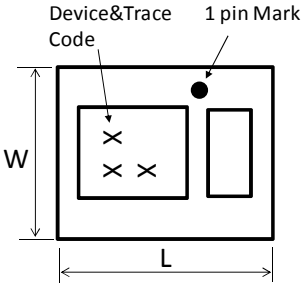
1. Features

- 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 : 2.3~5.5V
- Maximum Load Current: 600mA (depends on output voltage)
- Fixed output voltage: 0.8V – 4V
- Switching frequency : 3.0MHz

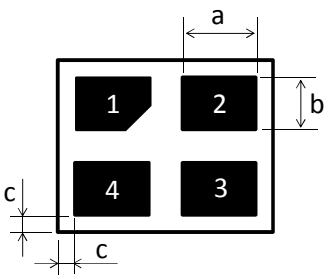
2. Mechanical details

2-1 Outline

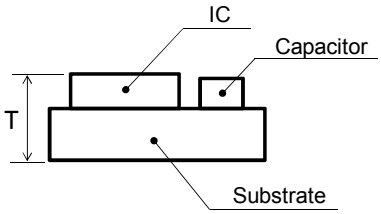
Top View



Bottom View



Side View



Unit: mm

Mark	Dimension
L	2.5 +/- 0.2
W	2.0 +/- 0.2
T	1.1 MAX
a	0.85 +/- 0.1
b	0.60 +/- 0.1
c	0.15 +/- 0.15

2-2. Pin configuration

Pin	Symbol	I/O	Description
1	Vin	Input	Voltage input pin
2	EN	Input	ON/OFF control pin H: Enable, L: Disable
3	Vout	Output	Voltage output pin
4	GND	-	GND pin

3. Ordering Information

Part number	Output Voltage	Device Specific Feature	MOQ
LXDC2HL10A-080	1.0V		T/R, 3000pcs/R
LXDC2HL12A-050	1.2V		T/R, 3000pcs/R
LXDC2HL1DA-087	1.35V		T/R, 3000pcs/R
LXDC2HL15A-051	1.5V		T/R, 3000pcs/R
LXDC2HL18A-052	1.8V		T/R, 3000pcs/R
LXDC2HL25A-053	2.5V		T/R, 3000pcs/R
LXDC2HL30A-054	3.0V		T/R, 3000pcs/R
LXDC2HL33A-055	3.3V		T/R, 3000pcs/R

4. Electrical Specification

4-1 Absolute maximum ratings

Parameter	symbol	rating	Unit
Maximum input voltage	Vin	6.3	V
Operating temperature	T_{OP}	-40 to +85	°C
Storage temperature	T_{STO}	-40 to +85	°C

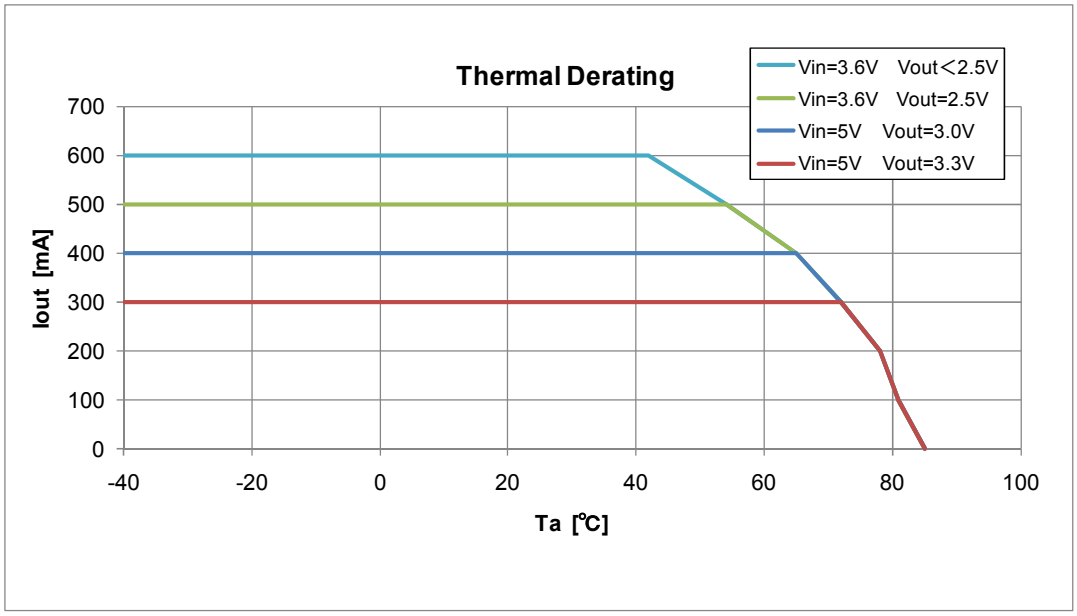
4-2 Electrical characteristics (Ta=25℃)

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Input voltage	V_{in}			2.3	3.6	5.5	V
UVLO voltage	UVLO			1.0	1.4	1.8	V
Input leak current	Iin-off	Vin=3.6V, EN=0V	LXDC2HL10A-080		0	2	uA
			LXDC2HL12A-050				
			LXDC2HL1DA-087				
			LXDC2HL15A-051				
			LXDC2HL18A-052				
			LXDC2HL25A-053				
		Vin=5.0V, EN=0V	LXDC2HL30A-054				
			LXDC2HL33A-055				
Output voltage accuracy	Vout	Vin-Vout>1V	LXDC2HL10A-080	0.976	1.0	1.024	V
			LXDC2HL12A-050	1.176	1.20	1.224	
			LXDC2HL1DA-087	1.323	1.35	1.377	
			LXDC2HL15A-051	1.47	1.50	1.53	
			LXDC2HL18A-052	1.764	1.80	1.836	
			LXDC2HL25A-053	2.45	2.50	2.55	
		Vin-Vout>0.7V	LXDC2HL30A-054	2.94	3.00	3.06	
		Vin-Vout>0.5V	LXDC2HL33A-055	3.234	3.30	3.366	
Load current range	Iout	LXDC2HL10A-080		0		600	mA
		LXDC2HL12A-050					
		LXDC2HL1DA-087					
		LXDC2HL15A-051					
		LXDC2HL18A-052					
		LXDC2HL25A-053		0		500	
		LXDC2HL30A-054		0		400	
		LXDC2HL33A-055		0		300	
Ripple voltage	Vrpl	Vin=3.6V, Iout=300mA, BW=100MHz	LXDC2HL10A-080		15	30	mV
			LXDC2HL12A-050				
			LXDC2HL1DA-087				
			LXDC2HL15A-051				
			LXDC2HL18A-052				
			LXDC2HL25A-053				
		Vin=5V, Iout=300mA, BW=100MHz	LXDC2HL30A-054				
			LXDC2HL33A-055				

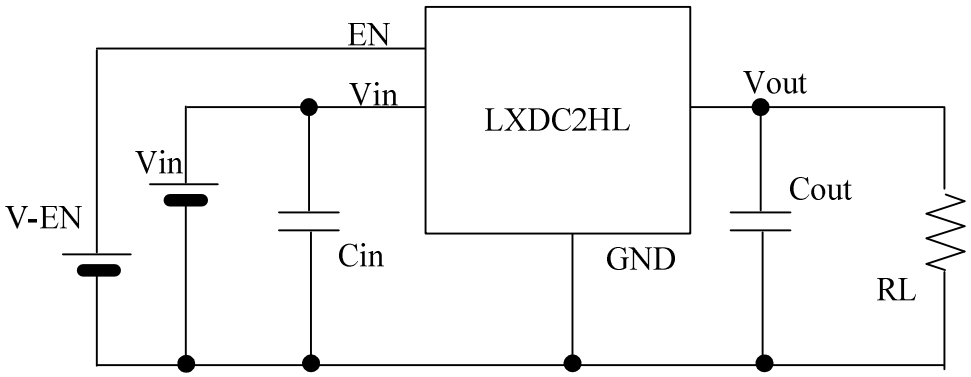
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Efficiency	EFF	Vin=3.6V, Iout=150mA	LXDC2HL10A-080	73	78		
			LXDC2HL12A-050	75	80		%
			LXDC2HL1DA-087	77	82		
			LXDC2HL15A-051	78	83		
			LXDC2HL18A-052	81	85		
			LXDC2HL25A-053	84	88		
		Vin=5V, Iout=150mA	LXDC2HL30A-054	83	87		
			LXDC2HL33A-055	84	88		
EN control voltage	VENH	ON ; Enable		1.4		Vin	V
	VENL	OFF ; Disable		0		0.25	V
SW Frequency	fosc			2.5	3.0	3.5	MHz
Over current protection	OCP	LXDC2HL10A-080		600	900	1200	mA
		LXDC2HL12A-050					
		LXDC2HL1DA-087					
		LXDC2HL15A-051					
		LXDC2HL18A-052					
		LXDC2HL25A-053		550	900	1200	
		LXDC2HL30A-054		450	900	1200	
		LXDC2HL33A-055		350	900	1200	
		If the over current event continues less than Tlatch, auto-recovery. If the over current event continues more than Tlatch, latch-up. Restart by toggling EN voltage or Vin voltage					
	Tlatch	Latch-up mask time @Vout=0.8×Vnom			20		Usec
Start-up time	Ton				0.9		Msec

4-3 Output Current Derating

This product is used by the following temperature derating.



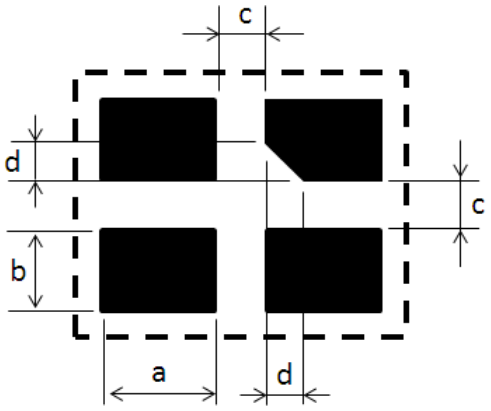
5. Test Circuit



Cin : 4.7uF/6.3V (GRM188B30J475K)

Cout : 10uF/6.3V (GRM188B30J106M)

6. Reference Land Pattern



Unit: mm

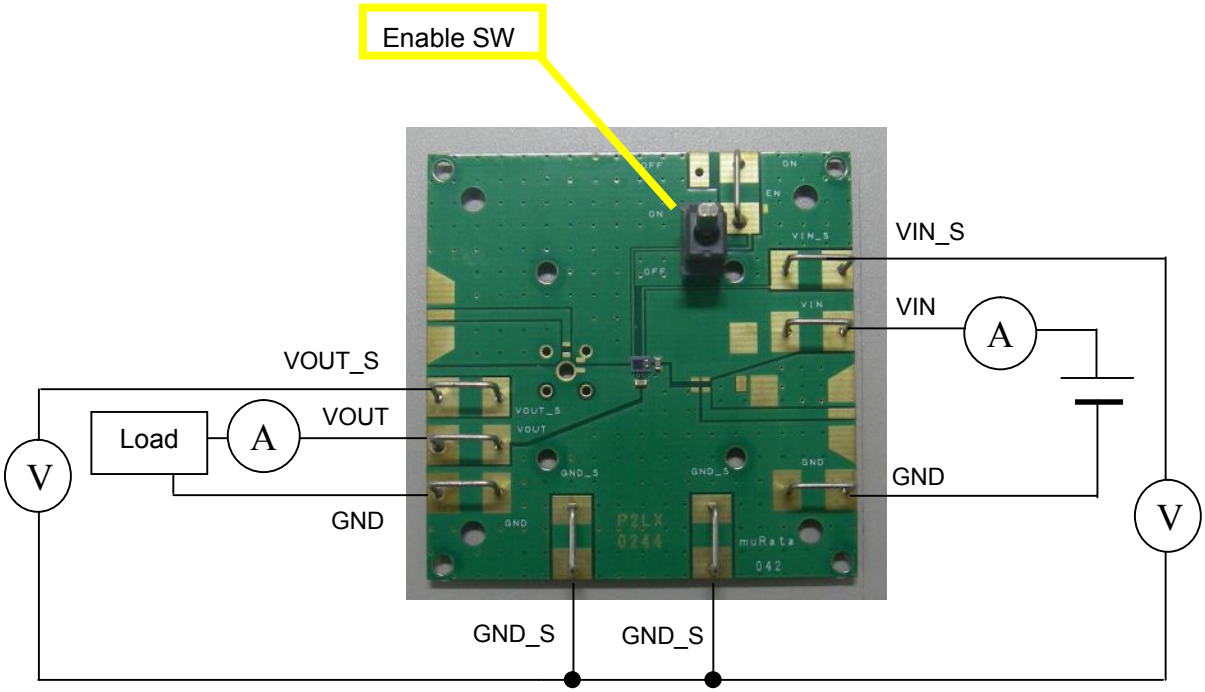
Mark	Dimension
a	0.85
b	0.60
c	0.5
d	0.2

Notes: this land layout is for reference purpose only.

7. Measurement Data

Micro DCDC Converter evaluation board (P2LX0244)

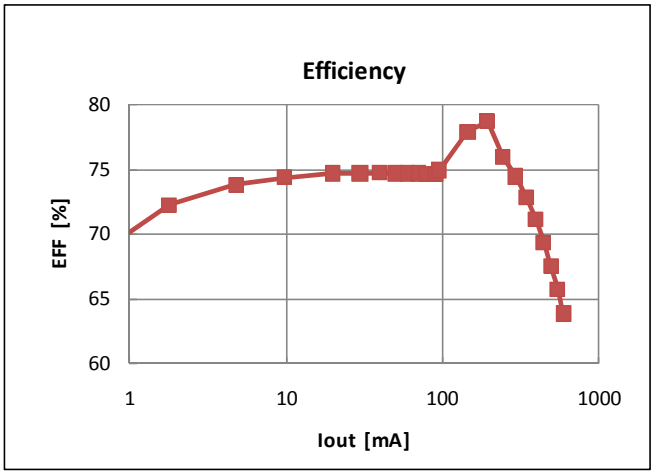
Measurement setup



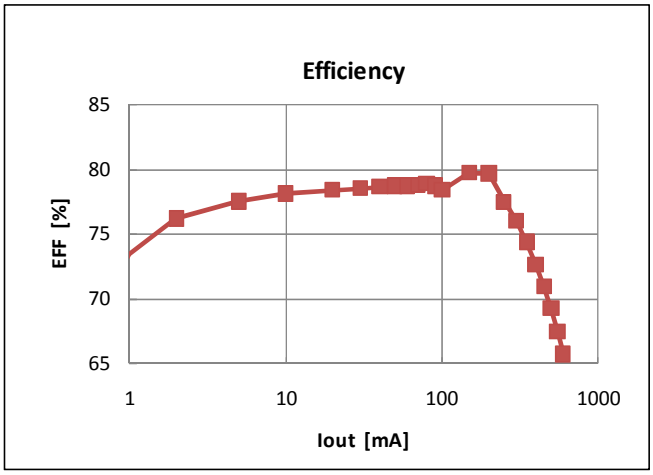
Typical Measurement Data (reference purpose only) (Ta=25℃)

Efficiency

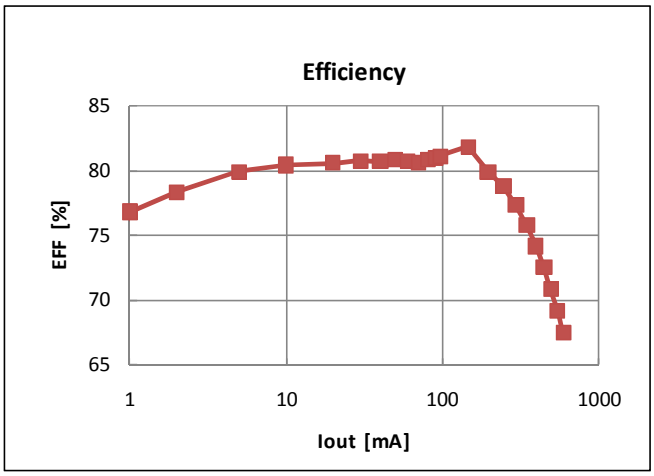
・Vin=3.6V, Vout=1.0V



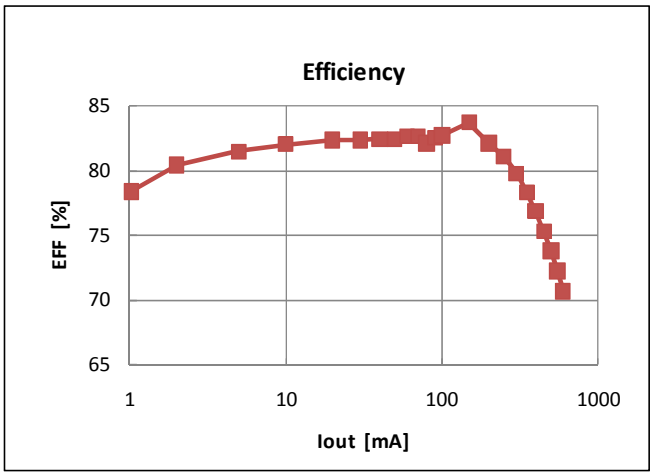
・Vin=3.6V, Vout=1.2V



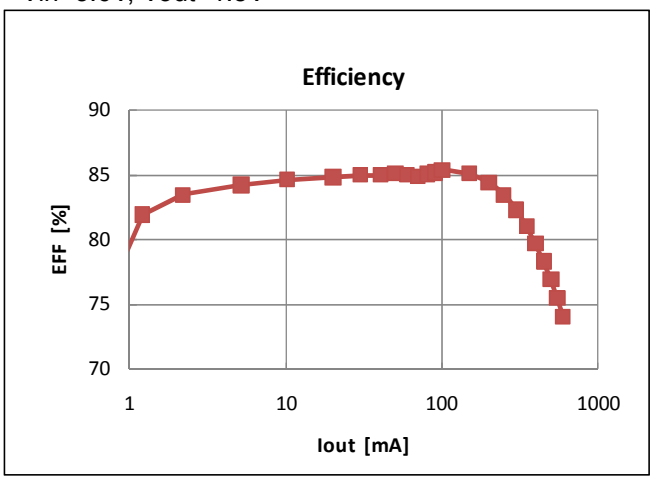
・Vin=3.6V, Vout=1.35V



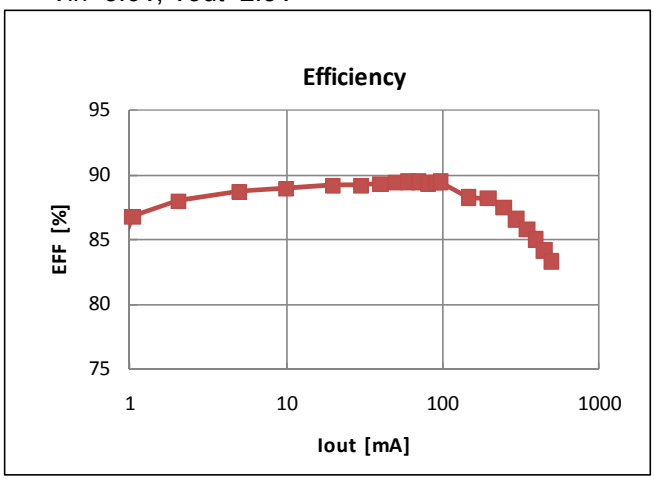
・Vin=3.6V, Vout=1.5V



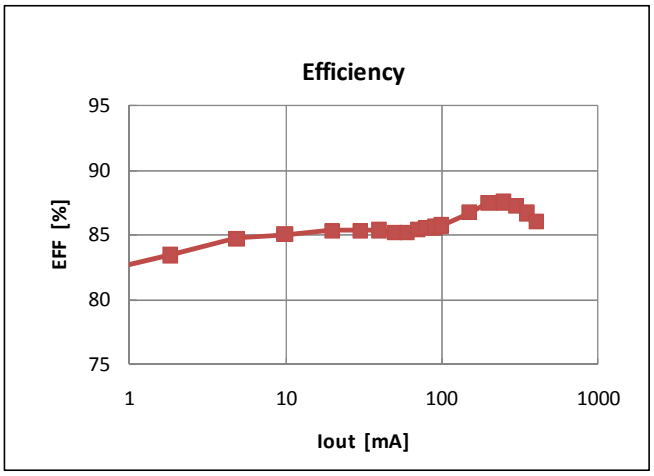
・Vin=3.6V, Vout=1.8V



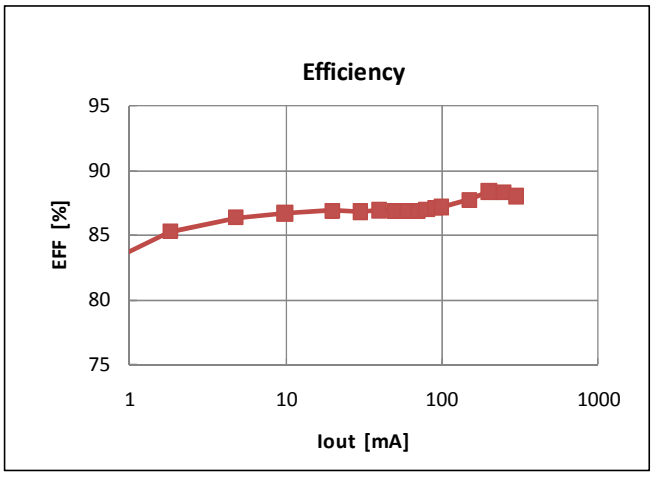
・Vin=3.6V, Vout=2.5V



・Vin=5.0V, Vout=3.0V



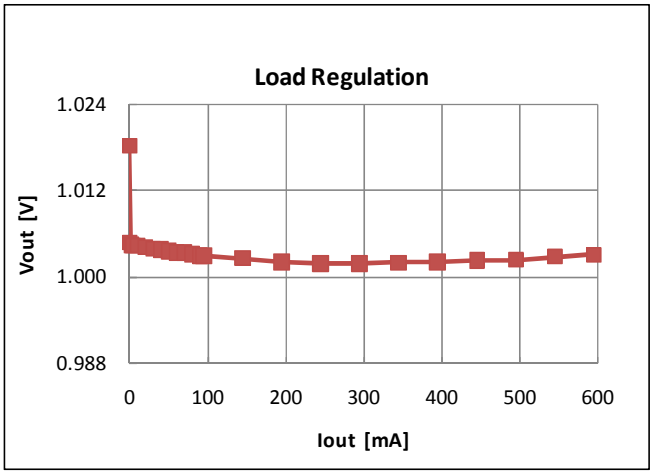
・Vin=5.0V, Vout=3.3V



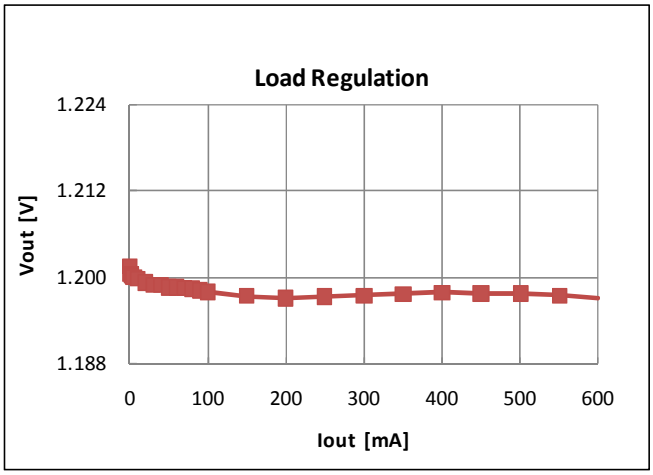
Typical Measurement Data (reference purpose only) (Ta=25℃)

Load Regulation

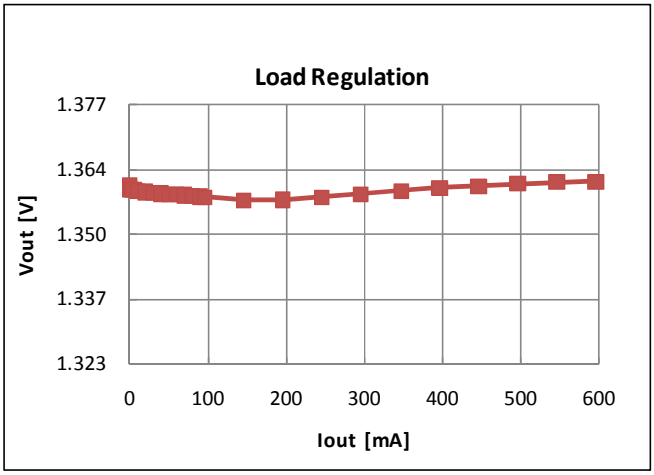
・Vin=3.6V, Vout=1.0V



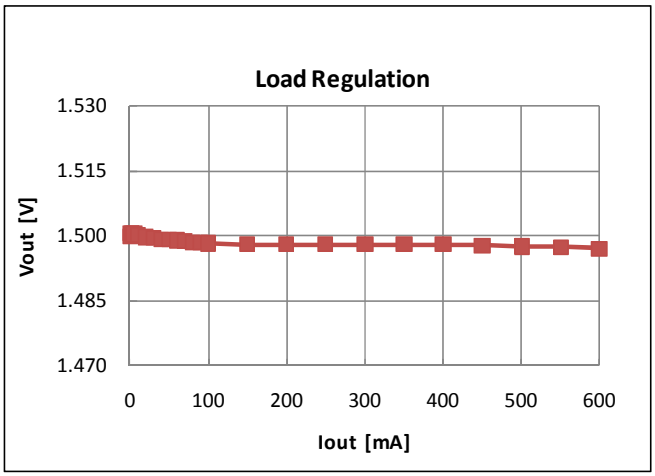
・Vin=3.6V, Vout=1.2V



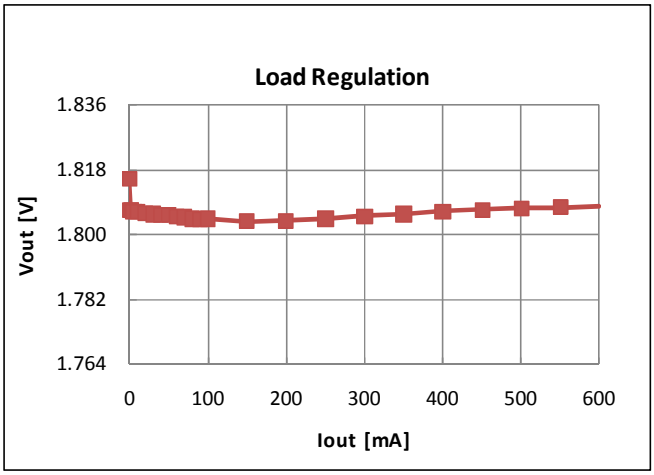
・Vin=3.6V, Vout=1.35V



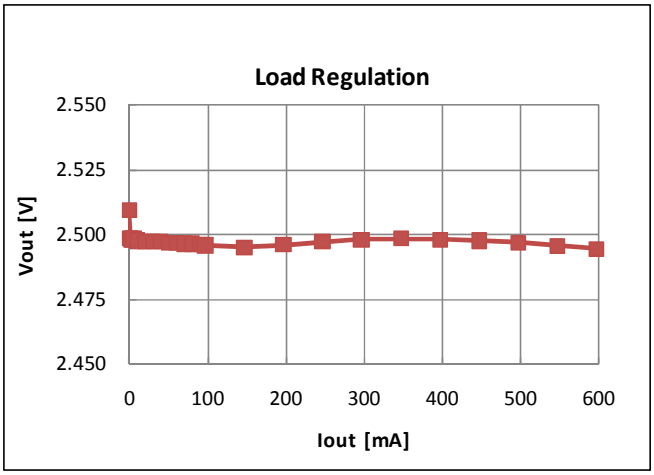
・Vin=3.6V, Vout=1.5V



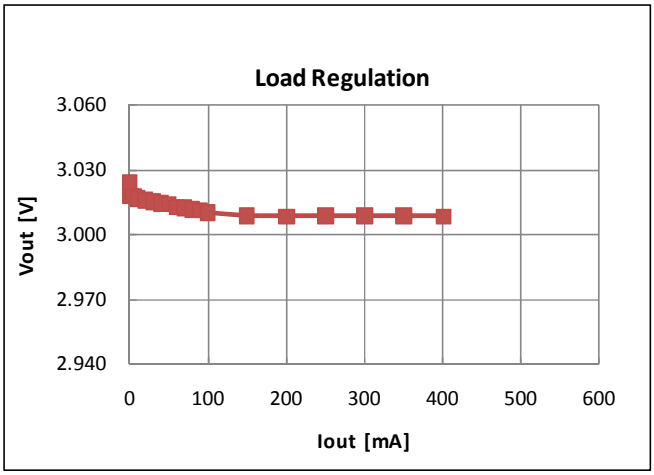
・Vin=3.6V, Vout=1.8V



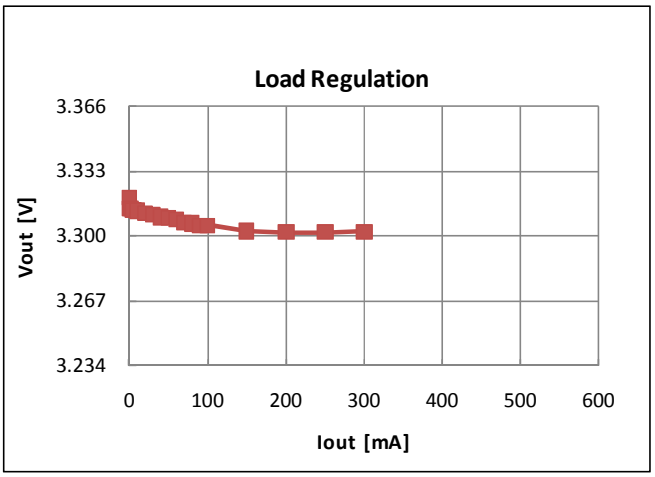
・Vin=3.6V, Vout=2.5V



・Vin=5.0V, Vout=3.0V



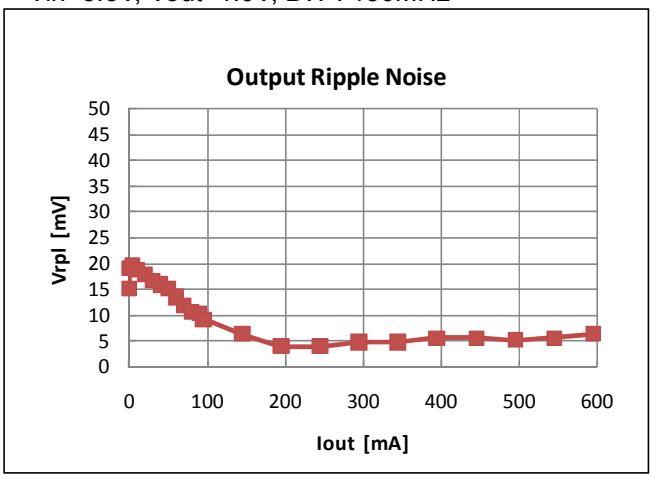
・Vin=5.0V, Vout=3.3V



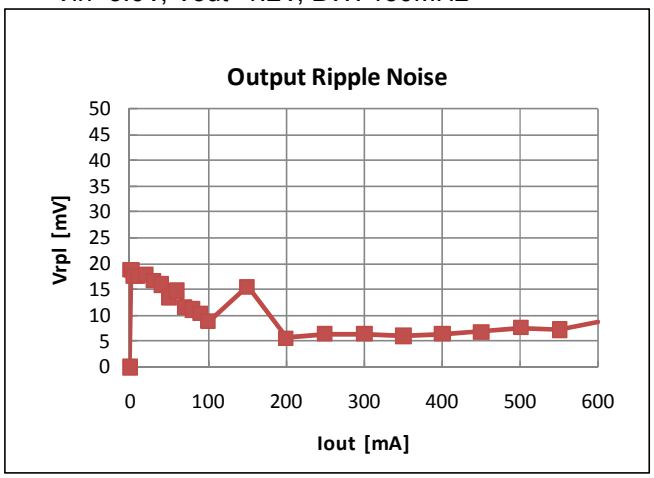
Typical Measurement Data (reference purpose only)

Output Ripple-Noise

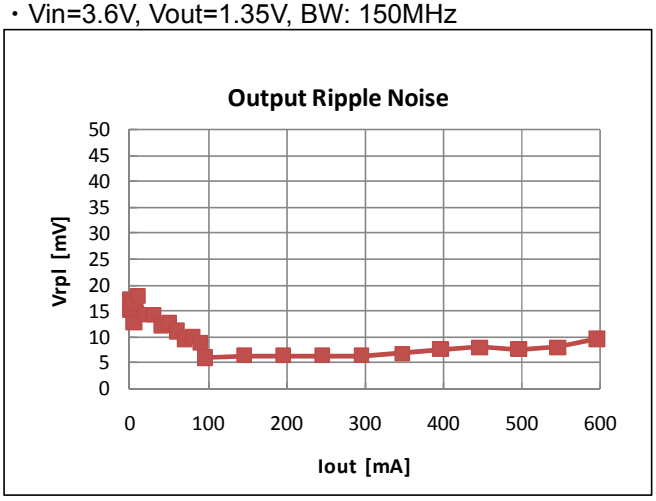
・Vin=3.6V, Vout=1.0V, BW : 150MHz



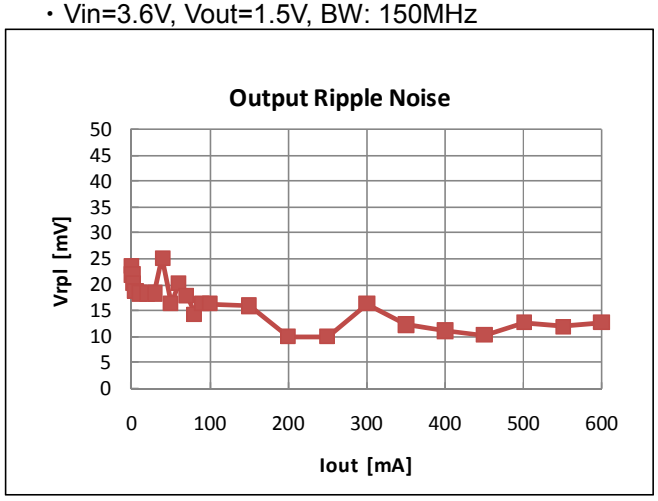
・Vin=3.6V, Vout=1.2V, BW: 150MHz



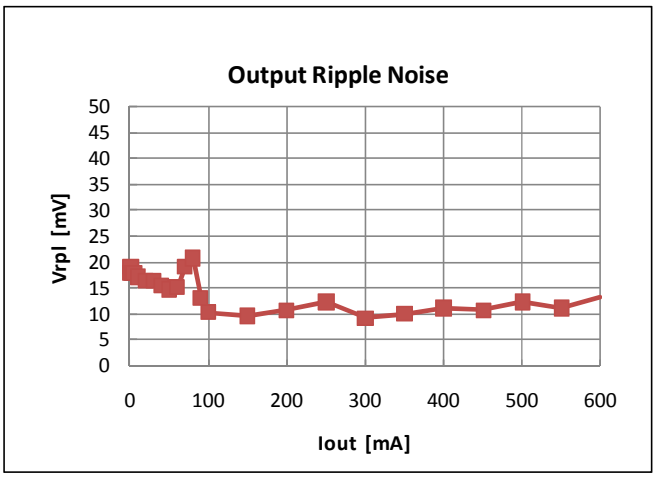
・Vin=3.6V, Vout=1.35V, BW: 150MHz



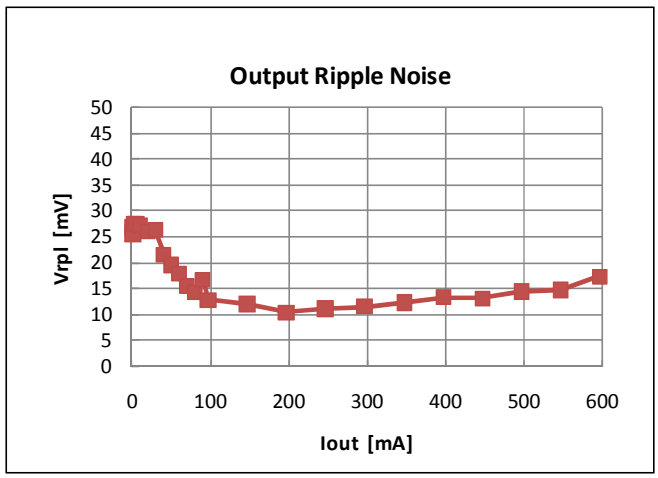
・Vin=3.6V, Vout=1.5V, BW: 150MHz



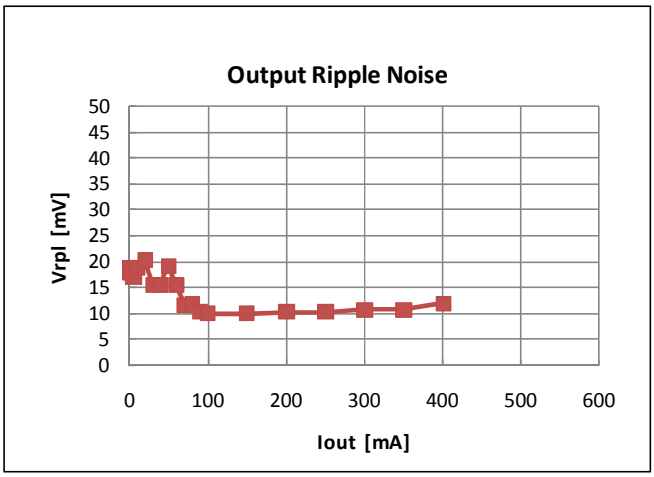
・Vin=3.6V, Vout=1.8V, BW: 150MHz



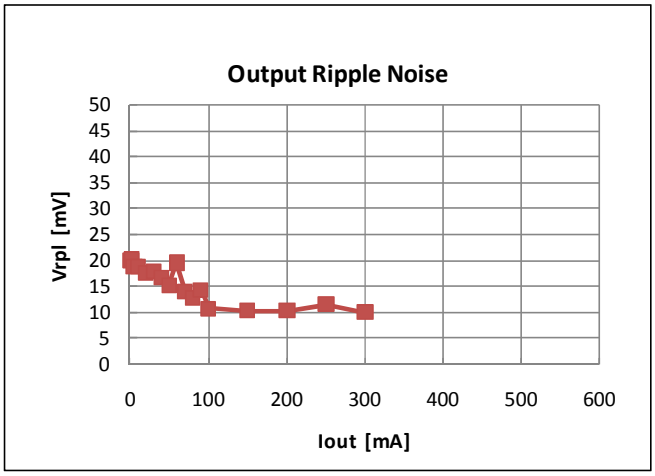
・Vin=3.6V, Vout=2.5V, BW: 150MHz



・Vin=5.0V, Vout=3.0V, BW: 150MHz



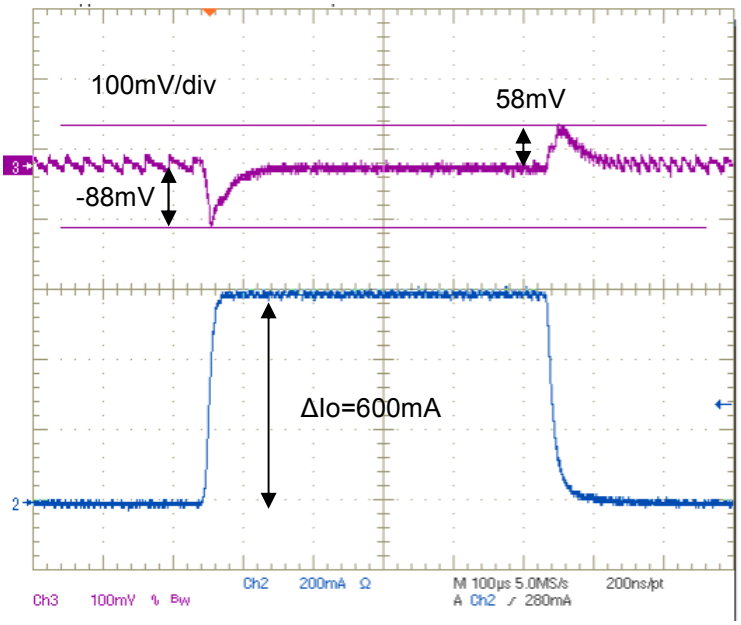
・Vin=5.0V, Vout=3.3V, BW: 150MHz



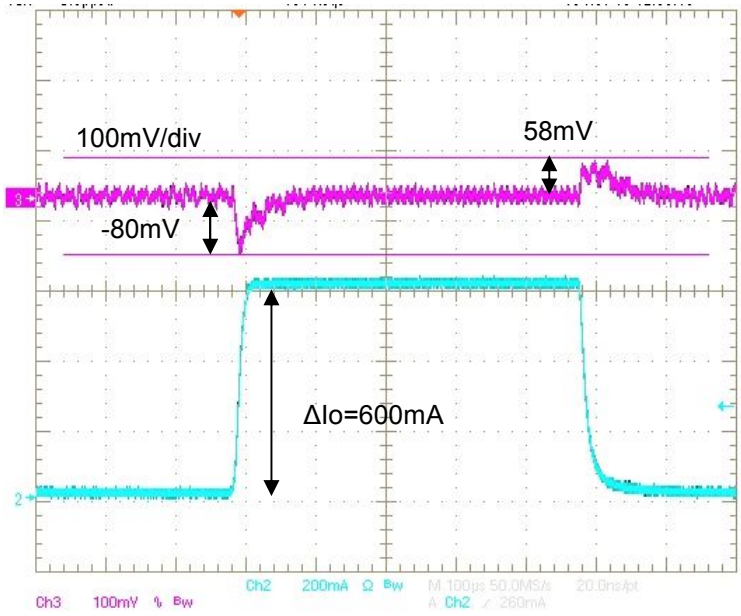
Typical Measurement Data (reference purpose only) (Ta=25℃)

Load Transient Response

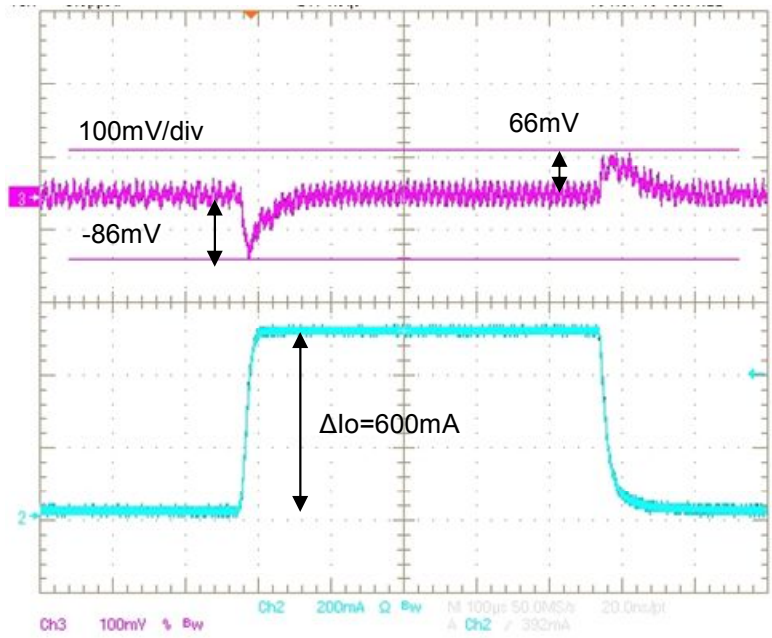
・Vin=3.6V, Vout=1.0V



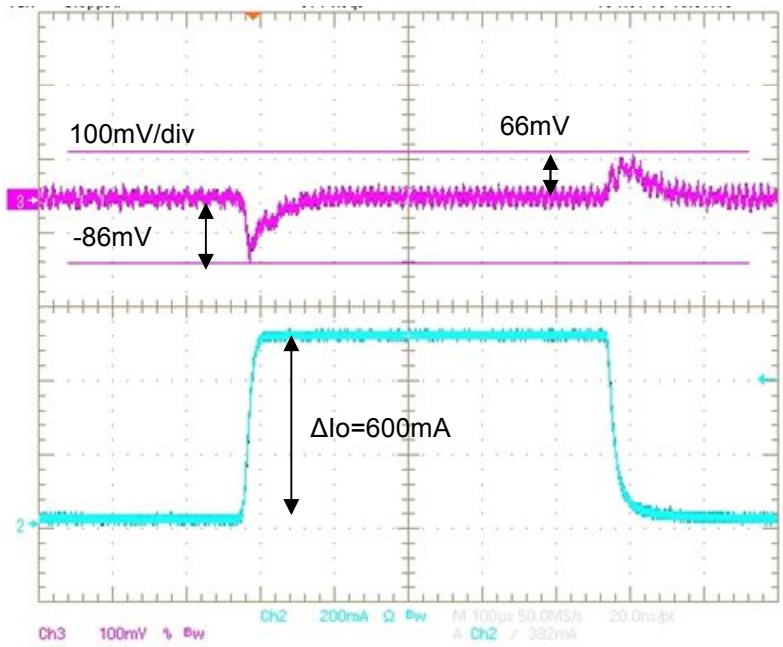
・Vin=3.6V, Vout=1.2V



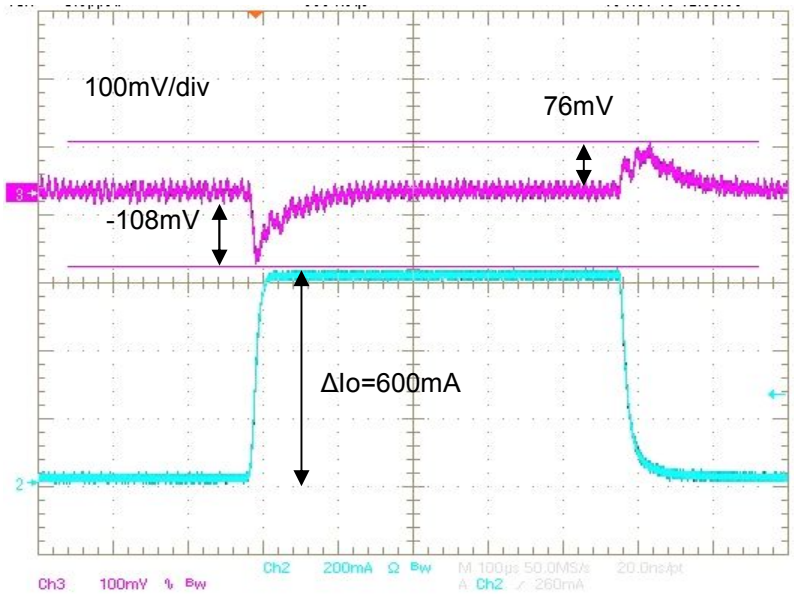
・Vin=3.6V, Vout=1.35V



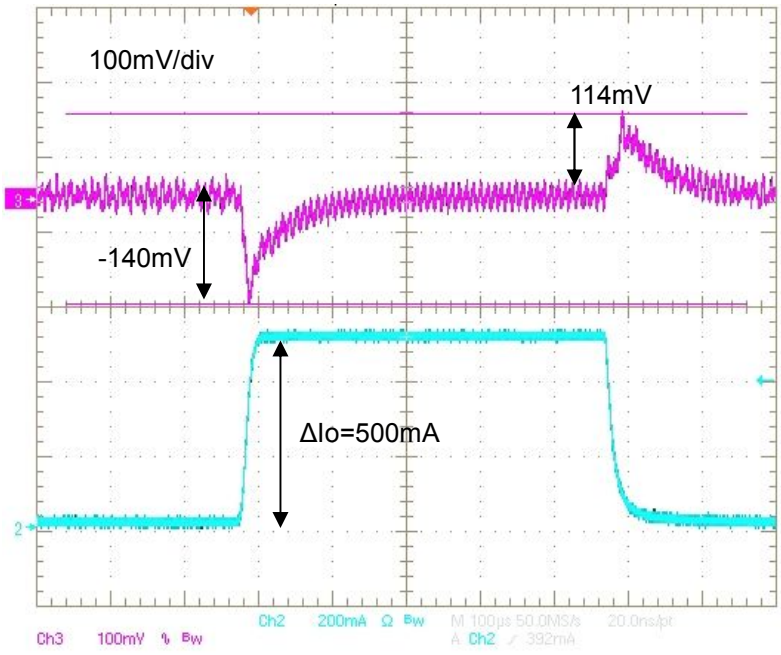
・Vin=3.6V, Vout=1.5V



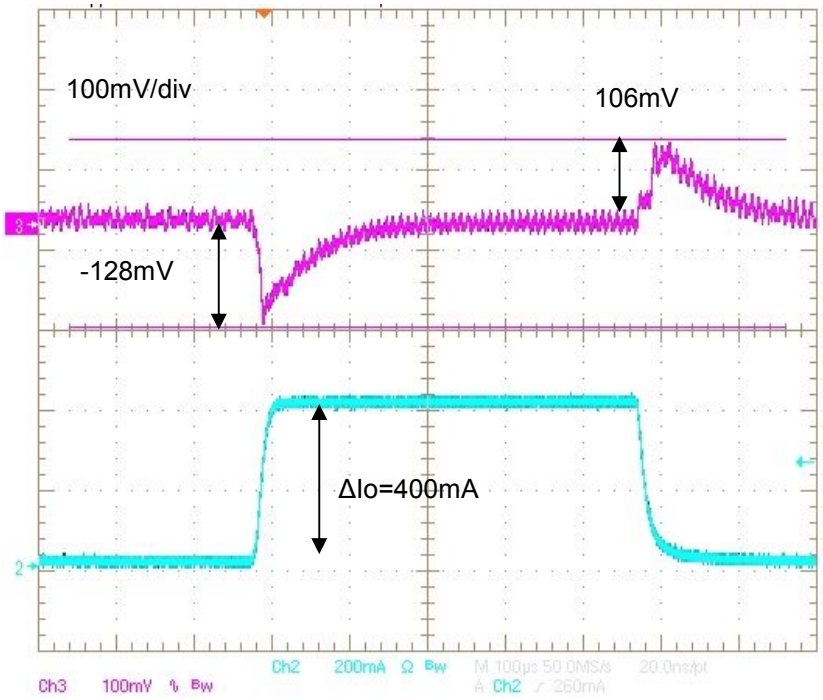
・Vin=3.6V, Vout=1.8V



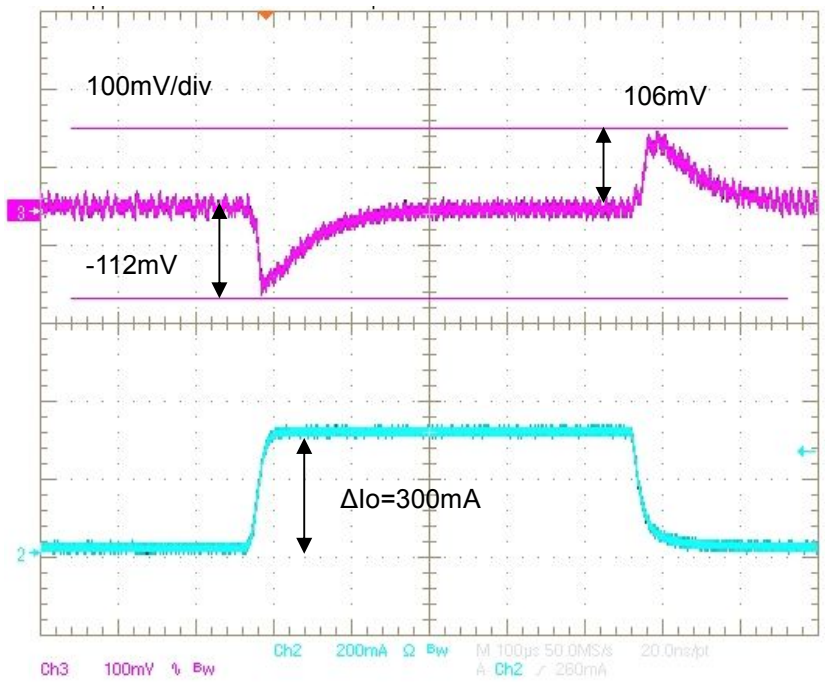
・Vin=3.6V, Vout=2.5V



・Vin=5.0V, Vout=3.0V



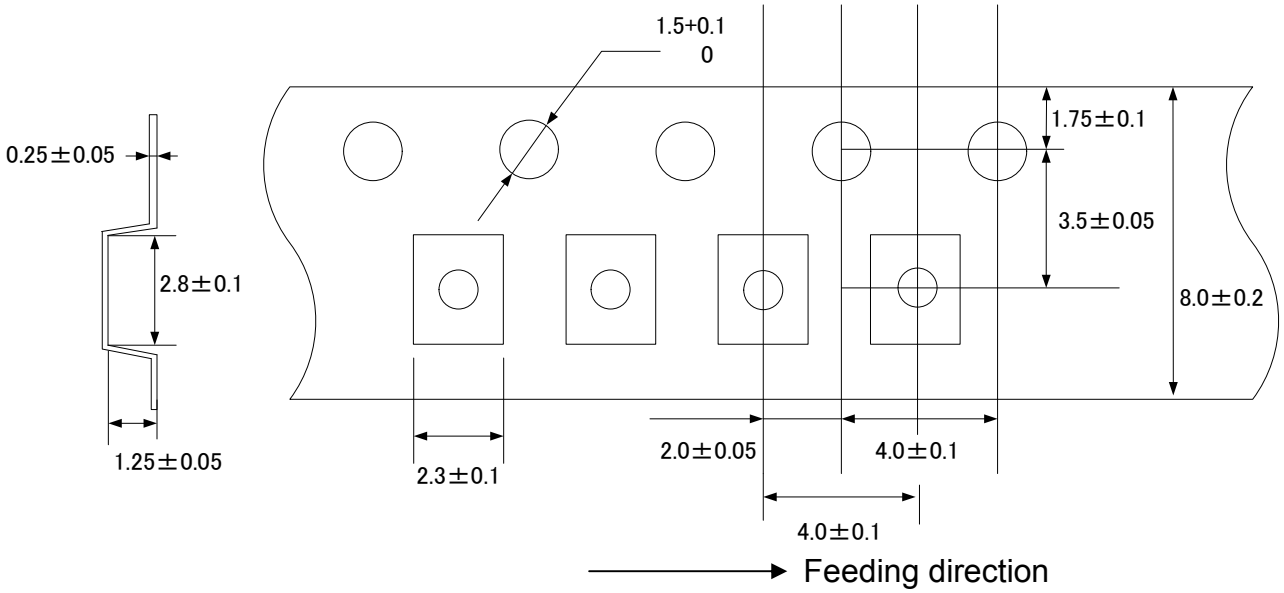
Vin=5.0V, Vout=3.3V



8. Tape and Reel Packing

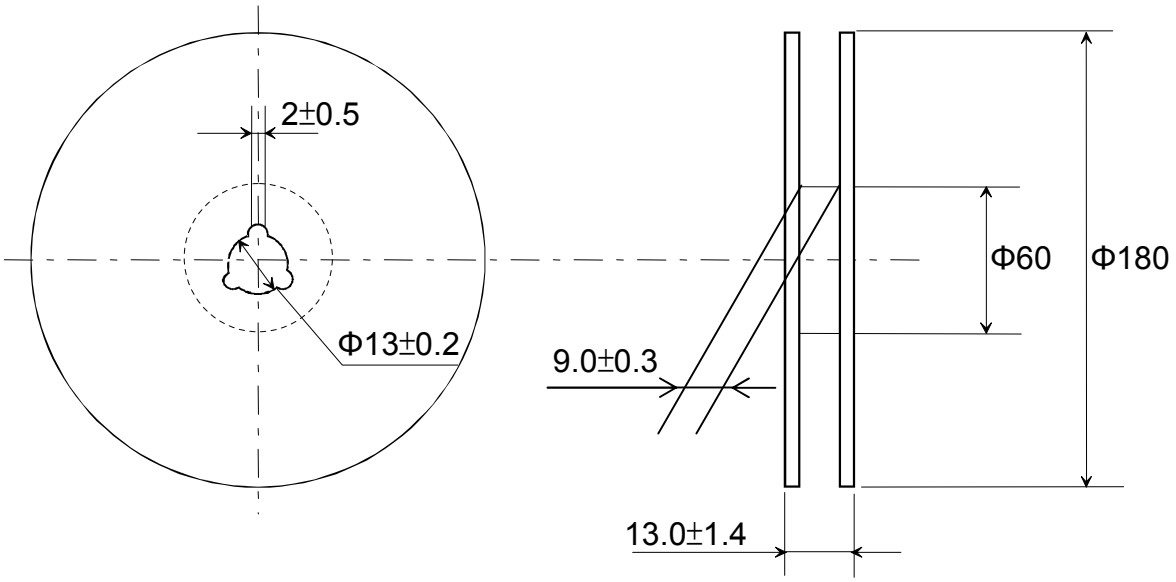
1）Dimensions of Tape (Plastic tape)

Unit: mm



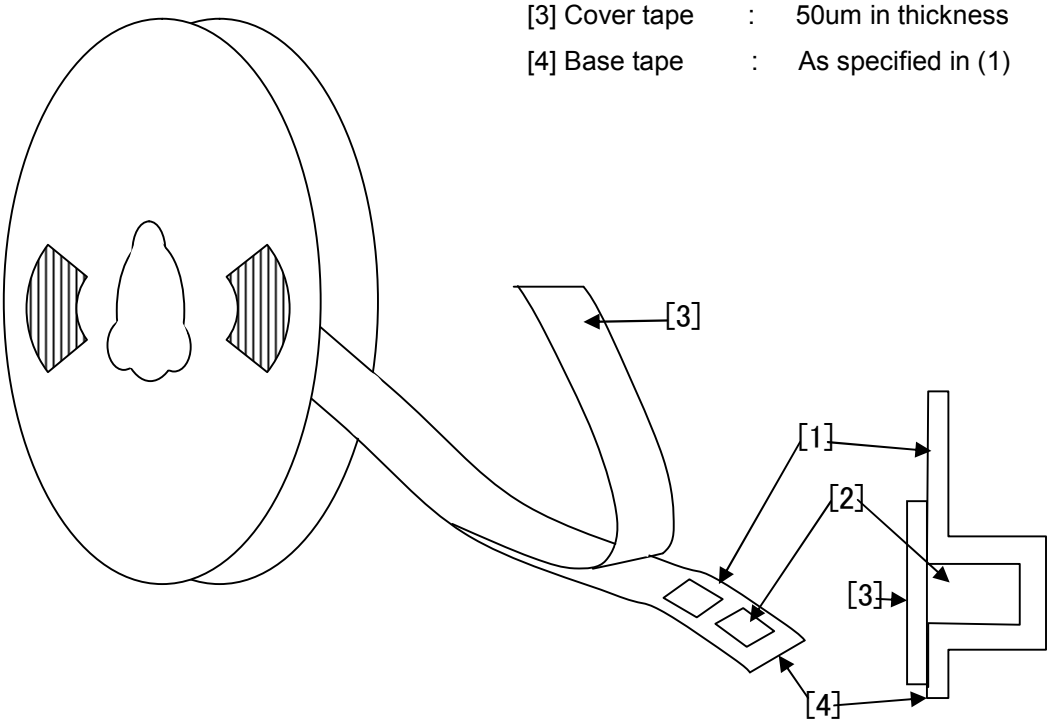
2） Dimensions of Reel

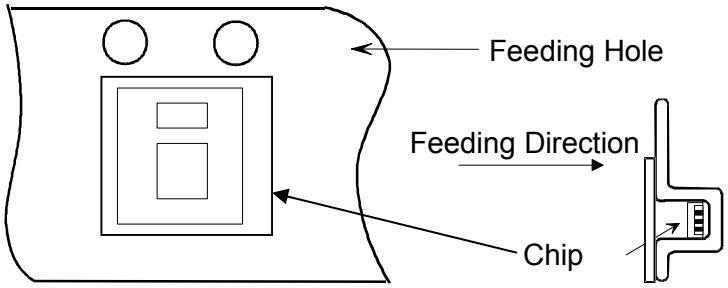
Unit: mm



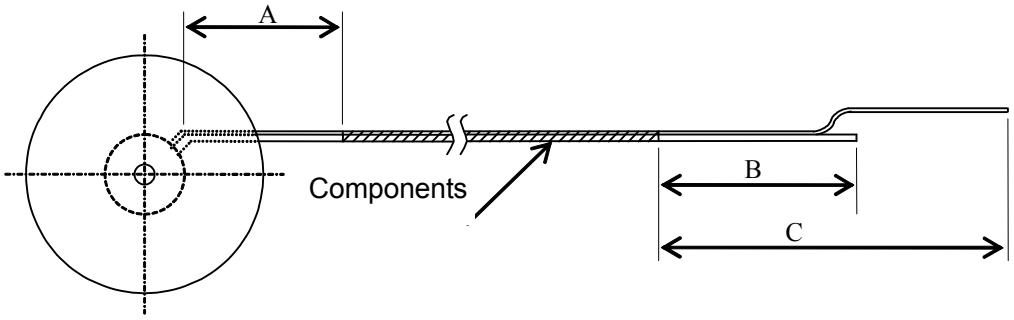
3）Taping Diagrams

[1] Feeding Hole : As specified in (1)
[2] Hole for chip : As specified in (1)
[3] Cover tape : 50um in thickness
[4] Base tape : As specified in (1)





4）Leader and Tail tape



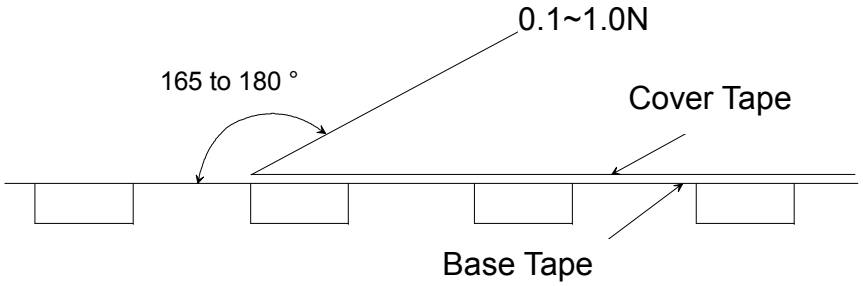
Symbol	Items	Ratings(mm)
A	No components at trailer	min 160
B	No components at leader	min 100
C	Whole leader	min 400

5）The tape for chips are wound clockwise, the feeding holes to the right side as the tape is pulled toward the user.

6）Packaging unit: 3,000 pcs./ reel

7） Material： Base Tape … Plastic
Reel … Plastic
Antistatic coating for both base tape and reel

8）Peeling of force



Note:
1. This datasheet's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.
2. This datasheet has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.