

XCL108B501ER-G Evaluation Board User Manual

**400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up “micro DC/DC”
Converter**

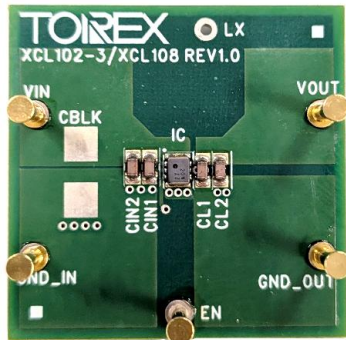
CAUTION

ENGINEERING EVALUATION PURPOSES ONLY

This evaluation board is made for the purpose of the product evaluation.
It is strictly prohibited to use this evaluation board for any other purpose.

Torex Semiconductor does not guarantee that all samples will perform in exactly the same way and we recommend that you always consult our product data sheets for the minimum and maximum specifications.

It is also important that you evaluate all our products carefully before mass production and in case of any doubt, please contact your Torex representative.

XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***Evaluation Board Picture****Evaluation Board Specifications**

		Ta=25°C				
		CONDITON	MIN.	TYP.	MAX.	UNIT
Vin	Input Voltage Range	-	0.65	-	5.5	V
Vout	Setting Output Voltage	-	-	5.0	-	V
Iout	Output Current	-	Refer to Graph 4			mA
fosc	Switching Frequency	-	-	1.2	-	MHz

XCL108 Series Features

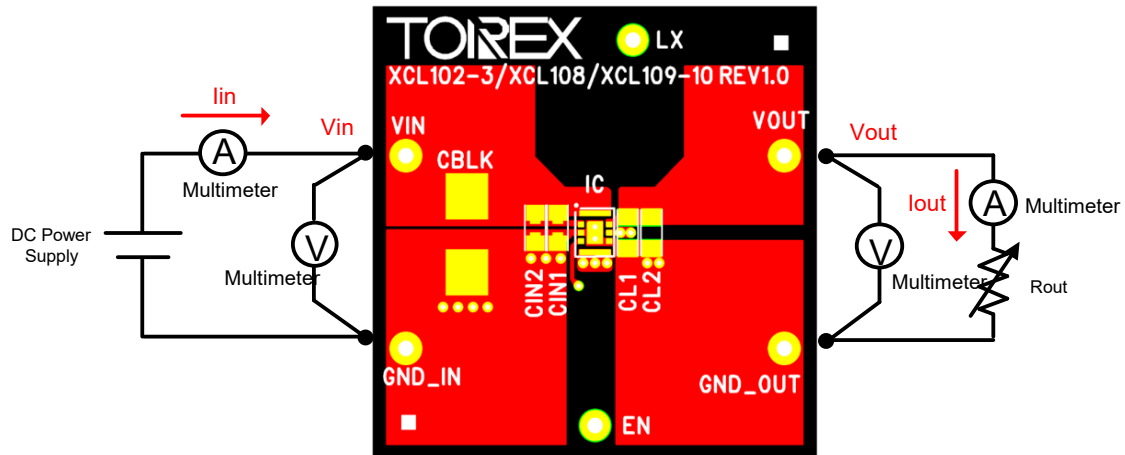
- Input Voltage Range 0.65V ~ 5.5V
- Operation Start Voltage 1.6V
- Output Voltage Range 3.0V ~ 5.5V (step 0.1V)
- Switching frequency 1.2MHz
- Ultra Low Iq 400nA

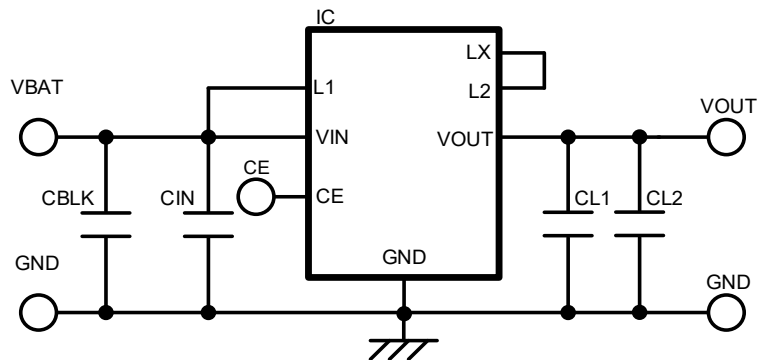
- Built-in Inductor / Small Solution Size
- Low EMI

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400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)

Quick Start Procedure



XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***Schematic****BOM****Required Circuit Components**

Item	Value	Description	Size [mm]	Part Number	Manufacturer
IC	-	Step-up micro DC/DC converter	CL-2025-02	XCL108B501ER-G	TOREX
CIN1	10uF	Ceramic cap., 16V/10uF	1608	GRM188R61C106MA73	Murata
CIN2	10uF	Ceramic cap., 16V/10uF	1608	GRM188R61C106MA73	Murata
CL1	10uF	Ceramic cap., 16V/10uF	1608	GRM188R61C106MA73	Murata
CL2	10uF	Ceramic cap., 16V/10uF	1608	GRM188R61C106MA73	Murata

Additional Demo Board Circuit Components

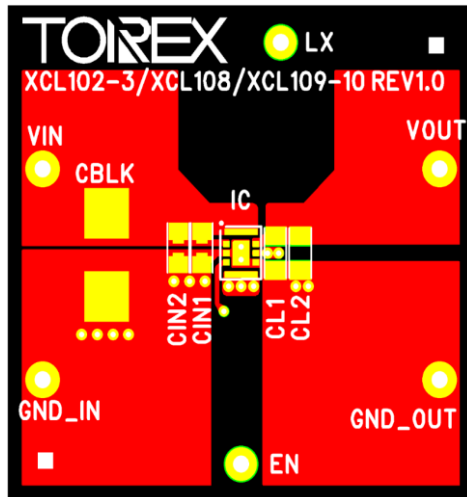
Item	Value	Description	Size [mm]	Part Number	Manufacturer
CBLK	-	-	-	-	-

XCL108B501ER-G Evaluation Board

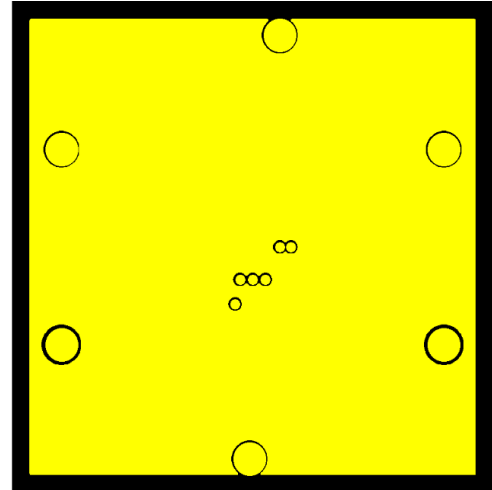
400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)

PCB Layout

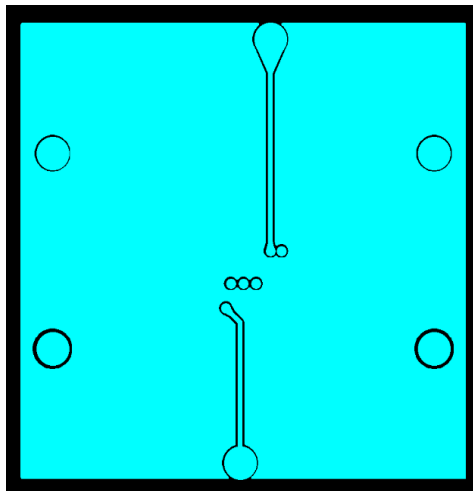
Layer 1



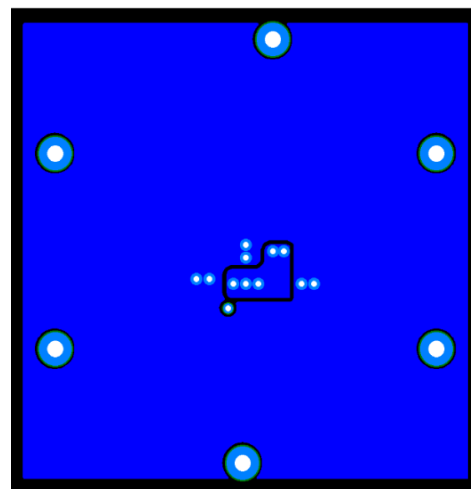
Layer 2

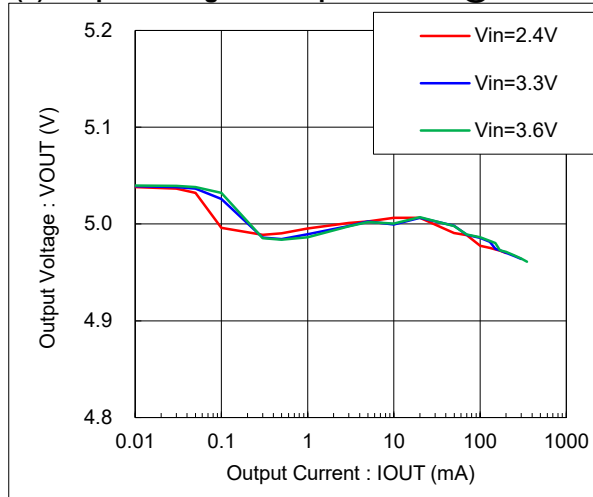
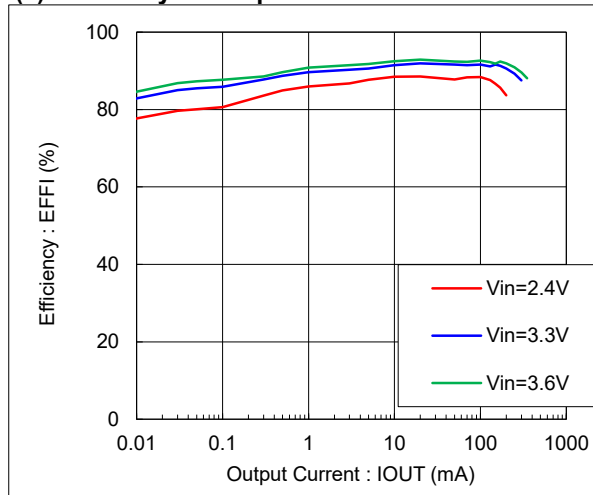
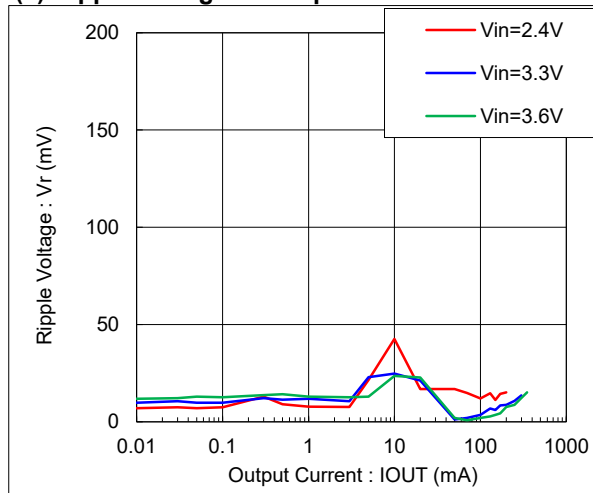


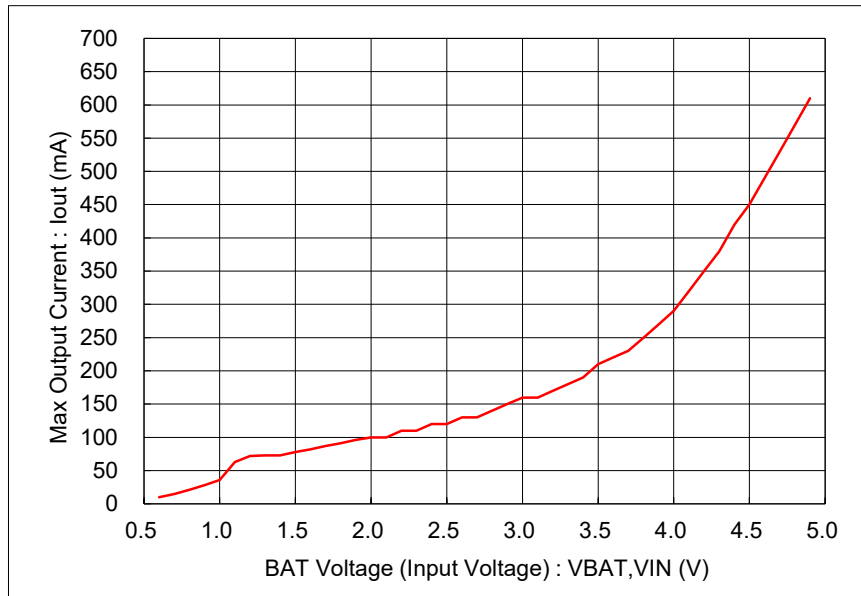
Layer 3



Layer 4



XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***Test Result****(1) Output Voltage vs Output Current @Ta=25°C****(2) Efficiency vs Output Current Ta=25°C****(3) Ripple Voltage vs Output Current Ta=25°C**

XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***(4) Max Output Current vs BAT Voltage(Input Voltage) @ Ta=25°C**

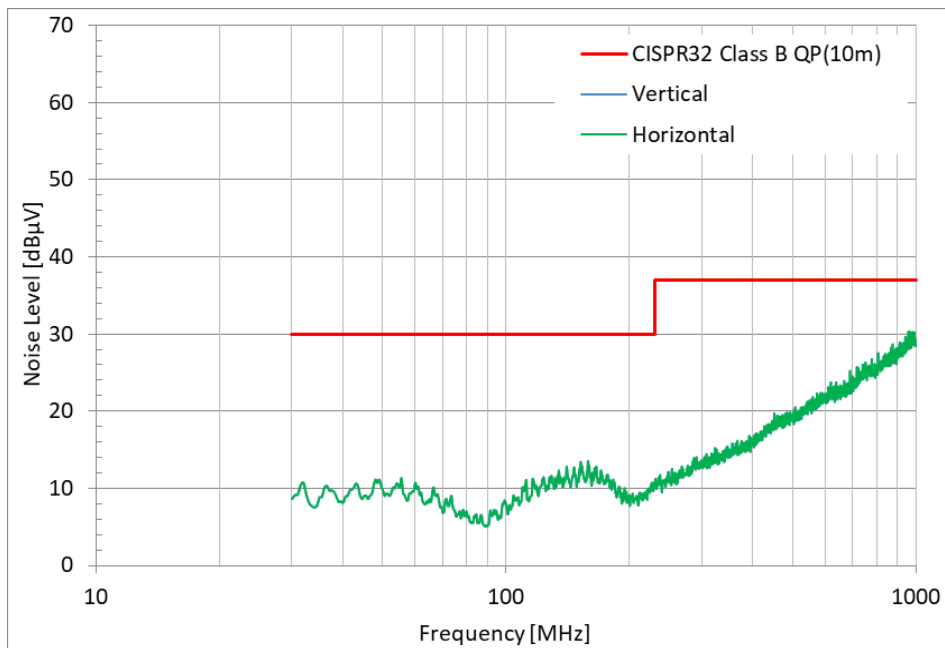
XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***(5) Radiation EMI : CISPR-32/VCCI 10m Peak****Condition**

IC : XCL108B331ER-G

Vin : 2.4V

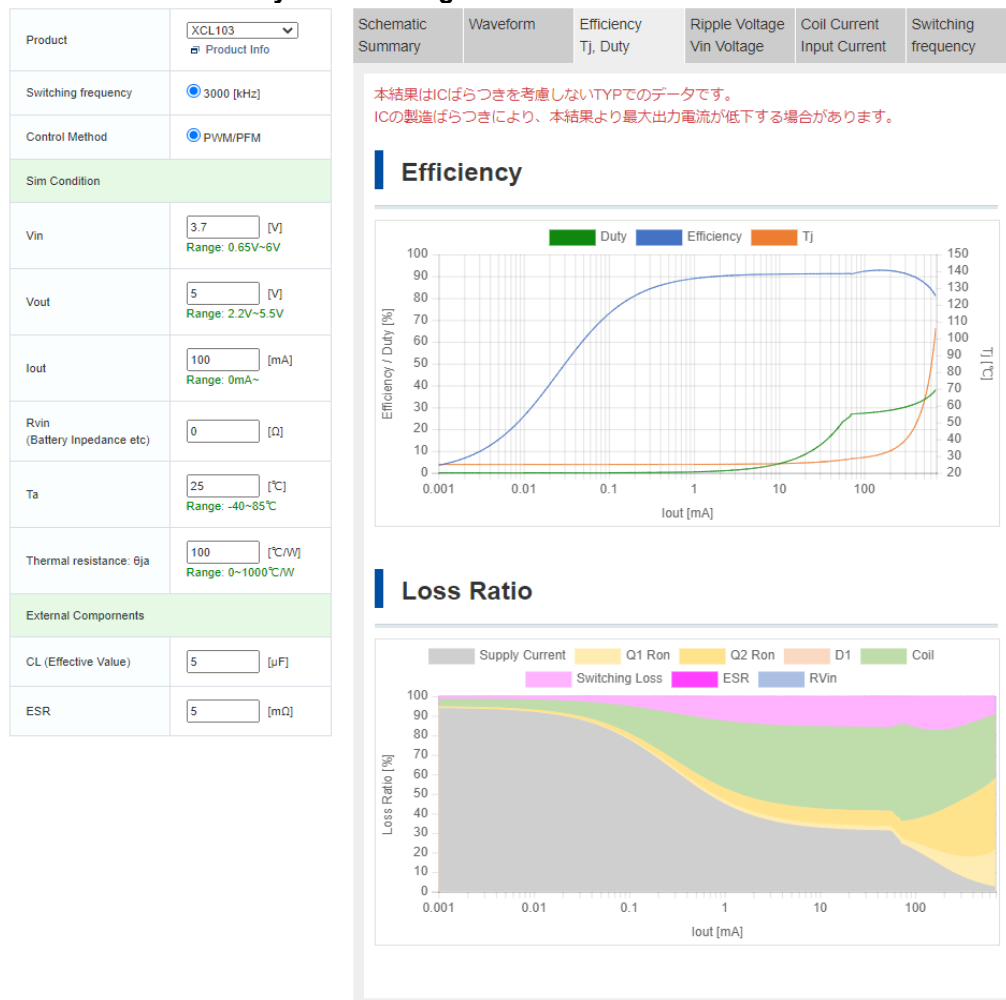
Vout : 3.3V

Iout : 100mA



XCL108B501ER-G Evaluation Board*400nA Ultra Low Iq PWM/PFM Inductor Built-in Step-up "micro DC/DC" Converter (micro DC/DC)***【Appendix】How to calculate DC/DC Converter or DC/DC Controller.**

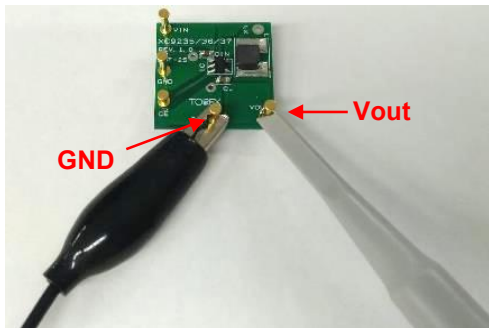
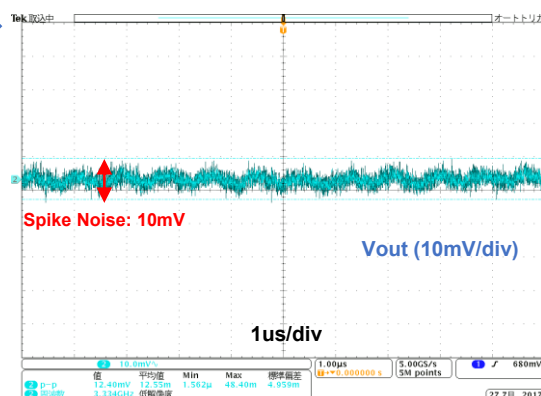
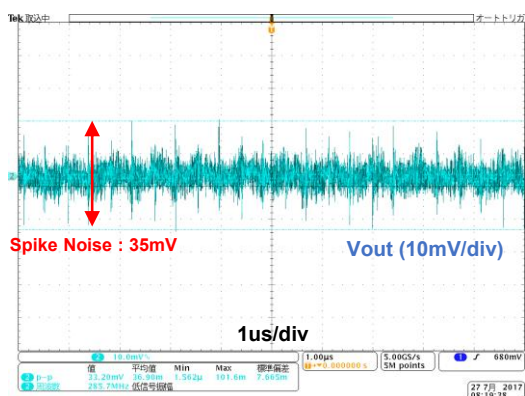
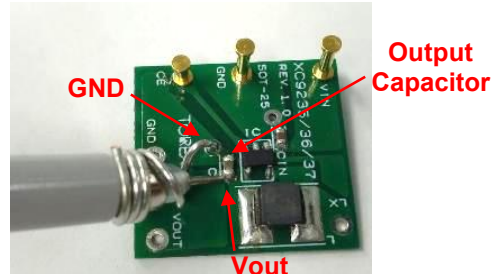
It can be calculated by the following "WEB DC/DC Simulation".



日本語 : <https://www.torex.co.jp/technical-support/dcdc-simulation/>
 English : <https://www.torexsemi.com/technical-support/dcdc-simulation/>
 简体中文 : <https://www.torex.com.cn/technical-support/dcdc-simulation/>

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【Appendix】 How to reduce the spike noise caused by measurement (Probing method with oscilloscope)**Probing method : Before improvement****Probing method : After improvement**

* Condition : XC9236, Vin=3.6V/Vout=1.8V/100mA

English : <https://www.torexsemi.com/technical-support/tips/reduction-spike-noise/>日本語 : <https://www.torex.co.jp/technical-support/tips/reduction-spike-noise/>