




## WIP252010P Series Engineering Specification

### 1. Scope

#### Feature

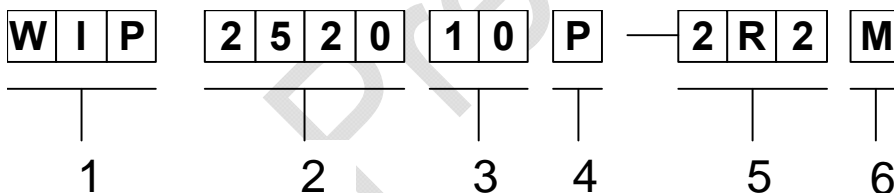
- Low Profile: 2.5 mm × 2.0 mm × 1.0 mm.
- Magnetically shielded structure to accomplish high resolution in EMC protection.
- Halogen free, Lead Free, RoHS Compliance.

#### Applications

WIP252010P series is generic applied in portable DC to DC converter line.

- Mobile Phones
- HDDs,
- DSCs,
- Pads,
- LCD, LED display, etc..

### 2. Explanation of Part Number



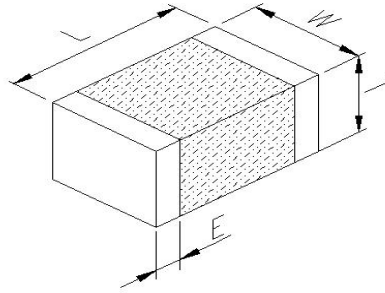
- ◆ 1 : Series Name
- ◆ 2 : Size Code: The first two digitals: length(mm), The last two digitals: width(mm)
- ◆ 3 : Thickness (mm)
- ◆ 4 : Product Type
- ◆ 5 : Inductance (μH)
- ◆ 6 : Model code, Inductance tolerance within ±20%.

### 3. Construction & Dimensions

3.1. Core Material: Iron

3.2. End termination: Ni/Sn

3.3. Construction & Dimension :



Unit: mm

L	W	T	E
2.5±0.2	2.0±0.2	1.0 max.	0.6±0.2

### 4. General specifications

#### 4.1. Temperature Specifications

Operating Temperature range : -40°C to +125°C

Storage Temperature range : -50°C to +125°C

\* The detail operating temperature describing can refer to 5.1 (7).

## 5. Performance Characteristics

### 5.1. Specifications

Part Number	Inductance, Lo (μH) @ 1MHz	Rdc (mΩ) Typical	Saturation Current Isat (A), Typical	Heat Rating Current Irms (A), Typical
WIP252010P-R47M	0.47	37	4.5	2.8
WIP252010P-R68M	0.68	45	4.1	2.5
WIP252010P-1R0M	1.0	65	3.5	2.1
WIP252010P-1R5M	1.5	90	2.8	1.7
WIP252010P-2R2M	2.2	130	2.3	1.5
WIP252010P-3R3M	3.3	200	1.8	1.3
WIP252010P-4R7M	4.7	280	1.5	1.0
WIP252010P-6R8M	6.8	430	1.4	0.8
WIP252010P-100M	10.0	550	1.2	0.7

(1) All test data is referenced to 25°C ambient.

(2) Inductance is measured with a LCR meter Agilent 4294A or equivalent.

(Test frequency : 1 MHz, test level : 1V)

(3) Inductance Tolerance ±20%.

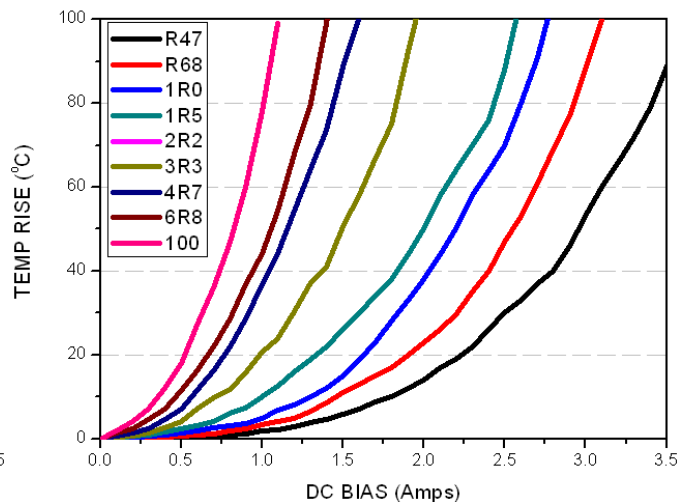
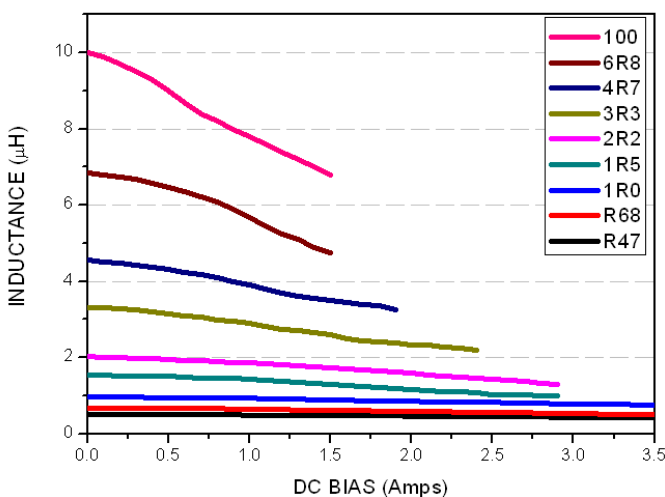
(4) Isat: DC current that will cause L<sub>0</sub> to drop approximately 30% at ambient 25°C.

(5) I<sub>dc</sub>: DC current that will cause an approximate ΔT of 40°C.

(6) Rating Current: Value as listed is either the saturation current or the heating current, whichever is smaller.

(7) The part temperature (Ambient + temp rise) should not exceed 125°C under worse case operating condition.

### 5.2. Current Characteristic

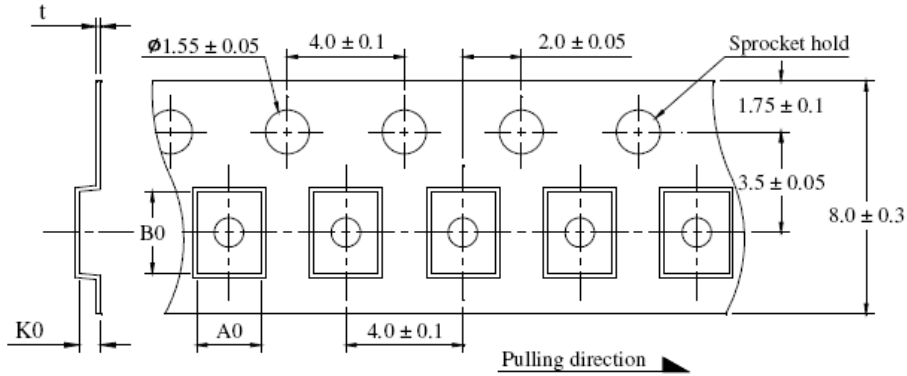


## 6. Reliability and Test Condition

Test item	Test condition	Criteria
<b>Resistance to Solder Heat</b>	1. Solder temperature : $260 \pm 5^{\circ}\text{C}$ 2. Flux : Rosin 3. DIP time : $10 \pm 1$ sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage 3. Inductance value should be within $\pm 20$ % of the initial value
<b>Adhesive Test</b>	1. Reflow temperature : $245^{\circ}\text{C}$ It shall be Soldered on the substrate applying direction parallel to the substrate 2. Apply force(F) : 5 N 3. Test time : 10 sec	1. No mechanical damage 2. Soldering the products on PCB after the pulling test force > 5 N
<b>Temperature Cycle</b>	1. Temperature: $-50 \sim 125^{\circ}\text{C}$ For 30 minutes each 2. Cycle: 500 cycles 3. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value
<b>Dry Heat Test</b>	1. Temperature: $85 \pm 2^{\circ}\text{C}$ 2. Testing time: 500 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value
<b>Humidity Test</b>	1. Temperature: $60 \pm 2^{\circ}\text{C}$ 2. Humidity: 90-95 % RH 3. Applied current: Full rated current 4. Testing time: 500 hrs 5. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value

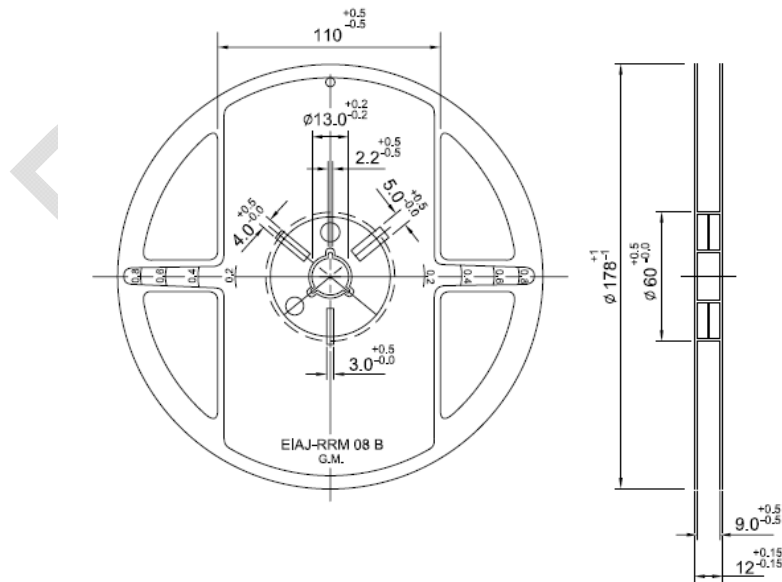
## 7. Taping Package and Label Marking

### 7.1. Carrier tape dimensions



	A0	B0	K0	t
mm	$2.5 \pm 0.1$	$3.0 \pm 0.1$	$1.6 \pm 0.10$	$0.25 \pm 0.05$

### 7.2. Taping reel dimensions



PART SIZE (EIA SIZE)	<b>2520 (1008)</b>
Qty.(pcs)	2,000
BOX	5 reels / inner box

**7.3. Taping specifications**

There shall be the portion having no product in both the head and the end of taping, and there shall be the cover tape in the head of taping.

**7.4. Label Marking**

The label specified as follows shall be put on the side of reel.

- (1) Part No.
- (2) Quantity
- (3) Lot No.

\* Part No. And Quantity shall be marked on outer packaging.

**7.5. Quantity of products in the taping package**

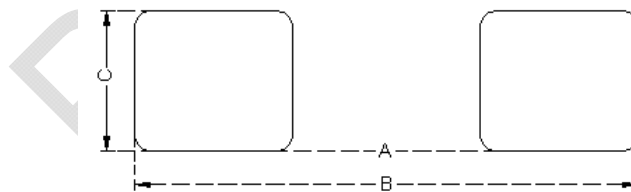
- (1) Standard quantity : 2000pcs/Reel
- (2) Shipping quantity is a multiple of standard quantity.

**8. Precautions for Handling**

**8.1. Solder cream in reflow soldering**

Refer to the recommendable land pattern as printing mask pattern for solder cream.

- (1) Print solder in a thickness of 0.1 to 0.15 mm.



Size	A	B	C
2520	1.2	2.8	2.0

Unit: mm

## 8.2. Precaution for handling of substrate

Do not exceed to bend the board after soldering this product extremely.  
(reference examples)

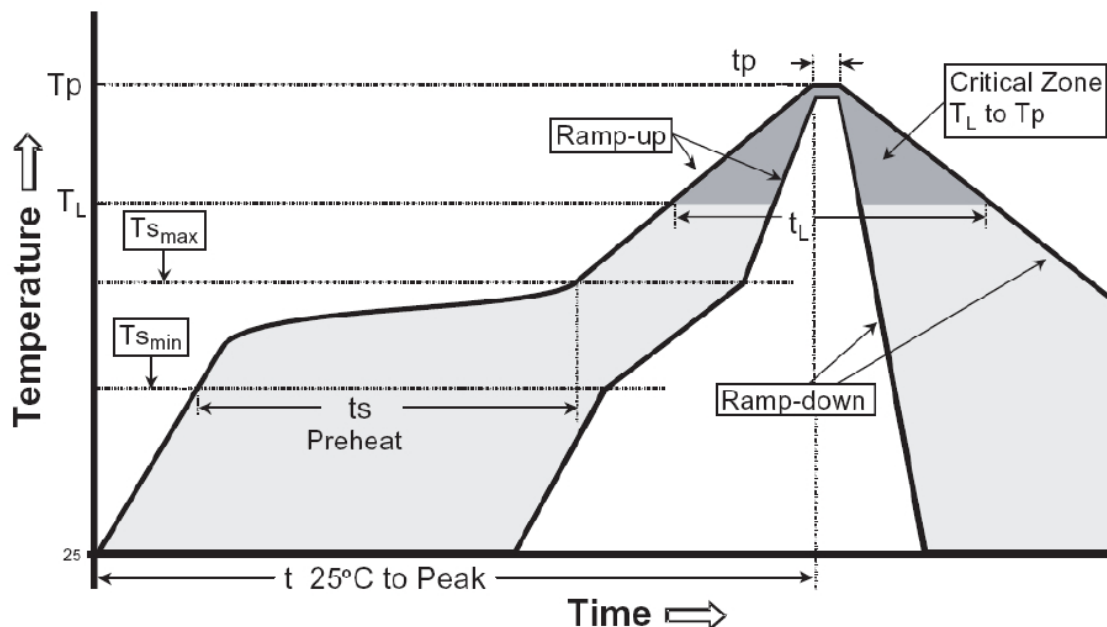
- Mounting place must be as far as possible from the position, which is close to the break line of board, or on the line of large holes of board.
- Do not bend extremely the board, in mounting another components.  
If necessary, use back-up pin (support pin) to prevent from bending extremely.
- Do not break the board by hand. We recommend to use the machine or the jig to break it.

## 8.3. Precaution for soldering

Note that this product will be easily damaged by rapid heating, rapid cooling or local heating.

Do not give heat shock over 100°C in the process of soldering. We recommend to take preheating and gradual cooling.

## 8.4. Recommendable reflow soldering



Reference IPC-020c-5-1

Profile Feature	Pb free Assembly
Average Ramp Rate (Ts max to Tp)	3 °C/second max
Preheat - Temperature Min (Ts <sub>min</sub> ) - Temperature Min (Ts <sub>max</sub> ) - Time(ts <sub>min</sub> to ts <sub>min</sub> )	150°C 200°C 60-180 seconds
Time maintained above: - Temperature (TL) - Time (tL)	217°C 60-150 seconds
Peak Temperature (T <sub>p</sub> )	260°C +0/-5 °C
Time within 5 °C of actual Peak Temperature (T <sub>p</sub> )	20-40 seconds
Ramp-Down Rate	6 °C/second max.
Time 25°C to Peak Temperature	8 minutes max

### 8.5. Soldering gun procedure

Note the follows, in case of using solder gun for replacement.

- (1) The tip temperature must be less than 280°C for the period within 3 seconds by using soldering gun under 30 W.
- (2) The soldering gun tip shall not touch this product directly.

### 8.6. Soldering volume

Note that excess of soldering volume will easily get crack the body of this product.

### 8.7. Taping Package Storage Condition

Storage Temperature : 5 to 40 °C

Relative Humidity: < 65%RH

Storage Time : 12 months max