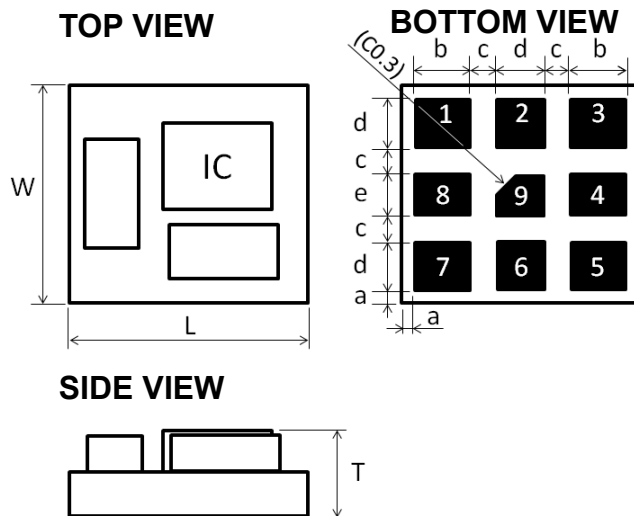


1. Features

- Step-Down DC-DC Converter
- Low EMI noise and small footprint using inductor-imbedded ferrite substrate
- High efficiency using synchronous rectifier technology and PFM/PWM auto-select function
- Input voltage range : 2.5 - 5.5V
- Output voltage range : 1.0 - 3.3V
- Maximum Load Current : 1A
- Switching frequency : 4MHz

2. Mechanical details



unit (mm)

Symbol	Dimension	Symbol	Dimension
L	3.5+/- 0.2	a	0.2+/- 0.2
W	3.2+/- 0.2	b	0.8+/- 0.1
T	1.3MAX	c	0.4+/- 0.1
		d	0.7+/- 0.1
		e	0.6+/- 0.1

Pin configuration

Pin number	Symbol	I/O	Function
1	EN	Input	ON/OFF control pin H: Enable L: Disable
2,3,5,6,9	GND	—	GND pin
4	Vout	Output	Voltage output pin
7	MODE	Input	Operation mode select pin H: Forced PWM mode, L: PFM/PWM mode
8	Vin	Input	Voltage input pin

3. Ordering Information

Part number	Output Voltage	Device Specific Feature	MOQ
LXDC3EP10A-176	1.0V		T/R,1000pcs/R
LXDC3EP12A-104	1.2V		T/R,1000pcs/R
LXDC3EP15A-105	1.5V		T/R,1000pcs/R
LXDC3EP18A-106	1.8V		T/R,1000pcs/R
LXDC3EP25A-109	2.5V		T/R,1000pcs/R
LXDC3EP33A-107	3.3V		T/R,1000pcs/R

4. Electrical Specification

4-1 Absolute maximum ratings

Parameter	symbol	rating	Unit
Maximum input voltage	V _{in}	6.0	V
Operating temperature	T _{OP}	-30 to +85	°C
Storage temperature	T _{STO}	-30 to +85	°C

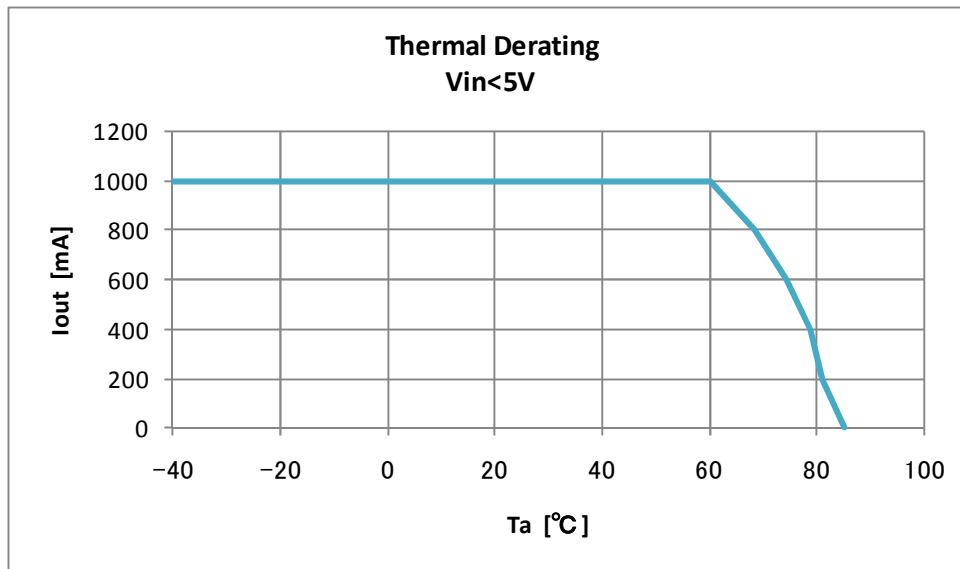
4-2 Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Operational Input voltage	Vin	LXDC3EP10A-176		2.5	3.7	5.5	V
		LXDC3EP12A-104					
		LXDC3EP15A-105					
		LXDC3EP18A-106					
		LXDC3EP25A-109		3.0	3.7	5.5	
		LXDC3EP33A-107		4.0	5.0	5.5	
UVLO	UVLO				2.2		V
Output voltage	Vout	PWM Mode Vin-Vout>0.7V	LXDC3EP10A-176	0.976	1.0	1.024	V
			LXDC3EP12A-104	1.176	1.2	1.224	
			LXDC3EP15A-105	1.47	1.5	1.53	
			LXDC3EP18A-106	1.764	1.8	1.836	
			LXDC3EP25A-109	2.45	2.5	2.55	
			LXDC3EP33A-107	3.234	3.3	3.366	
Load Current	Iout			0	-	1000	mA

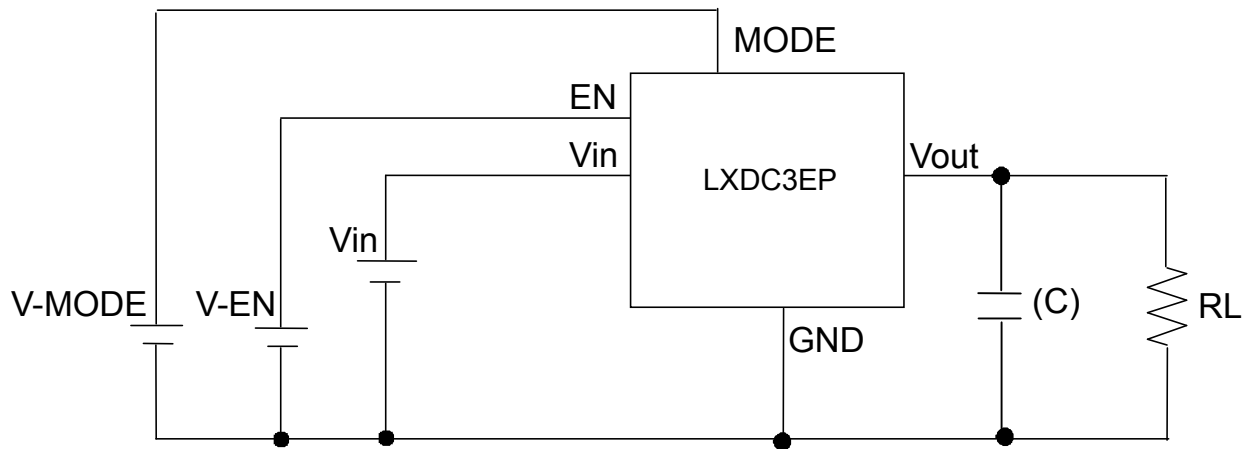
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Ripple Voltage	Vrpl	Vin=3.7V Io=1000mA W=20MHz	LXDC3EP10A-176	-	15	-	mV _(p-p)
			LXDC3EP12A-104				
			LXDC3EP15A-105				
			LXDC3EP18A-106				
		Vin=3.7V Io=1000mA W=20MHz	LXDC3EP25A-109	-	20	-	
		Vin=5.0V Io=1000mA W=20MHz	LXDC3EP33A-107	-	20	-	
Efficiency	EFF	Vin=3.7V Io=300mA	LXDC3EP10A-176	82	86	-	%
			LXDC3EP12A-104	84	88	-	
			LXDC3EP15A-105	86	90	-	
			LXDC3EP18A-106	88	92	-	
			LXDC3EP25A-109	90	94	-	
		Vin=5.0V Io=300mA	LXDC3EP33A-107	90	94	-	
Enable Voltage	ENon			1.2	-	-	V
	ENoff			-	-	0.4	
MODE Voltage	MODE-H			1.2	-	-	V
	MODE-L			-	-	0.4	
Frequency	Freq			-	4	-	MHz
Over Current Protection	OCP			1000	1200	1700	mA
Start -up Time	Ton			-	170	-	usec

4-3 Output Current Derating

This product is used by the following temperature derating.

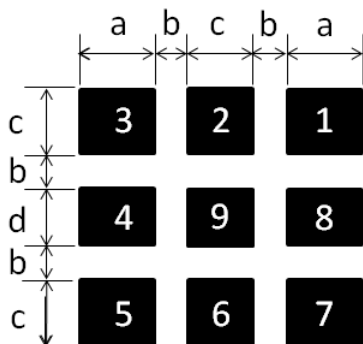


5. Test Circuit



*Optional : Cout: 4.7uF/6.3V (LXDC3EP33A-107)

6. Reference Land Pattern



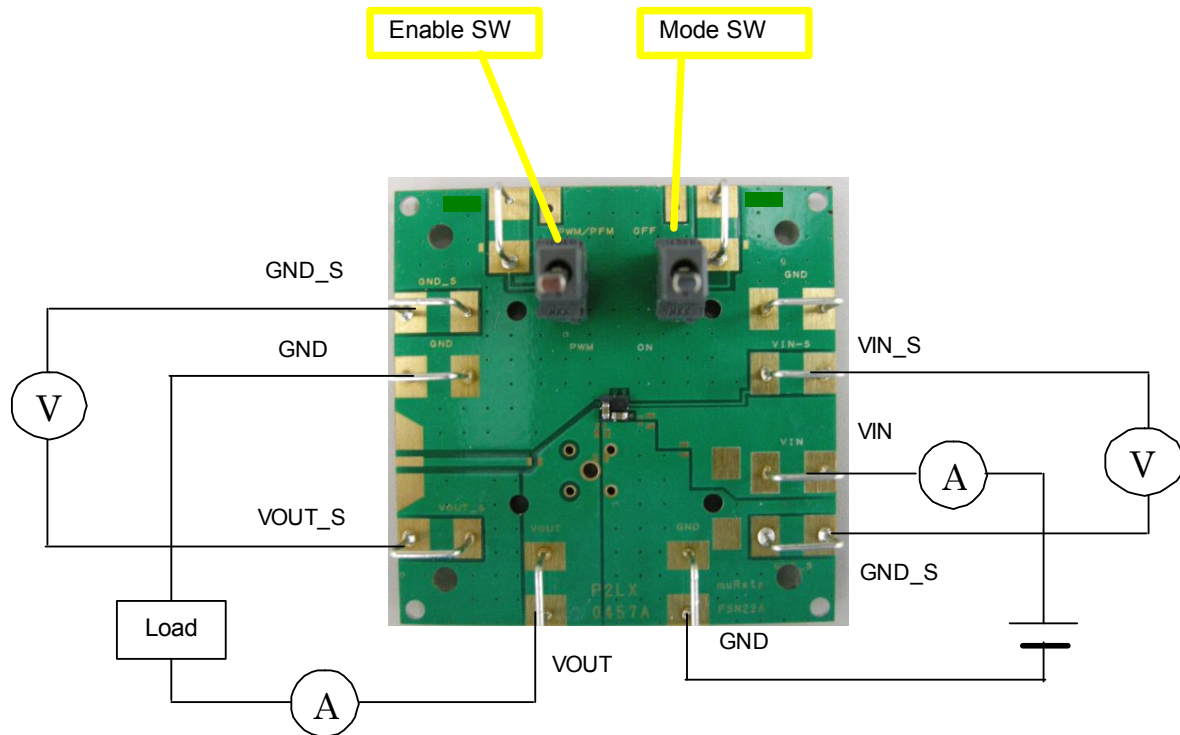
unit (mm)

Symbol	Dimension	Symbol	Dimension
a	0.8	c	0.7
b	0.4	d	0.6

7. Measurement Data

Micro DC-DC Converter evaluation board (P2LX0457B)

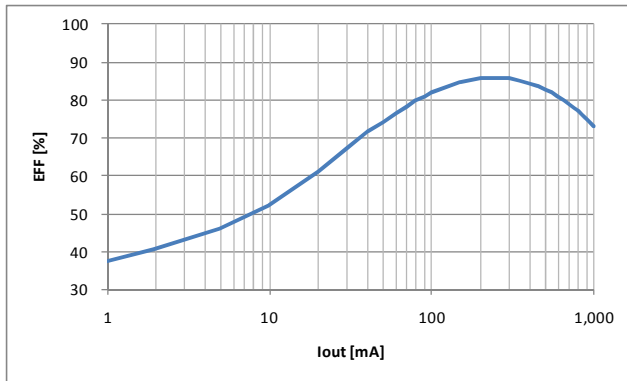
Measurement setup



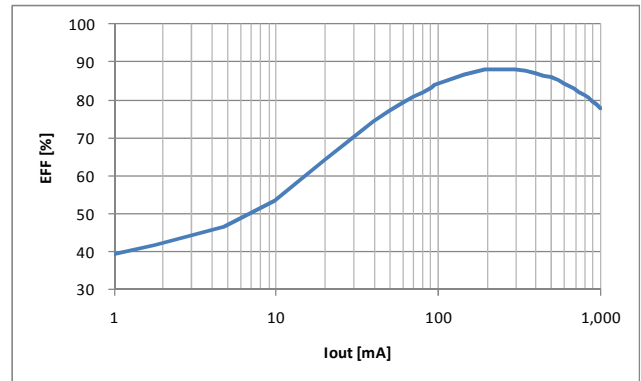
Typical Measurement Data (reference purpose only) (Ta=25°C)

Efficiency

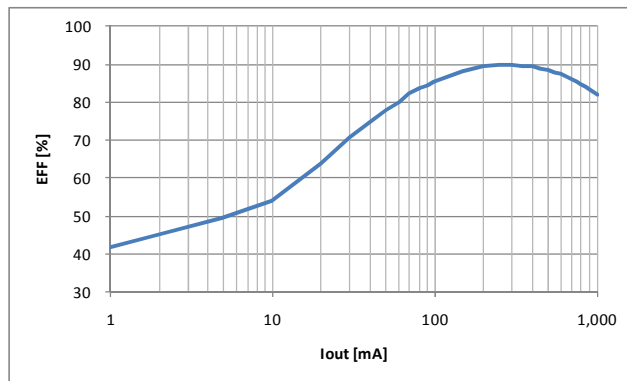
Vin=3.7V, Vout=1.0V



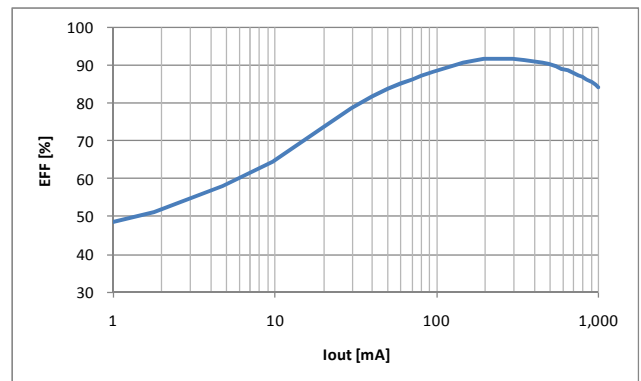
Vin=3.7V, Vout=1.2V



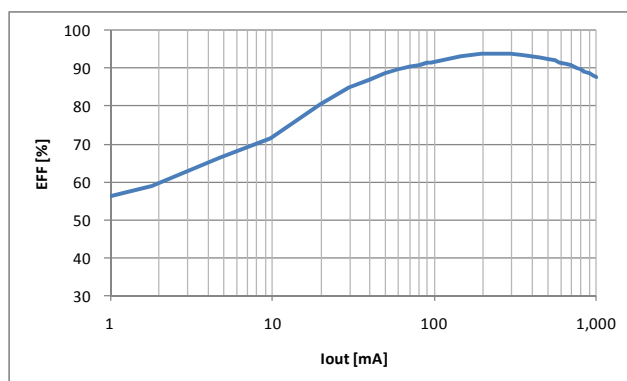
Vin=3.7V, Vout=1.5V



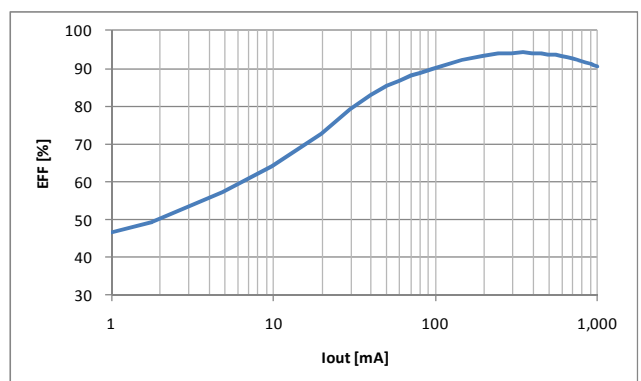
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V

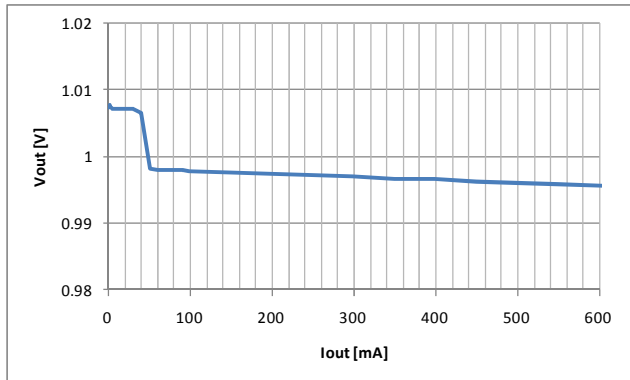


Vin=5.0V, Vout=3.3V

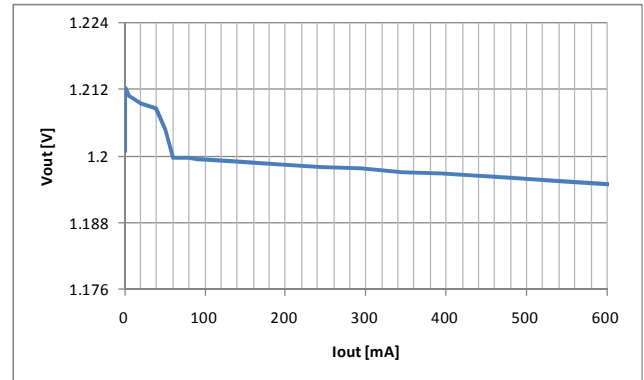


Road Regulation

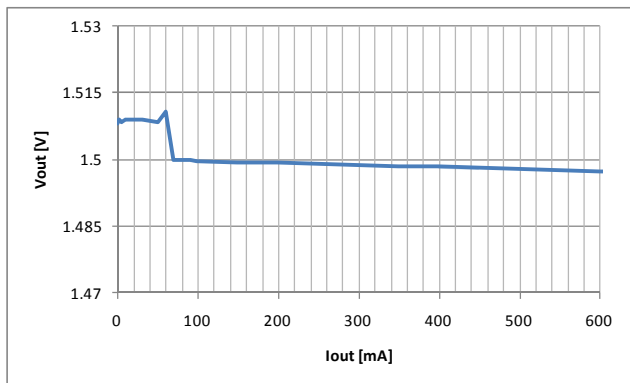
Vin=3.7V, Vout=1.0V



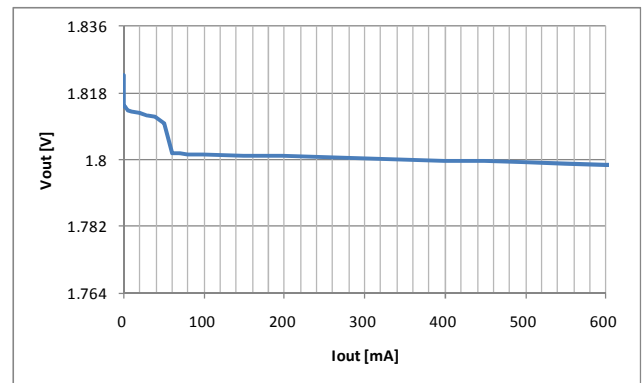
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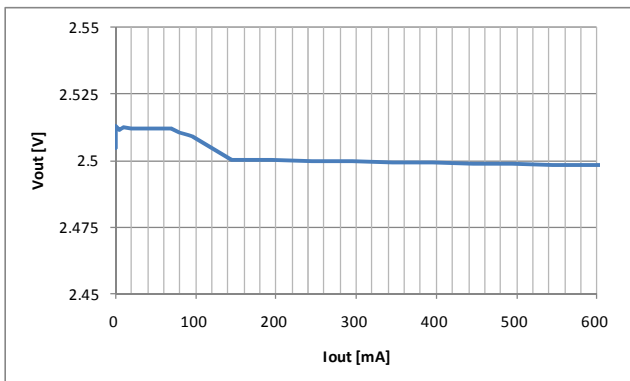
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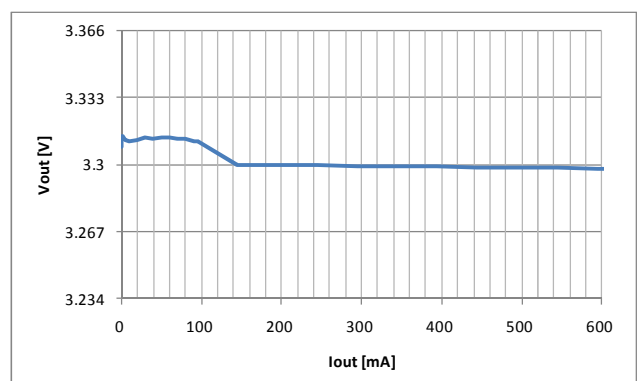
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V

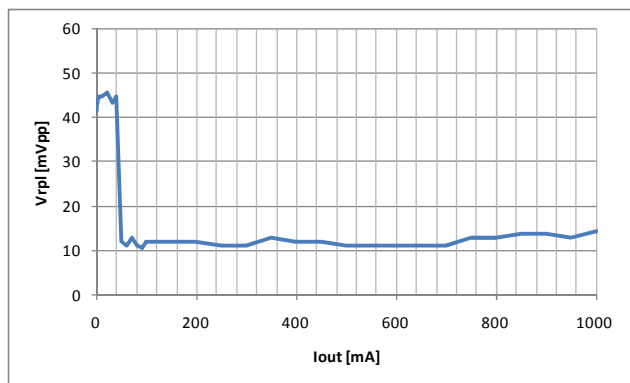


Vin=5.0V, Vout=3.3V

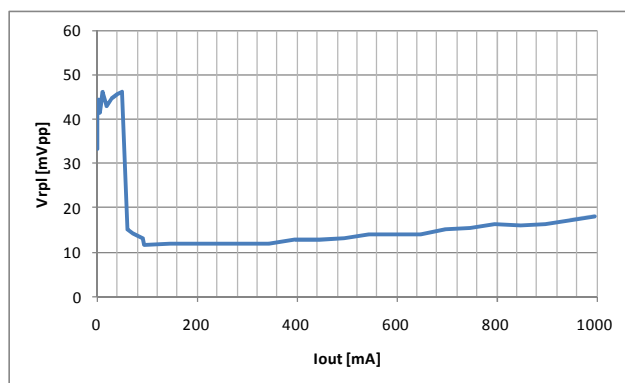


Output Ripple-Noise

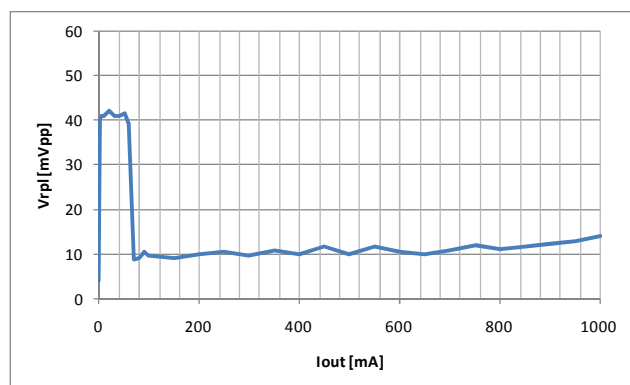
Vin=3.7V, Vout=1.0V



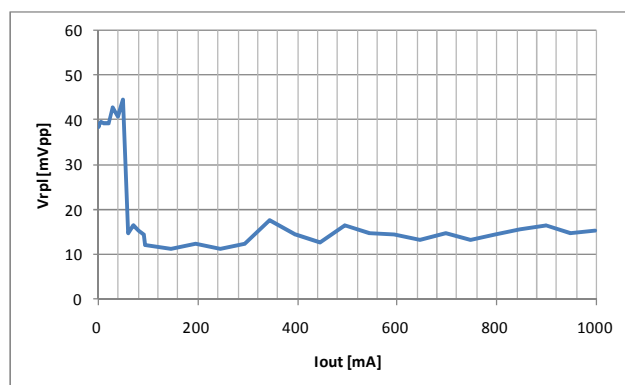
Vin=3.7V, Vout=1.2V



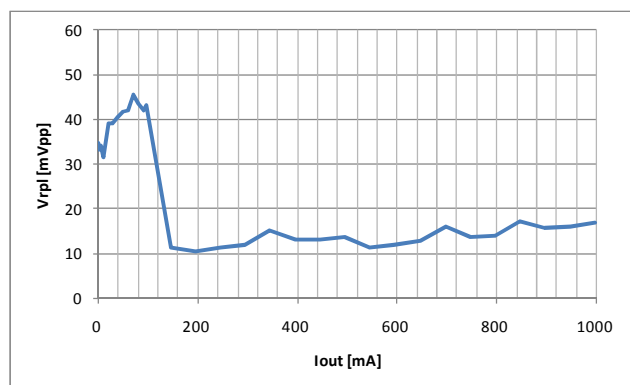
Vin=3.7V, Vout=1.5V



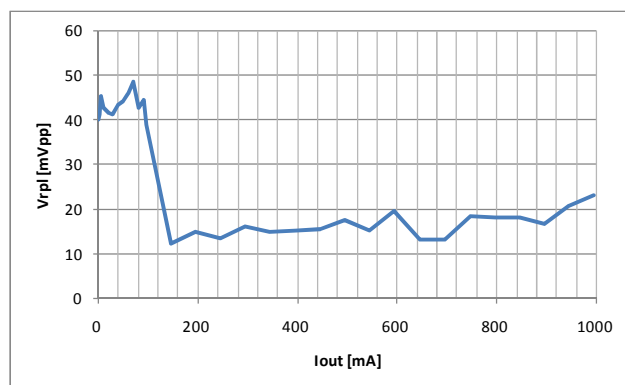
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V



Vin=5.0V, Vout=3.3V



Note:

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