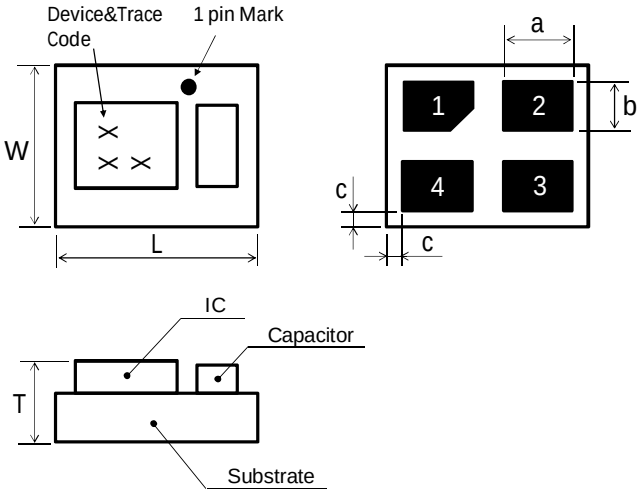
1. Features

- 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



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	^{o}C
Storage temperature	T_{STO}	-40 to +85	^{o}C

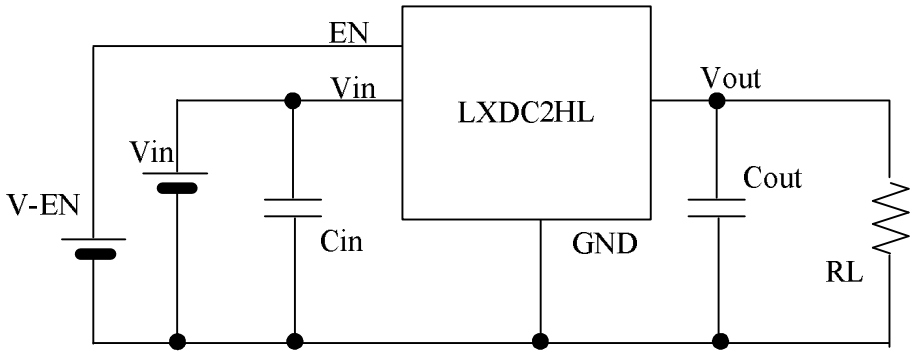
4-2 Electrical characteristics (Ta=25℃)

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	81	85		
			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

* Test condition is shown in section 6.

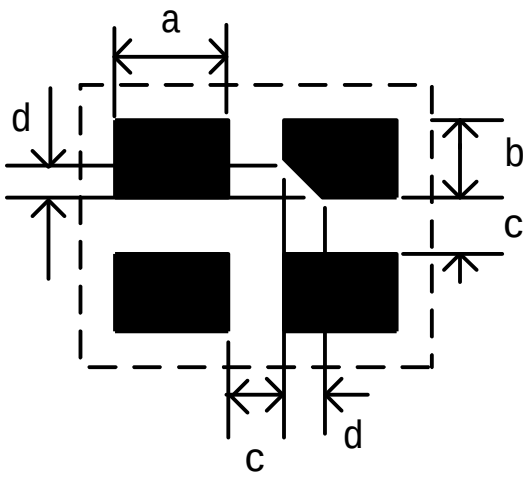
5. Test Circuit



Cin : 4.7uF/6.3V (GRM188B30J475K)

Cout : 10uF/6.3V (GRM188B30J106M)

6. Reference Land Pattern



Unit: mm

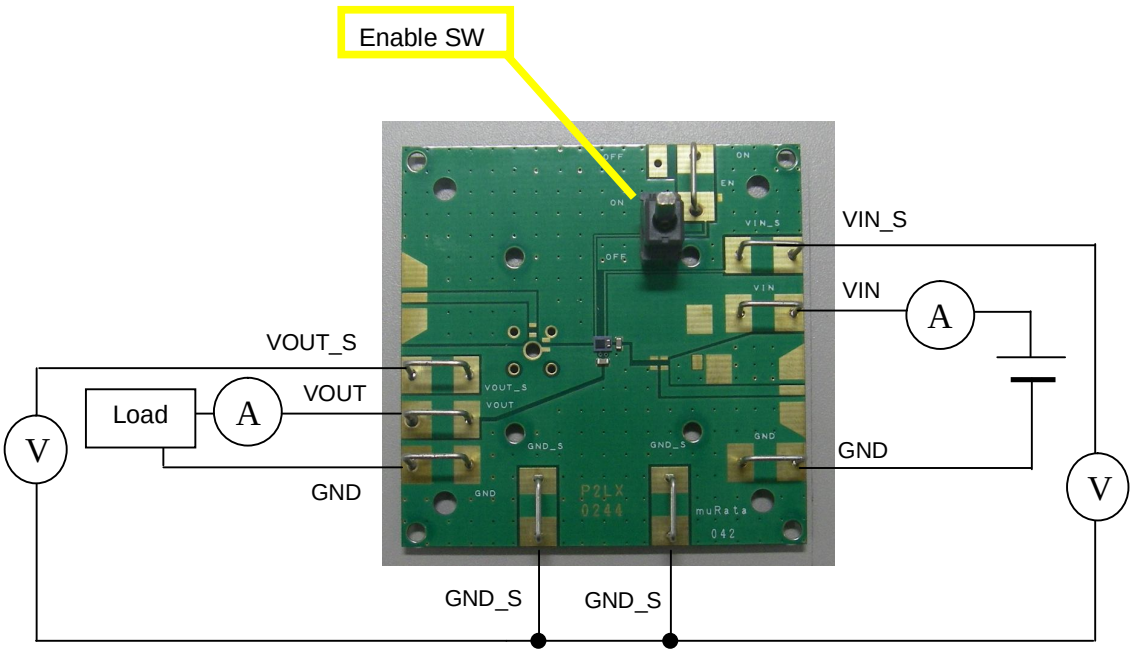
Mark	Dimension
a	0.85
b	0.60
c	0.5
d	0.2

Notes: this land layout is for reference purpose only.

7. Measurement Data

Micro DCDC Converter evaluation board (P2LX0244)

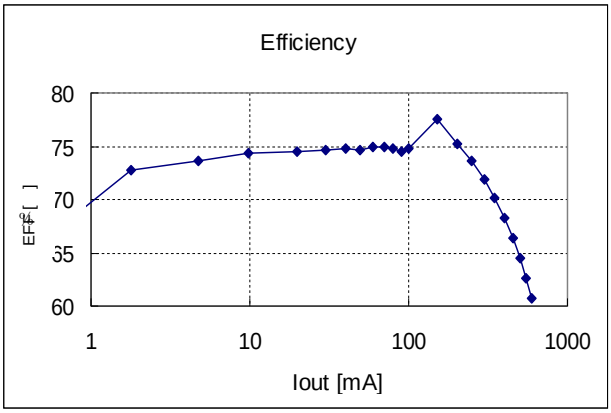
Measurement setup



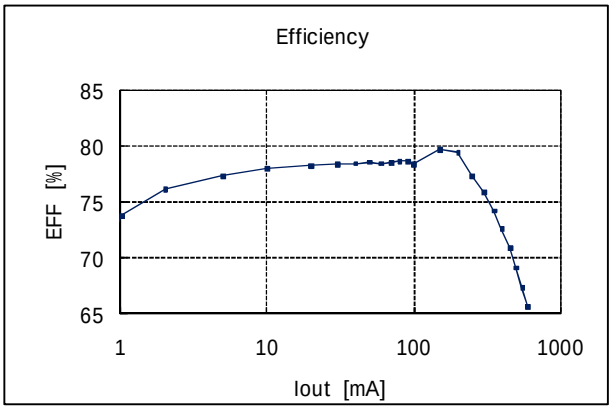
Typical Measurement Data (reference purpose only)

Efficiency

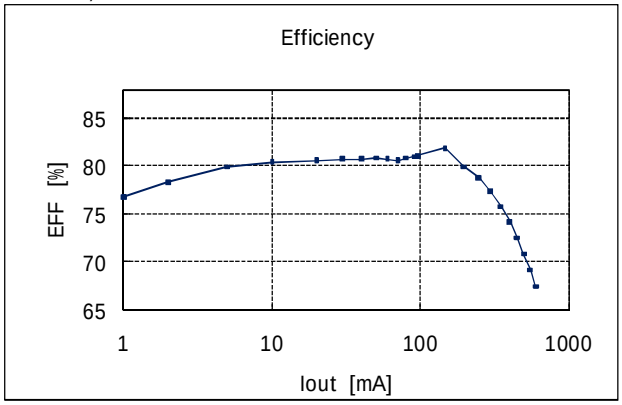
Vin=3.6V, Vout=1.0V



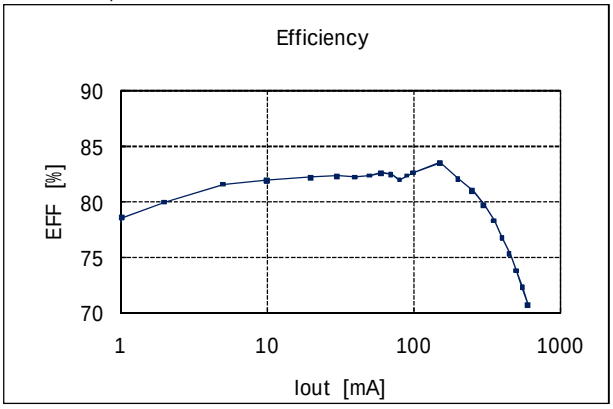
Vin=3.6V, Vout=1.2V



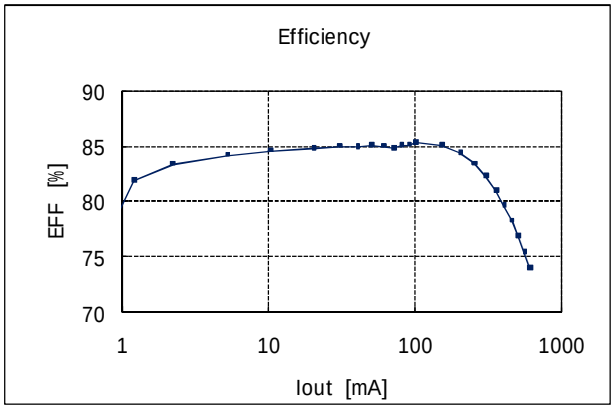
Vin=3.6V, Vout=1.35V



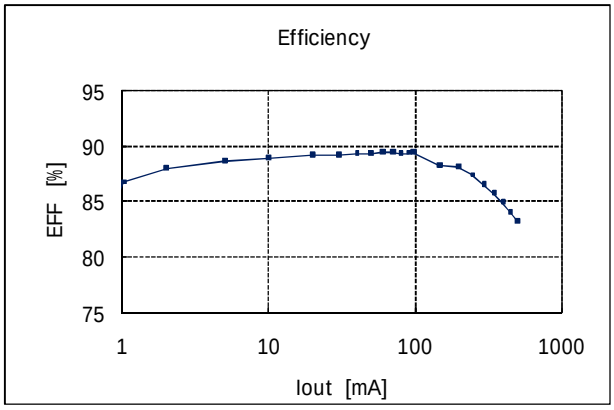
Vin=3.6V, Vout=1.5V



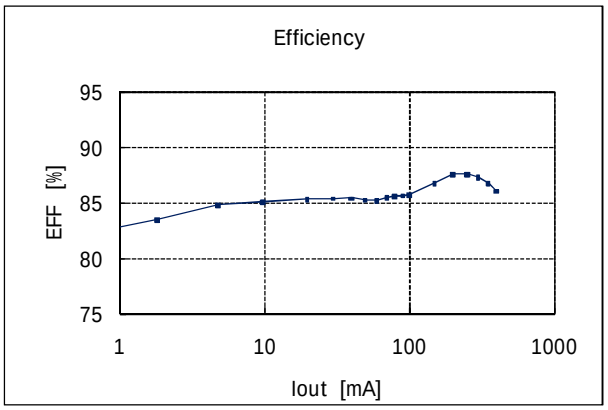
Vin=3.6V, Vout=1.8V



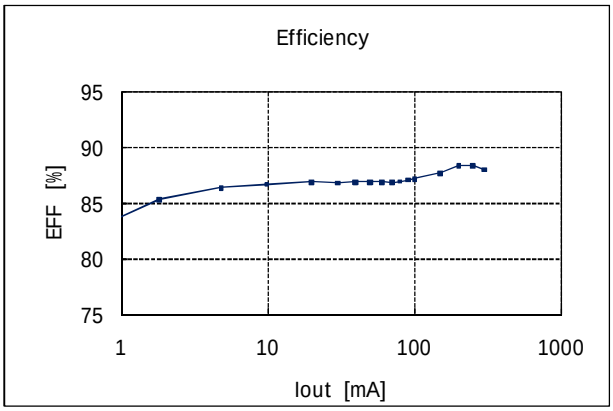
Vin=3.6V, Vout=2.5V



Vin=5.0V, Vout=3.0V



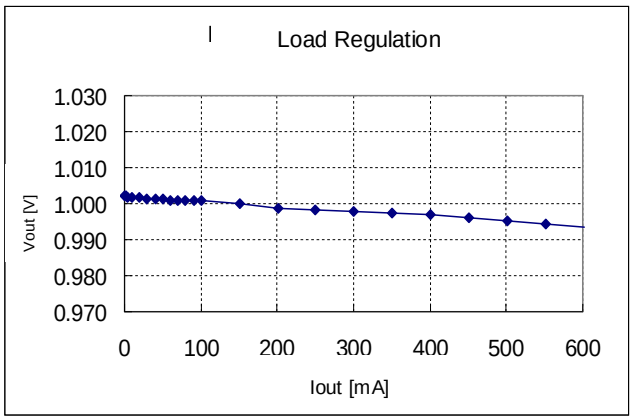
Vin=5.0V, Vout=3.3V



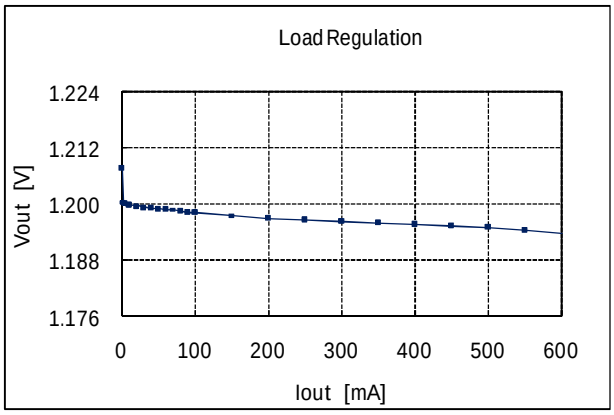
Typical Measurement Data (reference purpose only)

Load Regulation

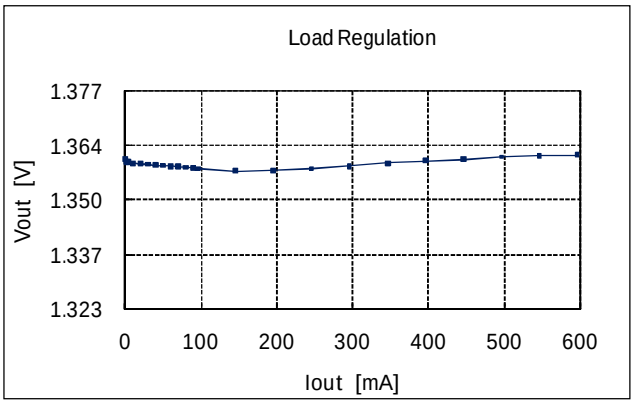
Vin=3.6V, Vout=1.0V



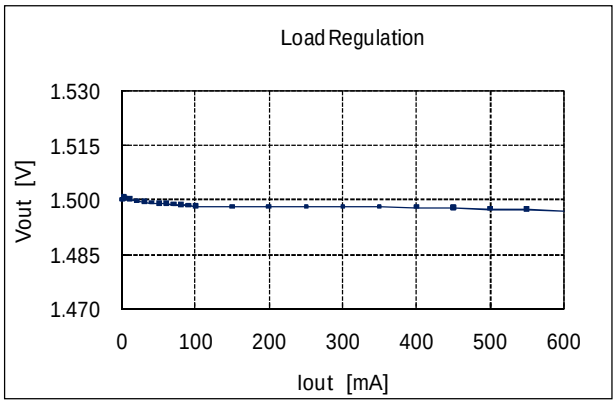
Vin=3.6V, Vout=1.2V



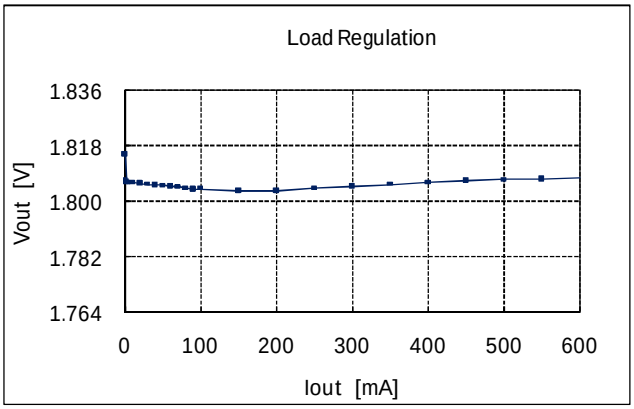
Vin=3.6V, Vout=1.35V



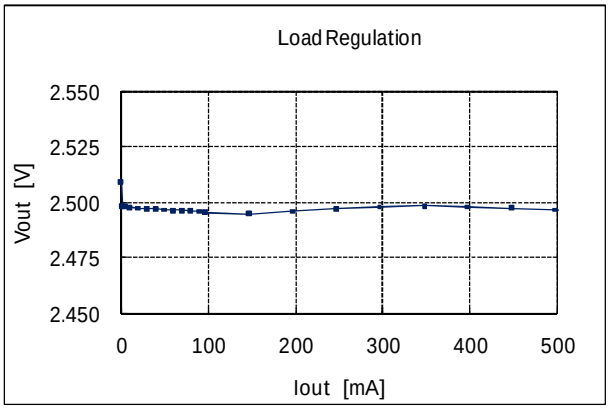
Vin=3.6V, Vout=1.5V



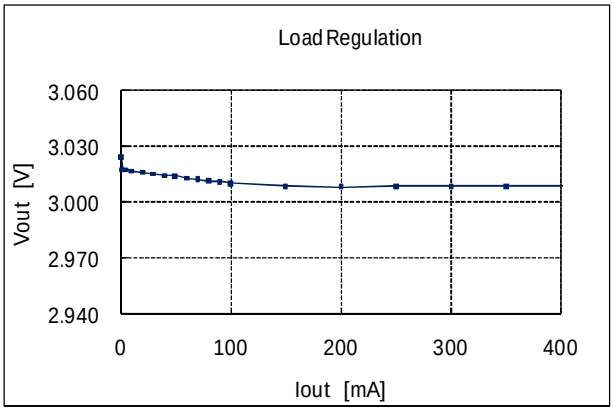
Vin=3.6V, Vout=1.8V



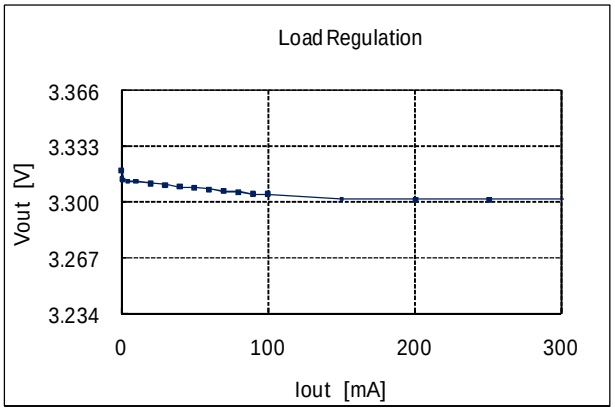
Vin=3.6V, Vout=2.5V



Vin=5.0V, 3.0V



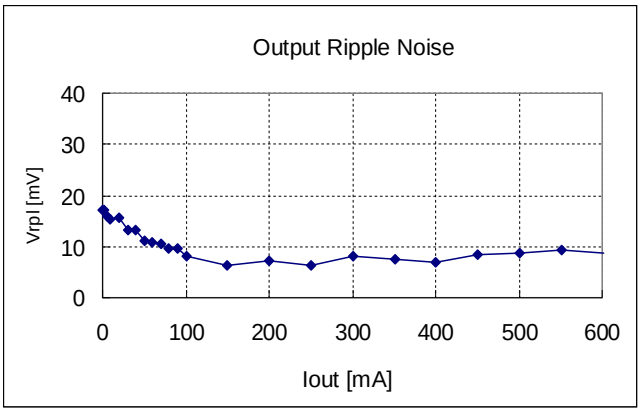
Vin=5.0V, Vout=3.3V



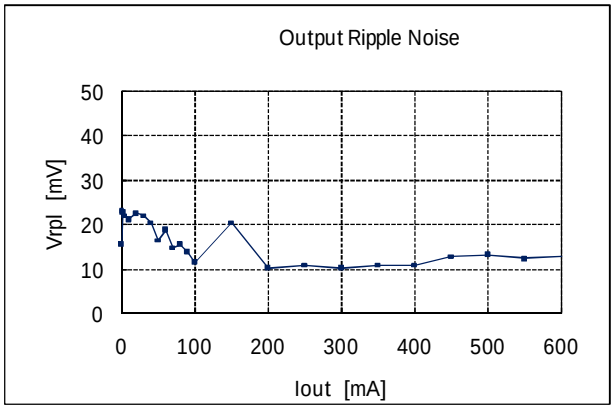
Typical Measurement Data (reference purpose only)

Output Ripple-Noise

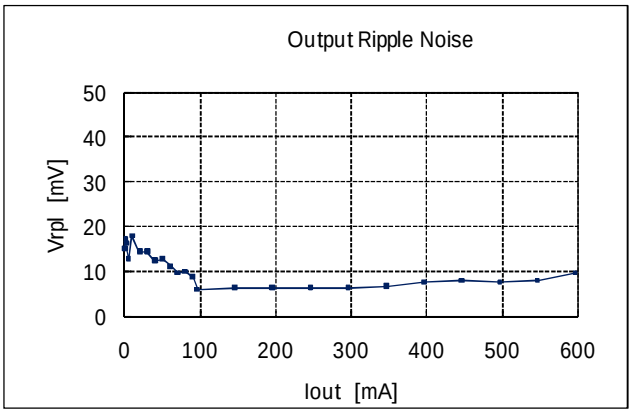
Vin=3.6V, Vout=1.0V, BW : 100MHz



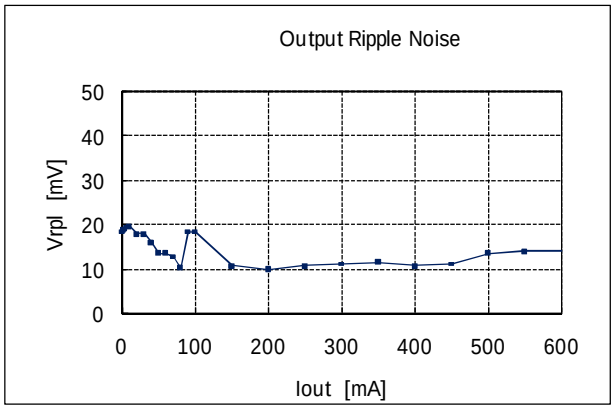
Vin=3.6V, Vout=1.2V, BW: 150MHz



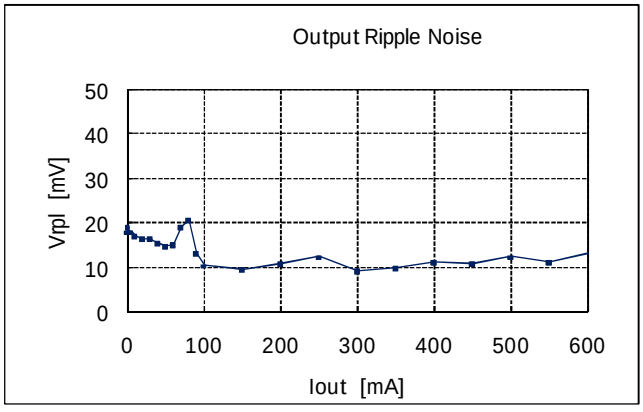
Vin=3.6V, Vout=1.35V, BW: 150MHz



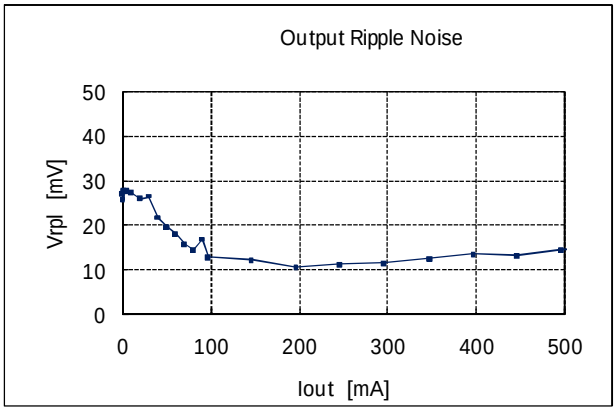
Vin=3.6V, Vout=1.5V, BW: 150MHz



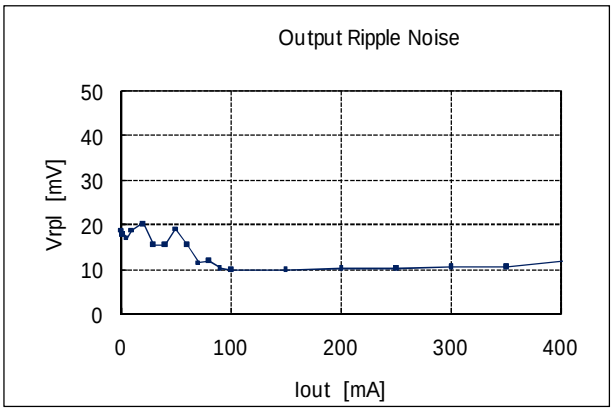
Vin=3.6V, Vout=1.8V, BW: 150MHz



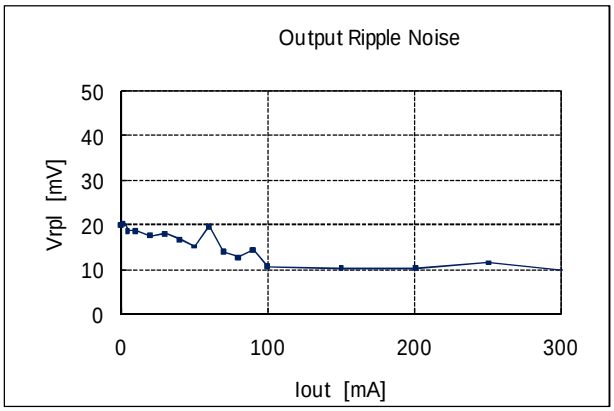
Vin=3.6V, Vout=2.5V, BW: 150MHz



Vin=5.0V, Vout=3.0V, BW: 150MHz



Vin=5.0V, Vout=3.3V, BW: 150MHz



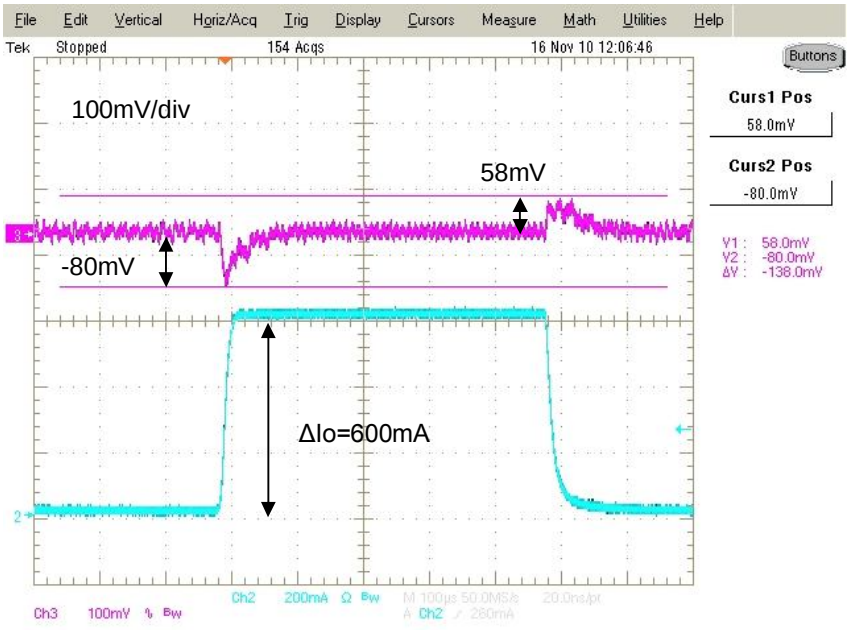
Typical Measurement Data (reference purpose only)

Load Transient Response

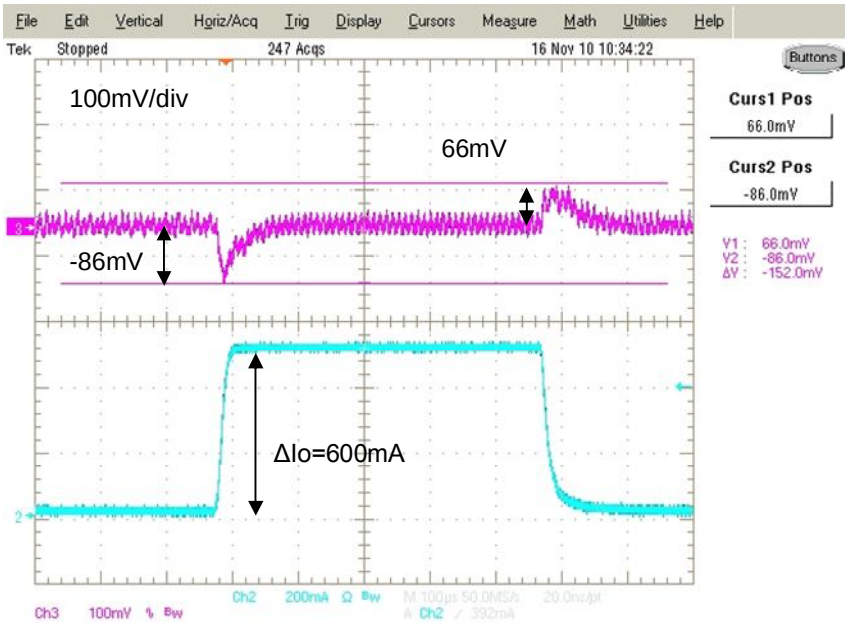
Vin=3.6V, Vout=1.0V

TBD

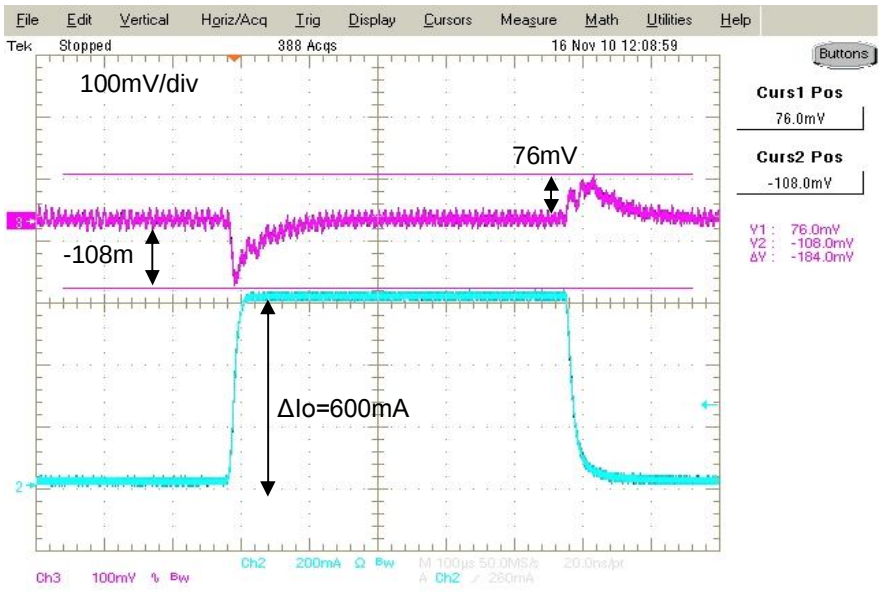
Vin=3.6V, Vout=1.2V



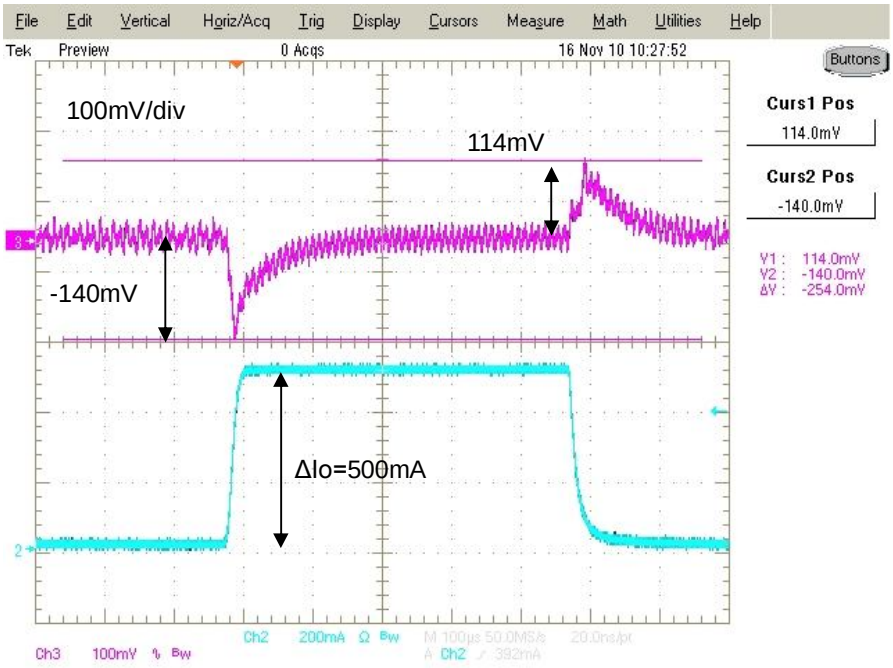
Vin=3.6V, Vout=1.35V



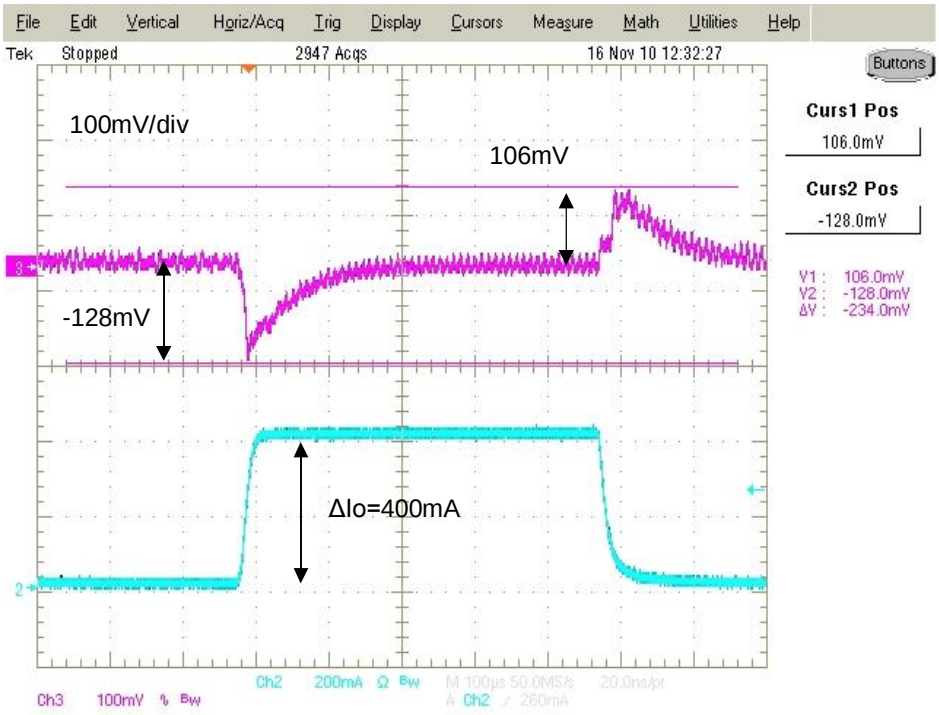
Vin=3.6V, Vout=1.8V



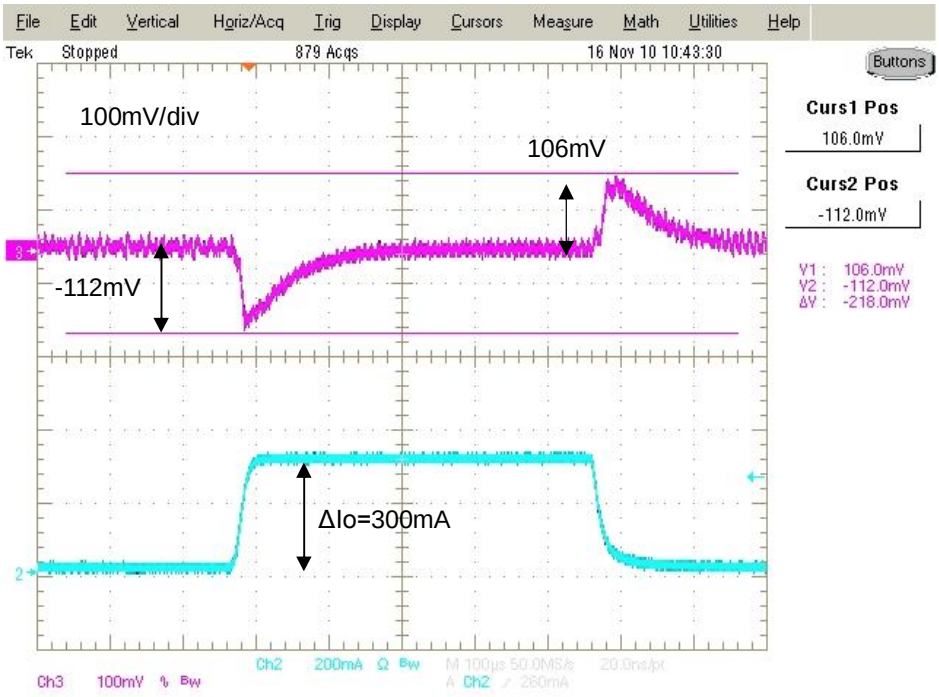
Vin=3.6V, Vout=2.5V



Vin=5.0V, Vout=3.0V



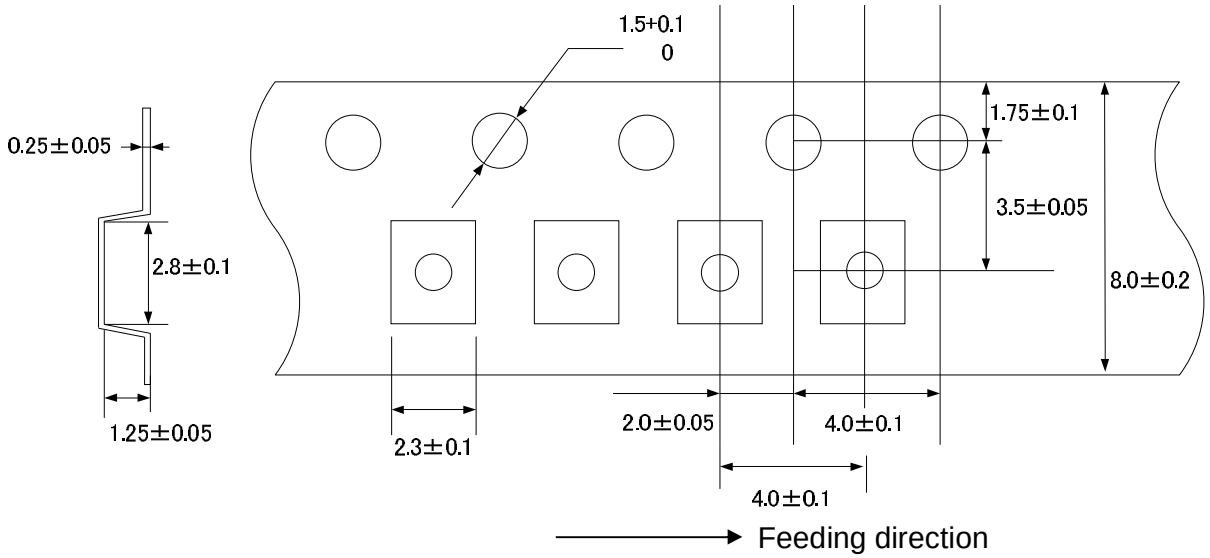
Vin=5.0V, Vout=3.3V



8. Tape and Reel Packing

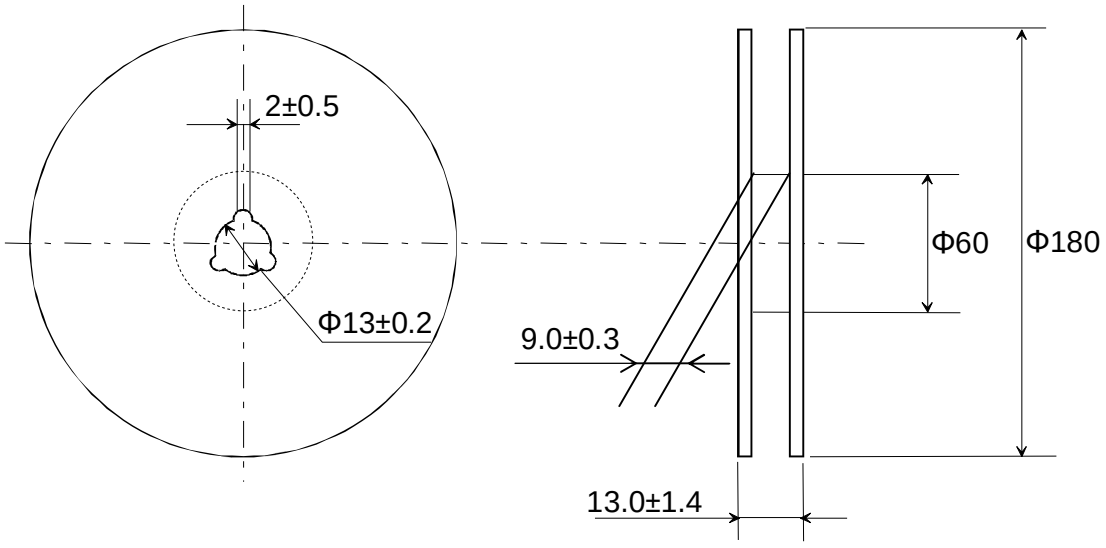
1）Dimensions of Tape (Plastic tape)

Unit: mm



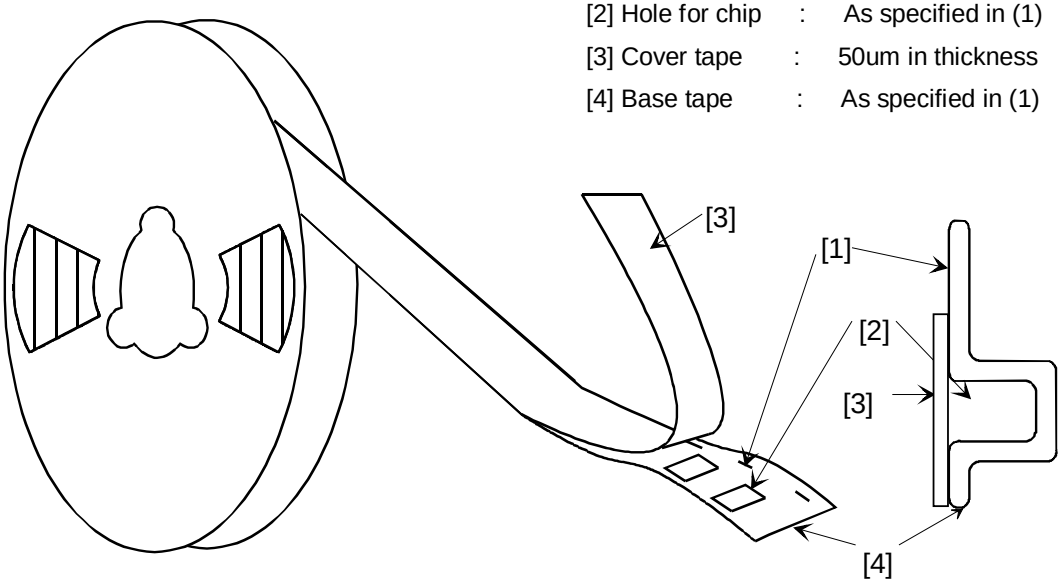
2） Dimensions of Reel

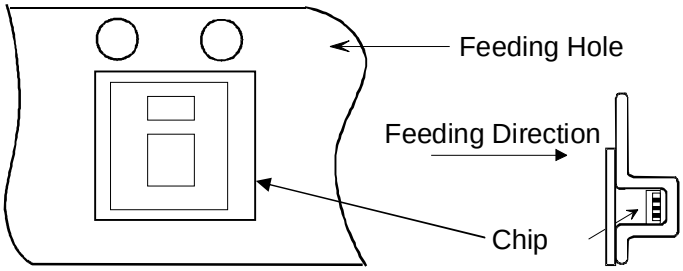
Unit: mm



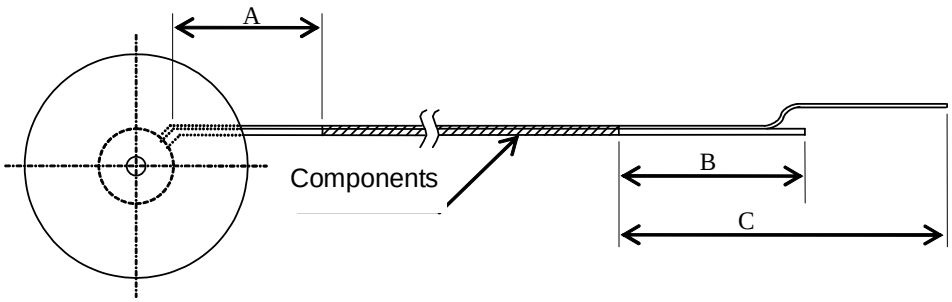
3）Taping Diagrams

[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

