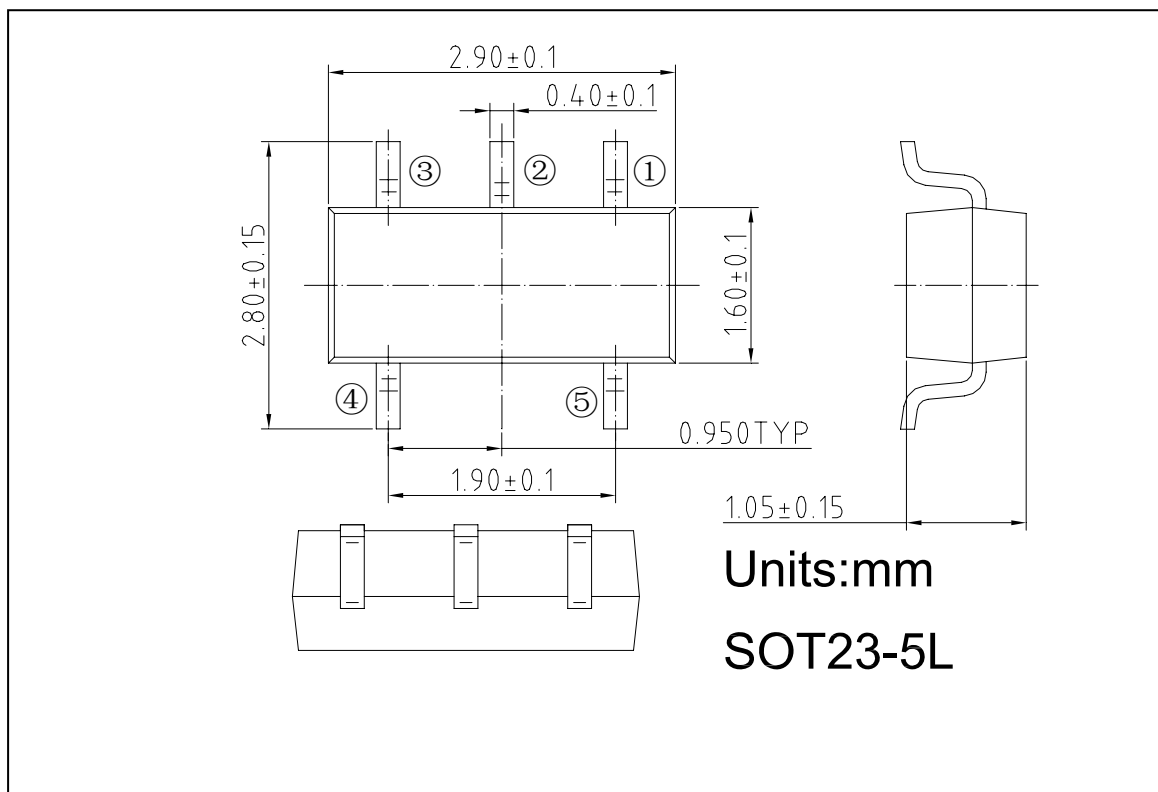
Consists of an oscillator, a PFM control circuit, a driver Pin EXT to external MOSFET, a reference voltage unit, an error amplifier. A low ripple and high efficiency step-up DC/DC converter can be constructed of this RCR2562 IC with only six external components.

The RCR2562 works on ultra low start-up voltage, typically max start-up voltage less than 1.1V at 1mA load current

● Applications

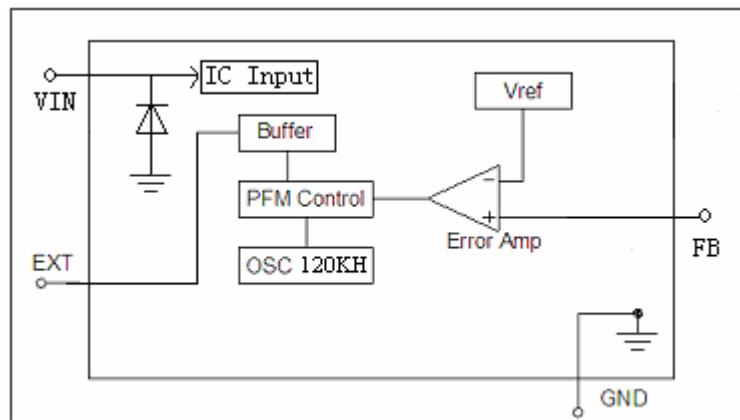
- Battery-powered equipment
- Cameras, Camcorders, VCRs, PDAs, pagers, electronic data banks, and hand-held communication equipment

● Package Information



● Pin Configurations

Pin Port	SOT23-5L
①	FB
②	VIN
③	NC
④	GND
⑤	EXT

● Functional Block Diagram

● Ordering Information
RCR2562 -

Package Type
 SK: SOT23-5L
 Reference Voltage
 125= 1.25V; 270= 2.70V; 330= 3.30V
 Indicate The Product Number

● Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Output Voltage	V_{OUT}	-0.3 to 10	V
EXT Pin Voltage	V_{EXT}	-0.3 to 10	V
EXT Pin Current (2)	I_{EXT}	± 30	mA
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	250	mW
Operating Temperature Range	T_{OPR}	-40 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 to +150	$^\circ\text{C}$

Electrical Characteristics

T_A = 25°C, unless otherwise specified

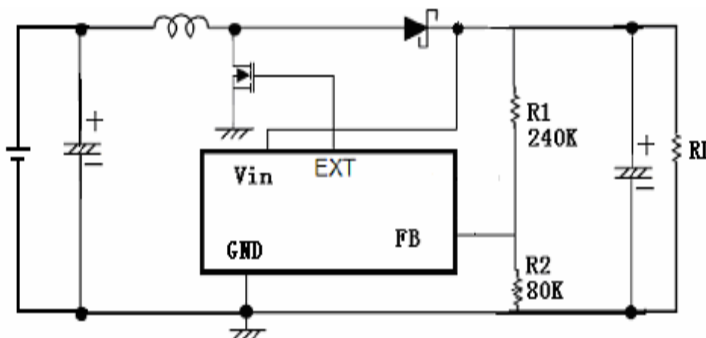
Parameter		Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage Accuracy		ΔV_{OUT}		-2	--	+2	%
Input Voltage		V _{IN}		--	--	10	V
V _{FB} Voltage		V _{FB}	RCR2562 - 125SK	1.22	1.25	1.28	V
			RCR2562 - 270SK	2.65	2.70	2.75	V
			RCR2562 - 330SK	3.24	3.3	3.36	V
Start-up Voltage		V _{ST}	I _{OUT} = 1mA, V _{IN} : 0 to 2V	--	1.0	1.1	V
Efficiency	V _{OUT} ≤ 3.5V	EFFI		--	75	--	%
	V _{OUT} > 3.5V			--	85	--	
Input Current1	V _{OUT} ≤ 3.5V	I _{SS}	To be measured at V _{IN} at no load	--	30	40	μA
	V _{OUT} > 3.5V			--	50	60	
Input Current2	V _{OUT} ≤ 3.5V	I _{SWITCHING}	To be measured at V _{OUT} in switch off condition	--	6	12	μA
	V _{OUT} > 3.5V			--	6	12	
EXT"H"Output Current	V _{OUT} ≤ 3.5V	I _{SH}	V _{EXT} = V _{OUT} - 0.4V	-1.5	--	--	mA
	V _{OUT} > 3.5V			-2	--	--	
EXT"L"Output Current	V _{OUT} ≤ 3.5V	I _{SL}	V _{EXT} = 0.4V	1.5	--	--	mA
	V _{OUT} > 3.5V			2	--	--	
Maximum Oscillator		F _{MAX}		80	120	160	kHz
Oscillator Duty Cycle		D _{OSC}	On (V _{LX} "L") side	70	78	85	%

Note1 V_{out (T)} = Specified output Voltage.

Note2 Unless otherwise provided, V_{SS} = GND, I_{OUT} = 10mA,

Note3 MOSFET: RCR1516

Typical Application Circuit (V_{OUT} = 5V)



Components :

Inductor : 47uH,

Diode : 1N5818,

NMOS : RCR1516

Input Capacitor : 1uF/10V (Tantalum)

Output Capacitor : 47uF/16V (Tantalum)

● Typical Performance Characteristics

1、 RCR2562 (When $V_{OUT} = 5V$) :

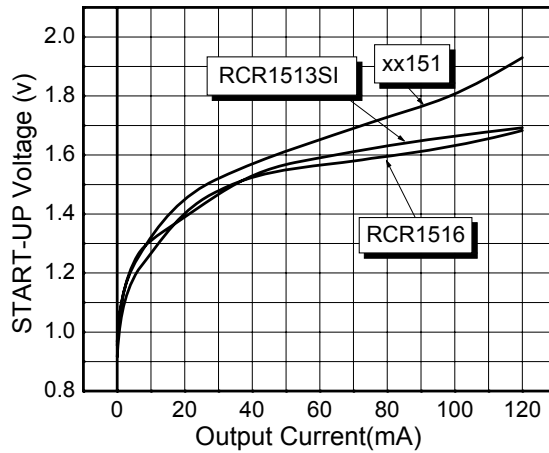


Figure1.Start-up Voltage VS Output Current

2、 RCR2562-125、 RCR2562-27 ($V_{OUT} = 3.0V$) :

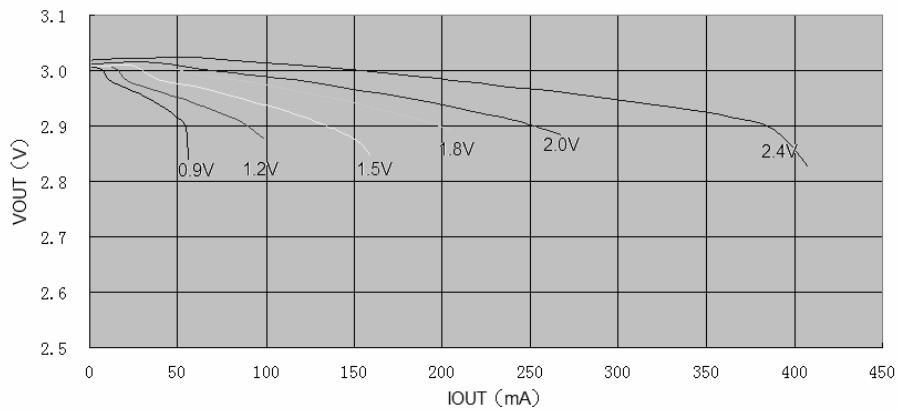


Figure2. Output Voltage VS Output Current

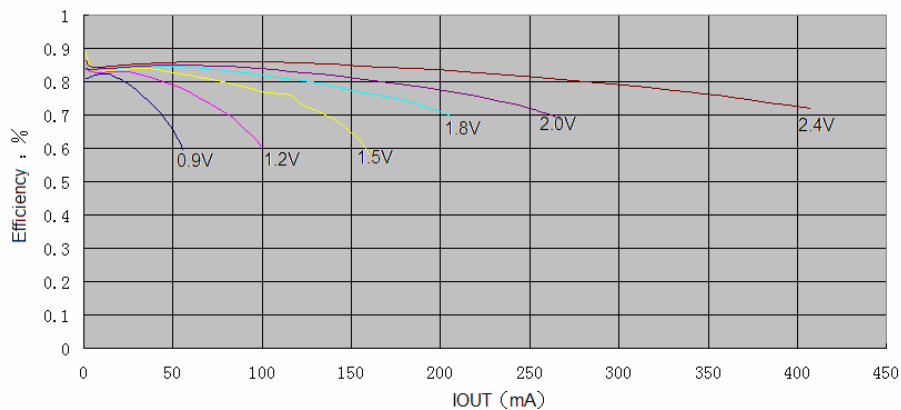


Figure3. Efficiency VS Output current

3、 RCR2562 ($V_{OUT} = 3.3V$) :

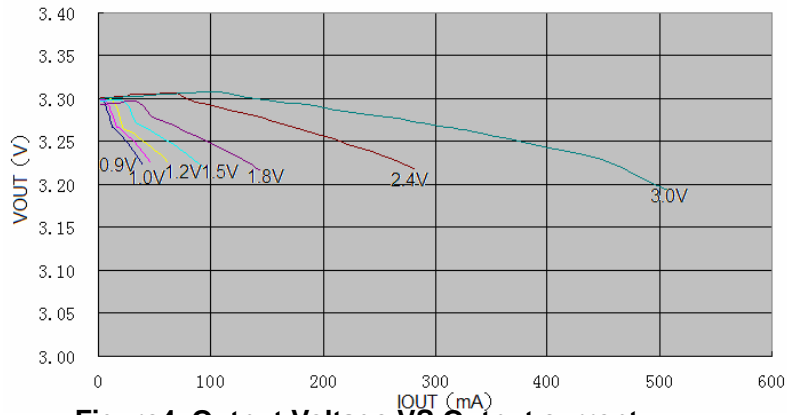


Figure4. Output Voltage VS Output current

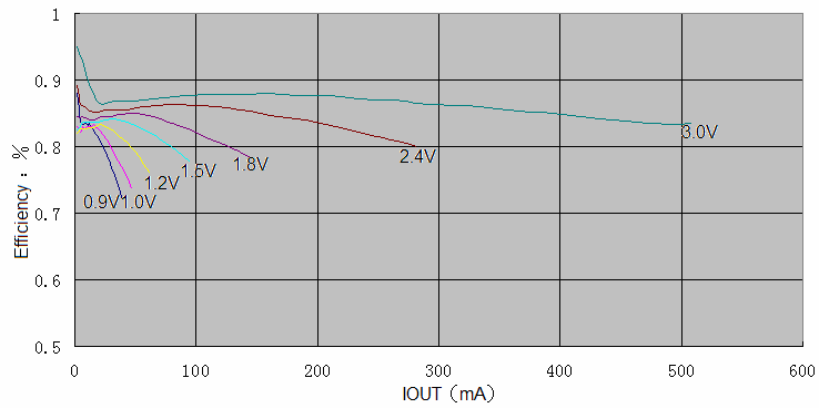


Figure5. Efficiency VS Output current

4、RCR2562 ($V_{out} = 5.0V$) :

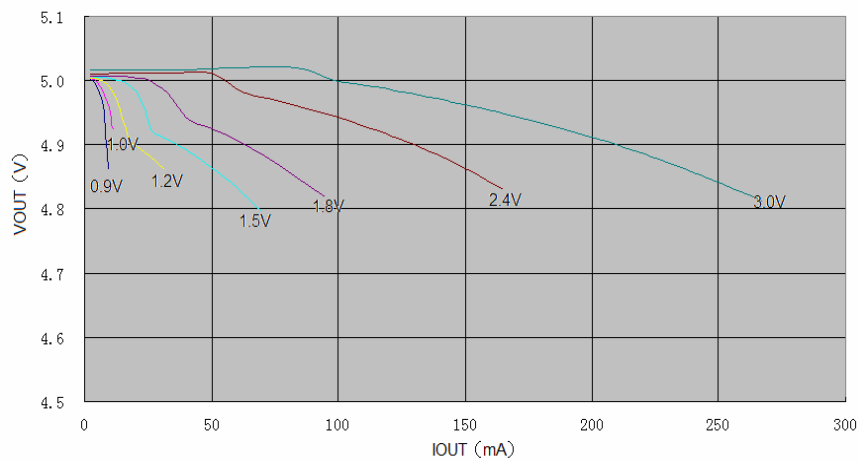
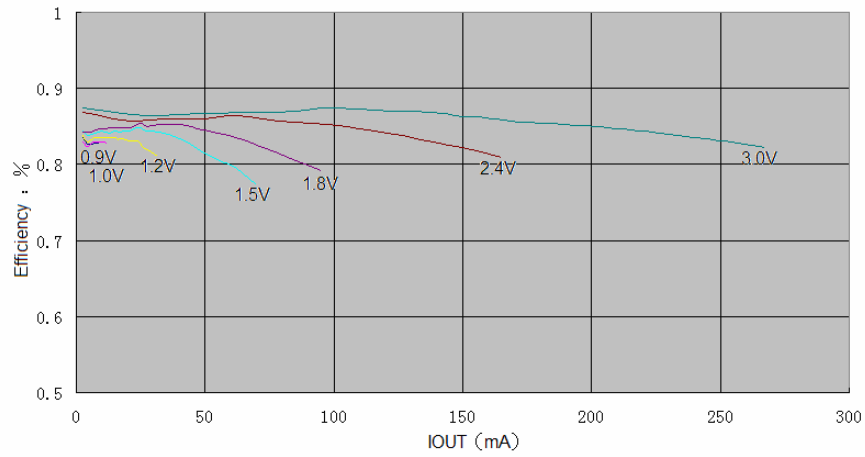


Figure6. Output Voltage VS Output current

5. Efficiency VS. Output Current:

**Figure7. Efficiency VS Output current**



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