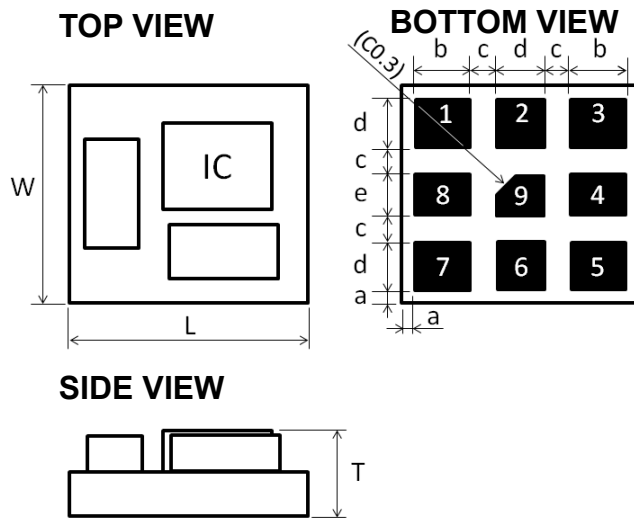


## 1. Features

- Step-Down DCDC 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 <sub>in</sub>	6.0	V
Operating temperature	T <sub>OP</sub>	-30 to +85	°C
Storage temperature	T <sub>STO</sub>	-30 to +85	°C

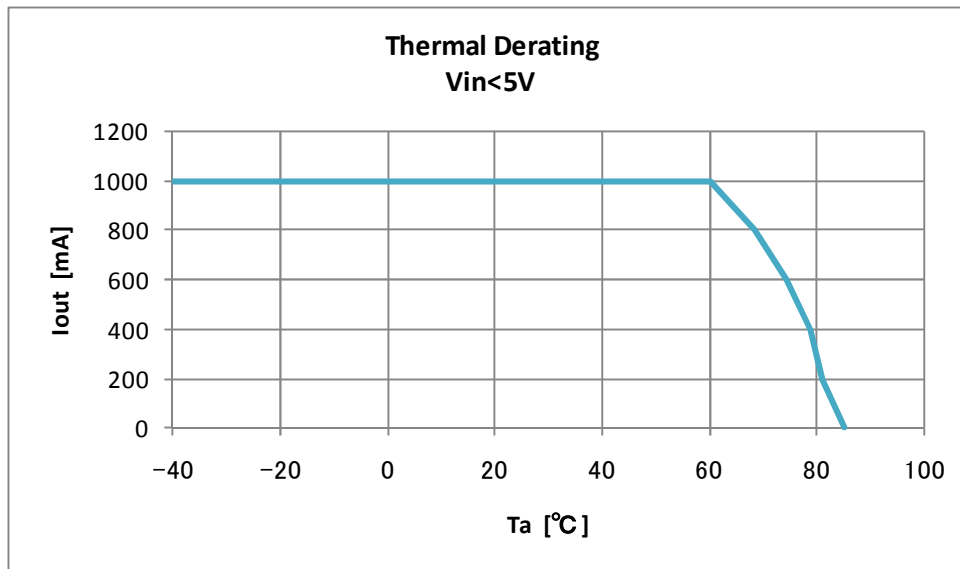
#### 4-2 Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Operational Input voltage	V <sub>in</sub>	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	V <sub>out</sub>	PWM Mode V <sub>in</sub> -V <sub>out</sub> >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	I <sub>out</sub>		0	-	1000	mA	

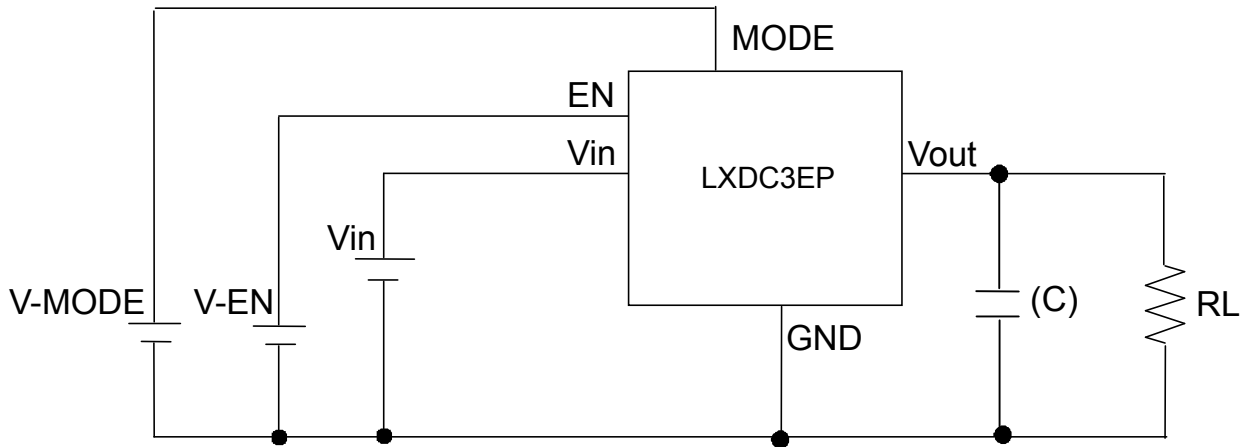
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Ripple Voltage	Vrpl	Vin=3.7V Io=1000mA W=20MHz	LXDC3EP10A-176	-	15	-	mV <sub>(p-p)</sub>
			LXDC3EP12A-104				
			LXDC3EP15A-105				
			LXDC3EP18A-106				
		Vin=3.7V Io=1000mA W=20MHz	LXDC3EP25A-109	-	20	-	
Vin=5.0V Io=1000mA W=20MHz	LXDC3EP33A-107	-	20	-			
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.

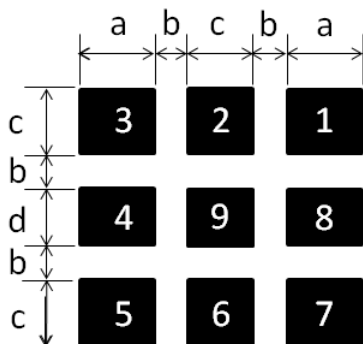


### 5. Test Circuit



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

### 6. Reference Land Pattern



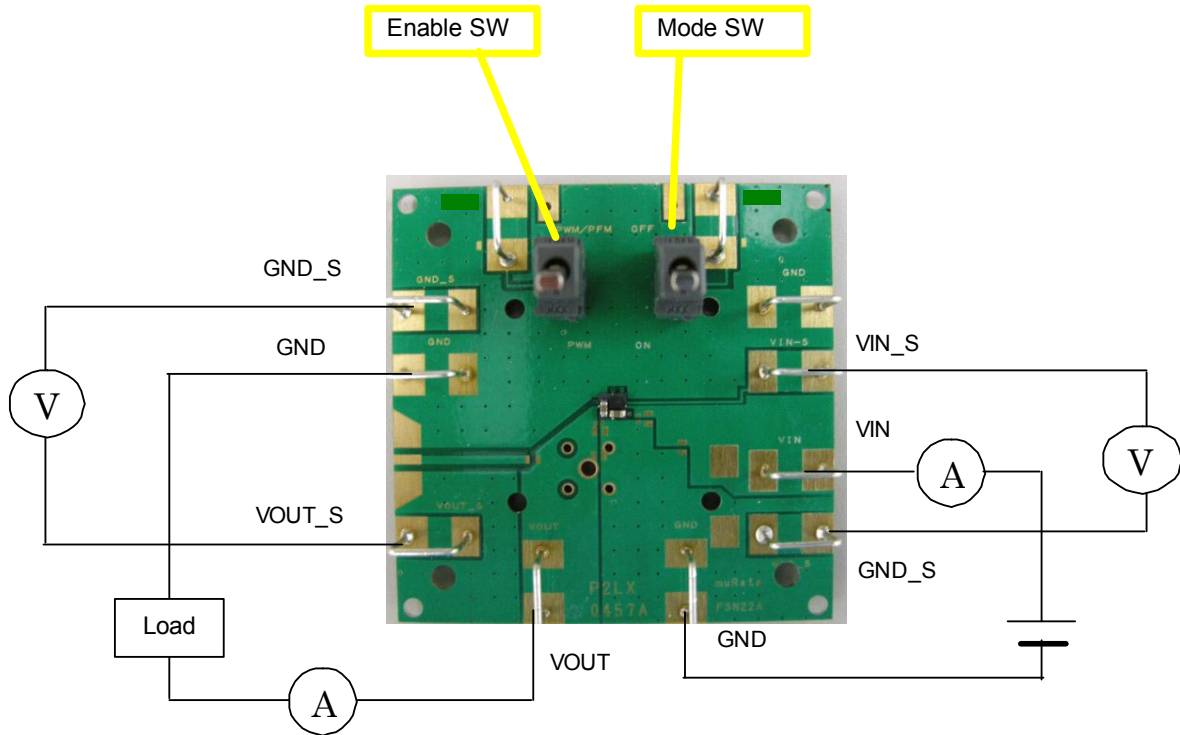
unit (mm)

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

7. Measurement Data

**Micro DCDC Converter evaluation board (P2LX0457B)**

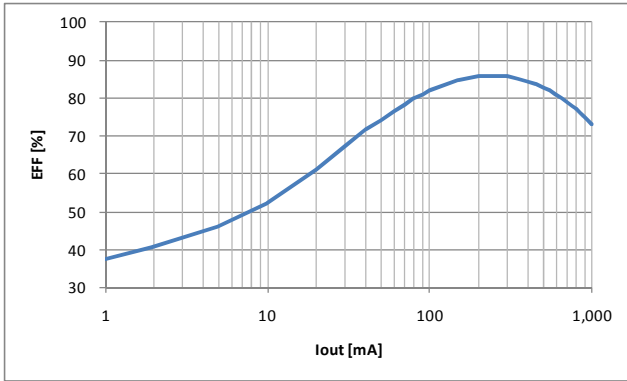
**Measurement setup**



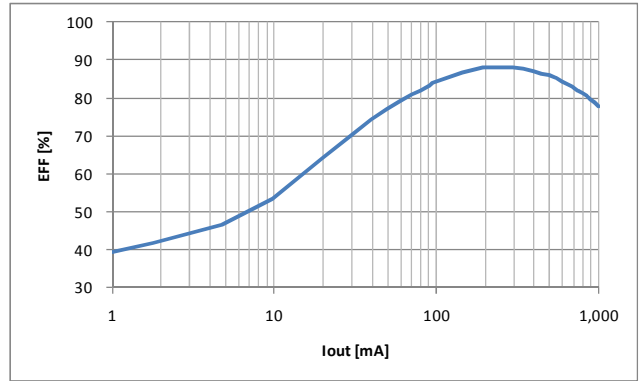
**Typical Measurement Data (reference purpose only) (Ta=25°C)**

**Efficiency**

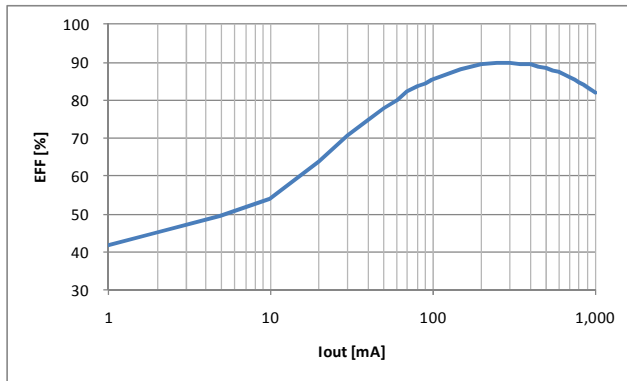
Vin=3.7V, Vout=1.0V



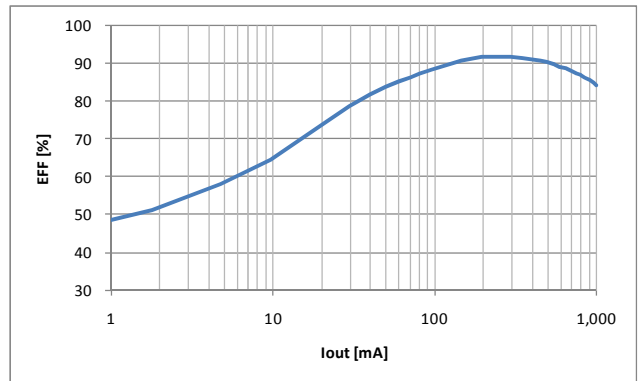
Vin=3.7V, Vout=1.2V



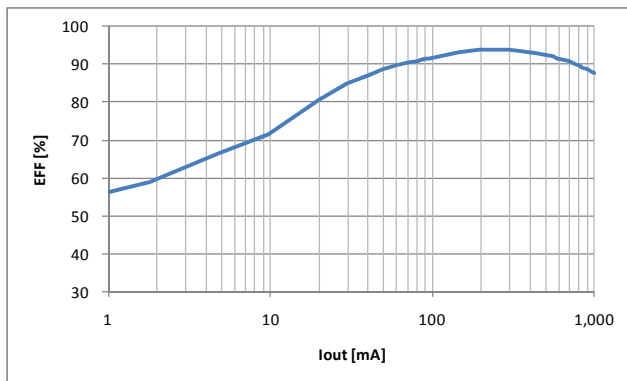
Vin=3.7V, Vout=1.5V



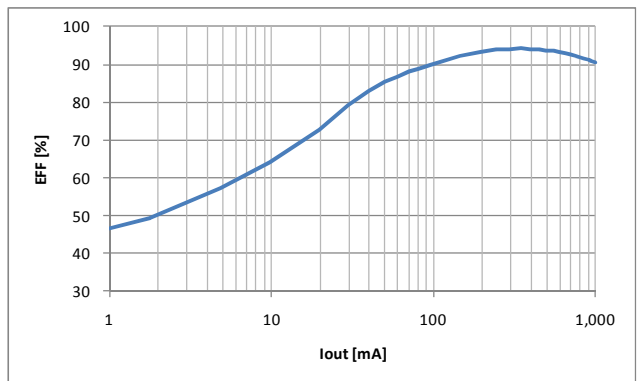
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V

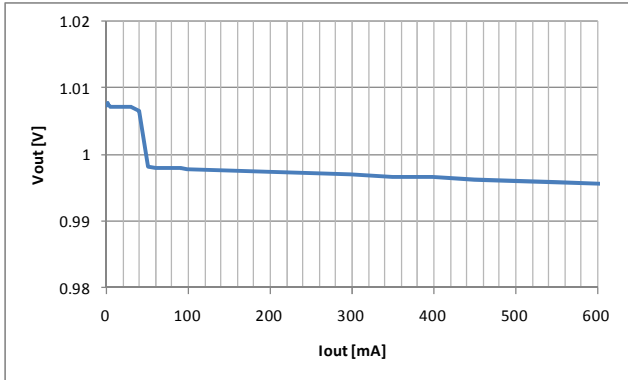


Vin=5.0V, Vout=3.3V

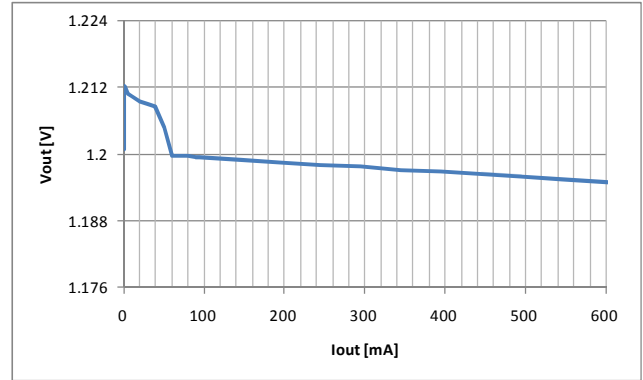


**Road Regulation**

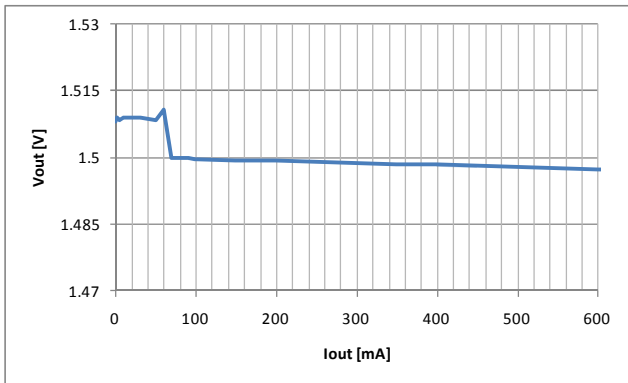
Vin=3.7V, Vout=1.0V



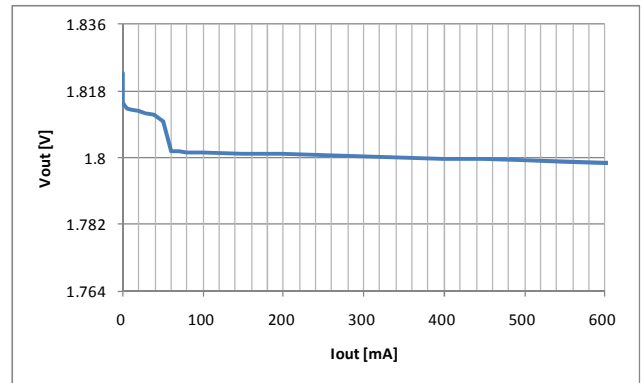
Vin=3.7V, Vout=1.2V



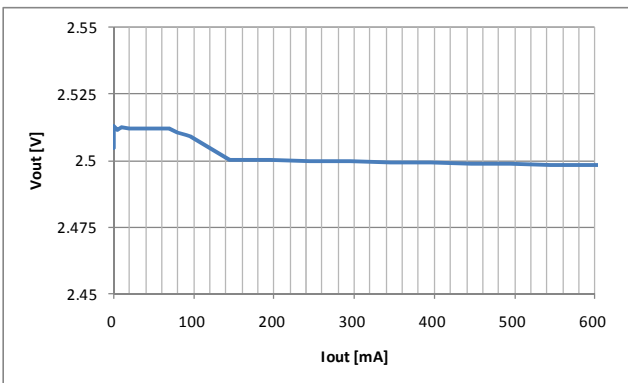
Vin=3.7V, Vout=1.5V



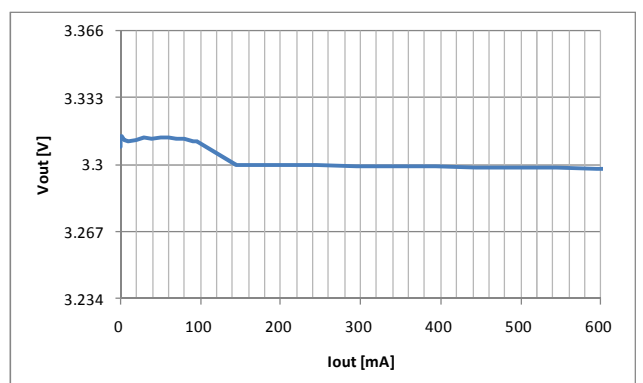
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V



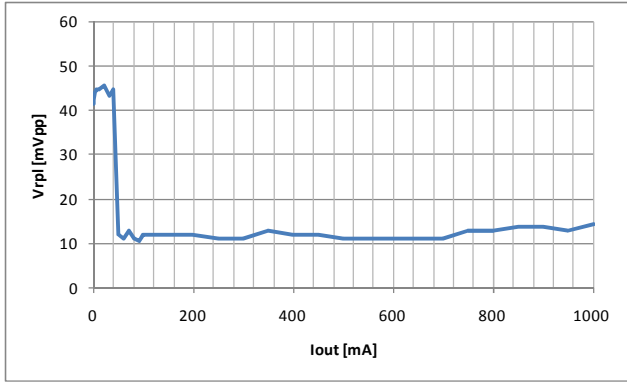
Vin=5.0V, Vout=3.3V



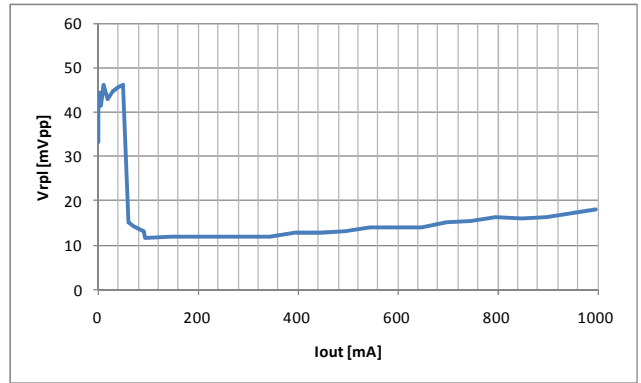


**Output Ripple-Noise**

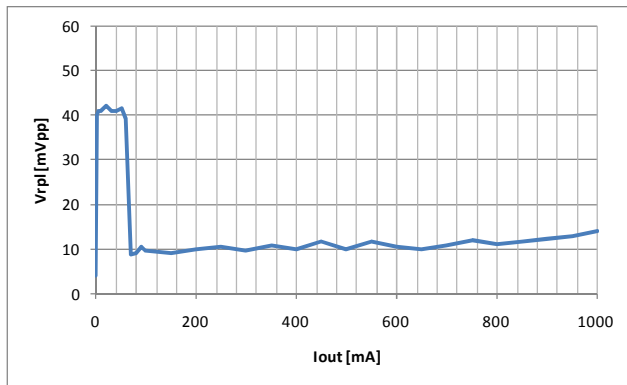
Vin=3.7V, Vout=1.0V



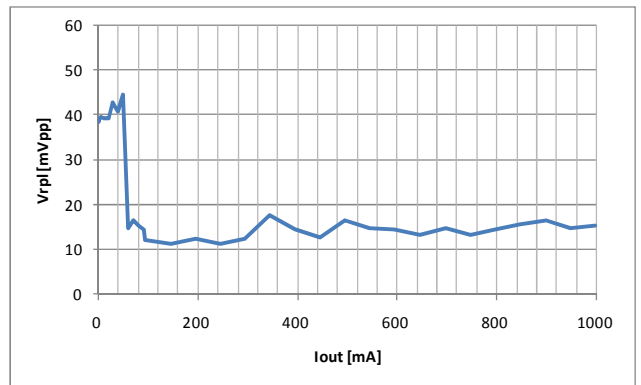
Vin=3.7V, Vout=1.2V



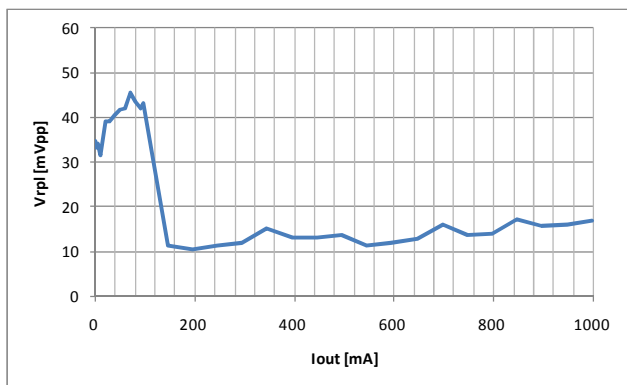
Vin=3.7V, Vout=1.5V



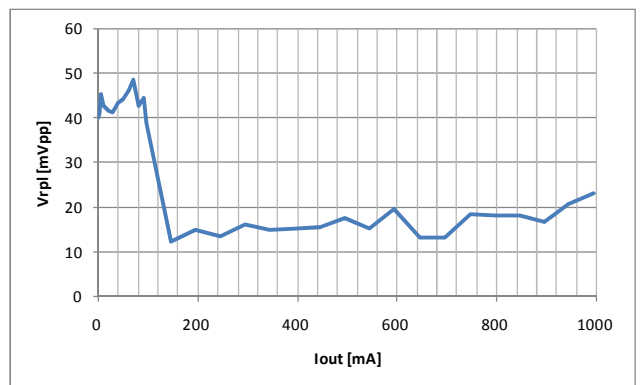
Vin=3.7V, Vout=1.8V



Vin=3.7V, Vout=2.5V



Vin=5.0V, Vout=3.3V



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