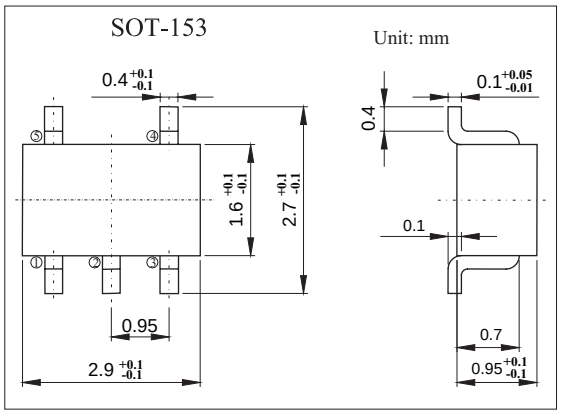
PFM Step-Up DC/DC Converter

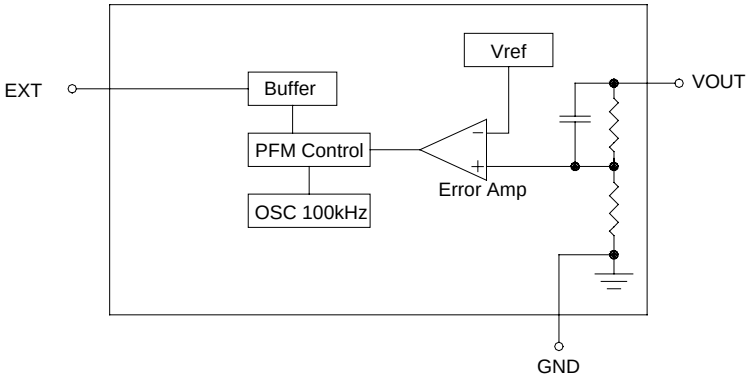
RCR2822

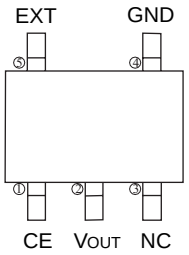
■ Features

- Minimal Number of External Components (Only an Inductor, a Diode, and a Capacitor)
- Ultra Low Input Current (5μA at Switch Off)
- ±2% High Output Voltage Accuracy
- Low Ripple and Low Noise
- Low Start-up Voltage, 0.85V at 1mA
- 75% Efficiency with Low Cost Inductor



■ Functional Block Diagram





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Output Voltage	V_{OUT}	10	V
EXT Pin Voltage	V_{EXT}	-0.3 to +10	V
CE Pin Voltage	V_{CE}	-0.3 to +10	V
EXT Pin Current （Note 2）	I_{EXT}	±30	mA
Power Dissipation @ T_A = 25℃	P_D	250	mW
Operating Temperature Range	T_{OPR}	20 to +85	℃
Storage Temperature Range	T_{stg}	-65 to +150	℃

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■ Electrical Characteristics (Ta = 25℃,unless otherwise specified)

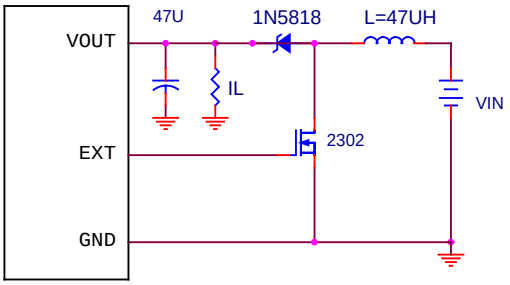
Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Output Voltage Accuracy	ΔVOUT		-2		+2	%
Input Voltage	VIN				10	V
Output Voltage	VOUT	RCR2822 - 20SK	1.96	2.0	2.04	V
		RCR2822 - 25SK	2.45	2.5	2.55	V
		RCR2822 - 30SK	2.94	3.0	3.06	V
		RCR2822 - 33SK	3.23	3.3	3.37	V
		RCR2822 - 36SK	3.53	3.6	3.67	V
		RCR2822 - 50SK	4.9	5.0	5.1	V
Start-up Voltage	VST	IOUT = 1mA, VIN : 0 to 2V		0.85	1.0	V
Hold-on Voltage	VHO	IOUT = 1mA, VIN : 2 to 0V	0.7			V
Efficiency	EFFI	VOUT ⩽ 3.5V (1)		75		%
		3.5V < VOUT ⩽ 5V (2)		85		
Input Current1 VOUT ⩽ 3.5V (1)	ISS1	To be measured at VIN at no load		30	50	μA
3.5V <VOUT ⩽ 5V (2)				60	90	
Input Current2 VOUT ⩽ 3.5V (1)	ISS2	To be measured at VOUT in switch off condition		6	10	μA
3.5V <VOUT ⩽ 5V (2)						
EXT “H” Output Current VOUT ⩽ 3.5V (1)		VEXT = VOUT - 0.4V	-1.5			mA
3.5V <VOUT ⩽ 5V (2)			-2			
EXT “L” Output Current VOUT ⩽ 3.5V (1)		VEXT = 0.4V	1.5			mA
3.5V <VOUT ⩽ 5V (2)			2			
LX Switching Current	ISWITCHING	VLX = 0.4V	100	200		mA
CE “H” Level	VSH	VIN = VOUT × 0.9	0.4×VOUT			V
CE “L” Level	VSL	VIN = VOUT × 0.9			0.2	V
CE “H” Input Current	ISH	VCE = VOUT			0.5	μA
CE “L” Input Current	ISL	VCE = 0V	-0.5			μA
Maximum Oscillator	FMAX		80	120	160	KHz
Oscillator Duty Cycle	DOSC	On (VLX “L”) side	65	75	85	%

Notes: 1.Unless otherwise provided, VIN = 1.8V, VSS = 0V, IOUT = 10mA, TOPT = 25℃.
2.Unless otherwise provided, VIN = 3V, VSS = 0V, IOUT = 10mA, TOPT = 25℃.

■ Marking

Marking	RCR2822

■ Typical Application Circuit



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■ Typical Application Circuit

1、 RCR2822-30：

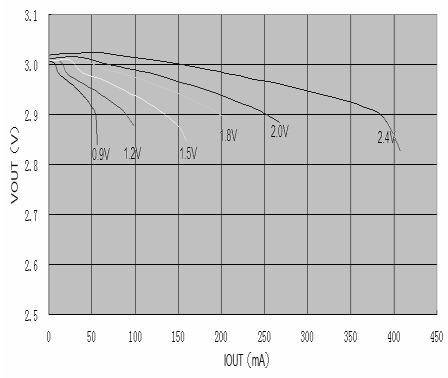

Figure 1. Output Voltage VS Output Current

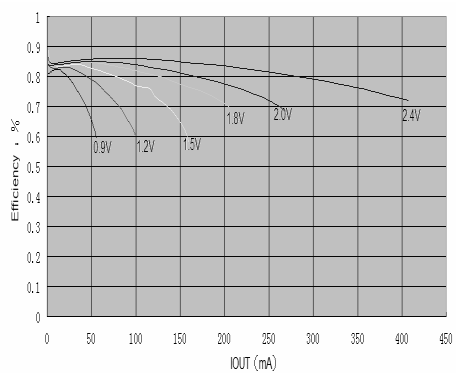

Figure 2. Efficiency VS Output Current

2、 RCR2822-33：

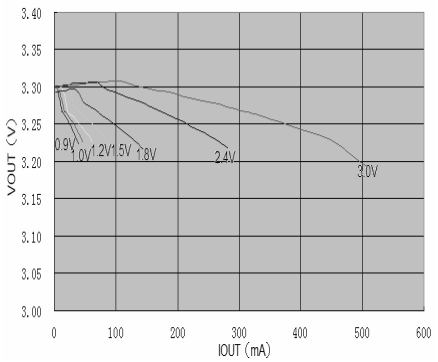

Figure 3. Output Voltage VS Output Current

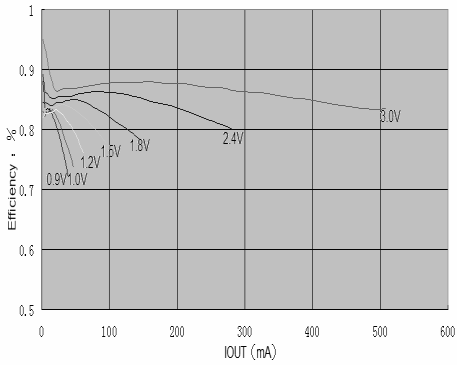

Figure 4. Efficiency VS Output Current

3、 RCR2822-50：

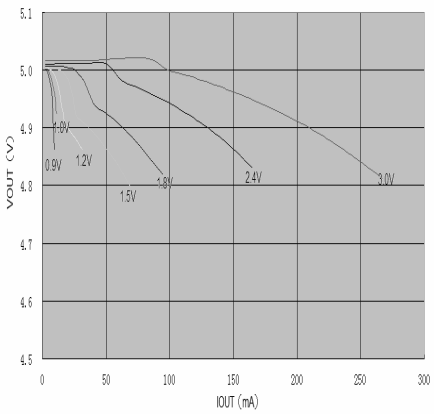

Figure 5. Output Voltage VS Output Current

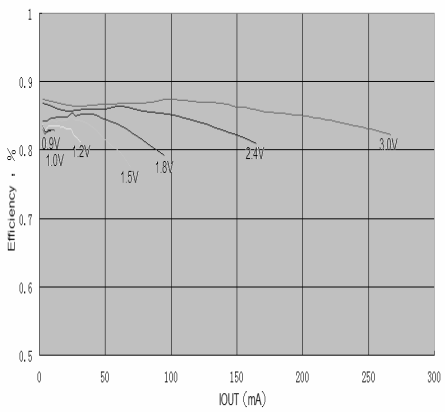

Figure 6. Efficiency VS Output Current