

# YAGEO CORPORATION

**Lead-Free & RoHs Compliance!!**

## SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_  
CUSTOMER P/N : \_\_\_\_\_  
OUR DWG No : \_\_\_\_\_  
QUANTITY : \_\_\_\_\_ Pcs.    DATE :    2010/11/01  
ITEM :                    PBY201209T-800Y-N

SPECIFICATION ACCEPTED BY:	
COMPONENT ENGINEER	
ELECTRICAL ENGINEER	
MECHANICAL ENGINEER	
APPROVED	
REJECTED	

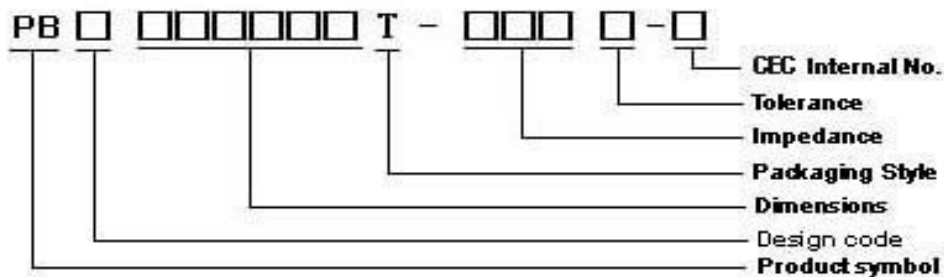
  

DRAWN BY Sally1	CHECKED BY Ling	APPROVED BY Slddo
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# PBY201209T Series Specification

**1 Scope:** This specification applies to MUTILAYER FERRITE CHIP BEADS

## 2 Part Numbering: Product Identification



## 3 Rating:

**Operating Temperature:**  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$

**Storage Temperature:**  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (after PCB)

$-5^{\circ}\text{C} \sim 40^{\circ}\text{C}$ , Humidity 40%~70% (before PCB)

## 4 Marking:

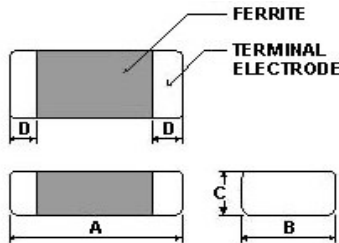
No Marking

## 5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20±2°C
Humidity	Ordinary Humidity(25 to 85% RH)	60 to 70 % RH

# PBY201209T Series Specification

## 6 Configuration and Dimensions:



Dimensions in mm

TYPE	PB201209
A	2.00±0.20
B	1.25±0.20
C	0.90±0.20
D	0.50±0.30

## 7 ELECTRICAL CHARACTERISTICS :

Part No.	Impedance (Ω)	Test Freq.	RDC (Ω)Max.	Rated Current (mA)Max.
PBY201209T-050□-N	5	100 MHZ,200 mV	0.01	6000
PBY201209T-070□-N	7	100 MHZ,200 mV	0.01	6000
PBY201209T-100□-N	10	100 MHZ,200 mV	0.01	6000
PBY201209T-110□-N	11	100 MHZ,200 mV	0.01	6000
PBY201209T-130□-N	13	100 MHZ,200 mV	0.02	5000
PBY201209T-150□-N	15	100 MHZ,200 mV	0.02	5000
PBY201209T-170□-N	17	100 MHZ,200 mV	0.02	5000
PBY201209T-190□-N	19	100 MHZ,200 mV	0.02	4000
PBY201209T-220□-N	22	100 MHZ,200 mV	0.02	4000
PBY201209T-260□-N	26	100 MHZ,200 mV	0.02	4000
PBY201209T-280□-N	28	100 MHZ,200 mV	0.02	4000
PBY201209T-300□-N	30	100 MHZ,200 mV	0.015	4000
PBY201209T-310□-N	31	100 MHZ,200 mV	0.02	4000
PBY201209T-320□-N	32	100 MHZ,200 mV	0.02	4000
PBY201209T-330□-N	33	100 MHZ,200 mV	0.02	4000
PBY201209T-390□-N	39	100 MHZ,200 mV	0.02	3000
PBY201209T-400□-N	40	100 MHZ,200 mV	0.02	3000
PBY201209T-420□-N	42	100 MHZ,200 mV	0.025	3000
PBY201209T-500□-N	50	100 MHZ,200 mV	0.025	3000
PBY201209T-600□-N	60	100 MHZ,200 mV	0.03	3000
PBY201209T-680□-N	68	100 MHZ,200 mV	0.04	3000
PBY201209T-700□-N	70	100 MHZ,200 mV	0.04	3000
PBY201209T-750□-N	75	100 MHZ,200 mV	0.04	3000
PBY201209T-800□-N	80	100 MHZ,200 mV	0.04	3000
PBY201209T-900□-N	90	100 MHZ,200 mV	0.04	3000

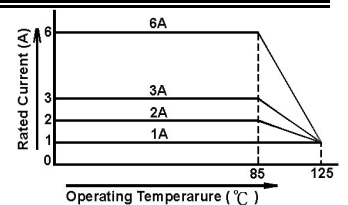
NOTE: □-tolerance Y=±25% / T=±30% / 050Y=5±2Ω

1. Operating temperature range – 5 5 °C ~ 1 2 5 °C

2. Rate Current : Applied the current to coils, the temperature rise shall not be more than 30°C

3. As for PB/UPB type. Rated Current is derated as left figure depending on the operating temperature.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



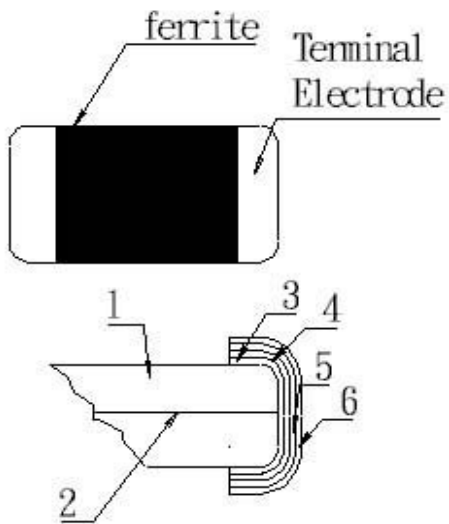
# PBY201209T Series Specification

Part No.	Impedance ( $\Omega$ )	Test Freq.	RDC ( $\Omega$ )Max.	Rated Current (mA)Max.
PBY201209T-101□-N	100	100 MHz,200 mV	0.04	3000
PBY201209T-121□-N	120	100 MHz,200 mV	0.04	3000
PBY201209T-131□-N	130	100 MHz,200 mV	0.05	2500
PBY201209T-151□-N	150	100 MHz,200 mV	0.05	2500
PBY201209T-181□-N	180	100 MHz,200 mV	0.05	2500
PBY201209T-201□-N	200	100 MHz,200 mV	0.05	2500
PBY201209T-221□-N	220	100 MHz,200 mV	0.08	2000
PBY201209T-241□-N	240	100 MHz,200 mV	0.08	2000
PBY201209T-251□-N	250	100 MHz,200 mV	0.08	2000
PBY201209T-301□-N	300	100 MHz,200 mV	0.08	2000
PBY201209T-331□-N	330	100 MHz,200 mV	0.08	2000
PBY201209T-391□-N	390	100 MHz,200 mV	0.1	2000
PBY201209T-401□-N	400	100 MHz,200 mV	0.1	2000
PBY201209T-451□-N	450	100 MHz,200 mV	0.1	2000
PBY201209T-471□-N	470	100 MHz,200 mV	0.1	2000
PBY201209T-501□-N	500	100 MHz,200 mV	0.1	2000
PBY201209T-601□-N	600	100 MHz,200 mV	0.1	2000
PBY201209T-751□-N	750	100 MHz,200 mV	0.12	1500
PBY201209T-801□-N	800	100 MHz,200 mV	0.12	1500
PBY201209T-102□-N	1000	100 MHz,200 mV	0.12	1500
PBY201209T-152□-N	1500	100 MHz,200 mV	0.3	1000

# PBY201209T Series Specification

## 8 PBY201209T Series

### 8.1 Construction:



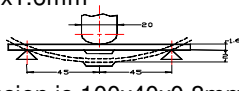
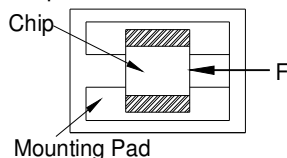
### 8.2 Material List:

NO	PART	MATERIAL
1	Ferrite Substance	NiO-CuO-ZnO-Ferrite
2	Silver electrode	Ag
3	Silver electrode	Ag
4	Cu plating	Cu
5	Ni plating	Ni
6	Sn plating	Sn

# PBY201209T Series Specification

## 9 Reliability Of Ferrite Multilayer Chip Bead

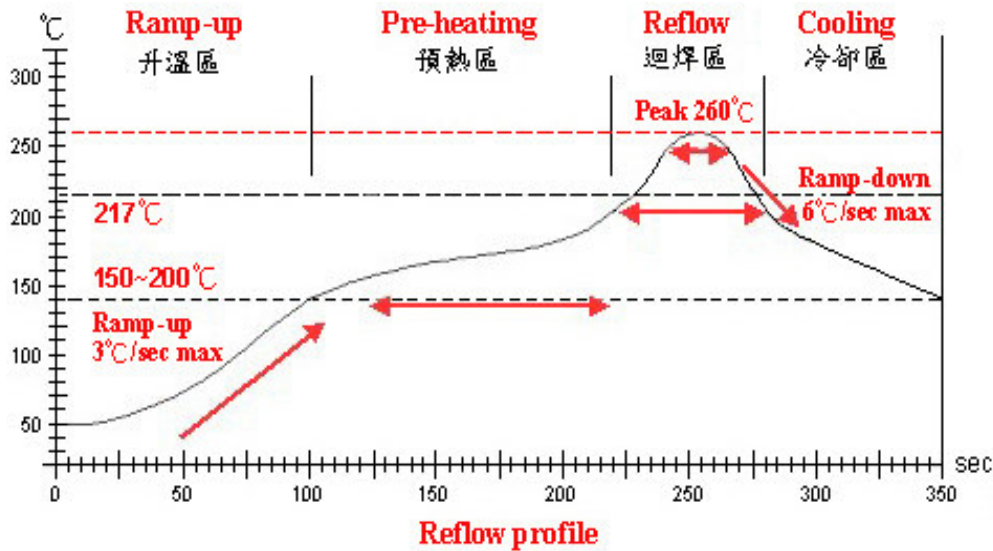
### 1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec *For 100505, substrate dimension is 100x40x0.8mm 
1-1-2	Vibration		Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage More than 75% of the terminal electrode should be covered with solder. Impedance : within $\pm 30\%$ of initial value	Pre-heating: 150°C, 1min Solder Composition: Sn/Pb = 63/37 Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260 $\pm$ 5°C Immersion Time: 10 $\pm$ 1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Pb = 63/37 Solder Temperature: 220 $\pm$ 5°C Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245 $\pm$ 5°C (Pb-Free) Immersion Time: 4 $\pm$ 1sec
1-1-5	Terminal Strength Test	No split termination 	Test device shall be soldered on the substrate, then apply a force in the direction of the arrow. Force : 5N Keeping Time: 10 $\pm$ 1sec

### 1-2.Environmental Performance

No	Item	Specification	Test Method															
1-2-1	Temperature Cycle	Appearance: No damage Impedance: within $\pm 30\%$ of initial value	One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25<math>\pm</math>2</td> <td>3</td> </tr> <tr> <td>3</td> <td>125<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25<math>\pm</math>2</td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-55 $\pm$ 3	30	2	25 $\pm$ 2	3	3	125 $\pm$ 3	30	4	25 $\pm$ 2	3
Step	Temperature (°C)	Time (min)																
1	-55 $\pm$ 3	30																
2	25 $\pm$ 2	3																
3	125 $\pm$ 3	30																
4	25 $\pm$ 2	3																
1-2-2	Humidity Resistance		Temperature: 40 $\pm$ 2°C Relative Humidity: 90 ~ 95% / Time: 1000hrs Measured after exposure in the room condition for 24hrs															
1-2-3	High Temperature Resistance		Temperature: 125 $\pm$ 3°C / Relative Humidity: 0% Applied Current: Rated Current /Time: 1000hrs Measured after exposure in the room condition for 24hrs															
1-2-4	Low Temperature Resistance		Temperature: -55 $\pm$ 3°C Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs															

# PBY201209T Series Specification



Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T. ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp. ~ 150°C
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120sec	20 ~ 35 sec	—

NOTE :

1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

# PBY201209T Series Specification

## 10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

### DESCRIPTION: PBY201209T-800Y-N

MEAS. Item	Z ( $\Omega$ )	RDC ( $\Omega$ )	A m/m	B m/m	C m/m	D m/m					
Spec	Customer	80 $\pm$ 25%									
	Suggest		0.04+0	2.0 $\pm$ 0.2	1.25 $\pm$ 0.0.2	0.9 $\pm$ 0.2	0.5 $\pm$ 0.3				
Test Freq.	200mV 100MHz										
1	76	0.023	2.01	1.28	0.91	0.52					
2	84	0.023	2.02	1.26	0.93	0.54					
3	78	0.024	2.04	1.25	0.92	0.53					
4	74	0.022	2.04	1.27	0.91	0.55					
5	82	0.022	2.05	1.28	0.95	0.56					
6	72	0.023	2.03	1.25	0.93	0.54					
7	71	0.025	2.04	1.27	0.93	0.52					
8	76	0.024	2.03	1.31	0.95	0.53					
9	76	0.025	2.05	1.26	0.91	0.52					
10	82	0.023	2.04	1.28	0.92	0.54					
11											
12											
13											
14											
15											
$\bar{X}$	77.1	0.0234	2.035	1.271	0.926	0.535					
R	13	0.003	0.04	0.06	0.04	0.04					
CUSTOMER											
SAMPLE											

### TEST INSTRUMENT:

HP4291A RF IMPEDANCE / MATERIAL ANALYZER FOR Z  
CHEN HWA 502BC / HP4338B FOR RDC

### APPEARANCE AND DIMENSIONS :

SPEC : MEET ITEM 6.

TEST METHOD : VISUAL INSPECTION AND MEASURED WITH SILDE CALIPERS.

### TESTING CONDITIONS :

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature (15 to 35°C)	20 $\pm$ 2 °C
Humidity	Ordinary Humidity (25 to 85 %RH)	60 to 70 %RH

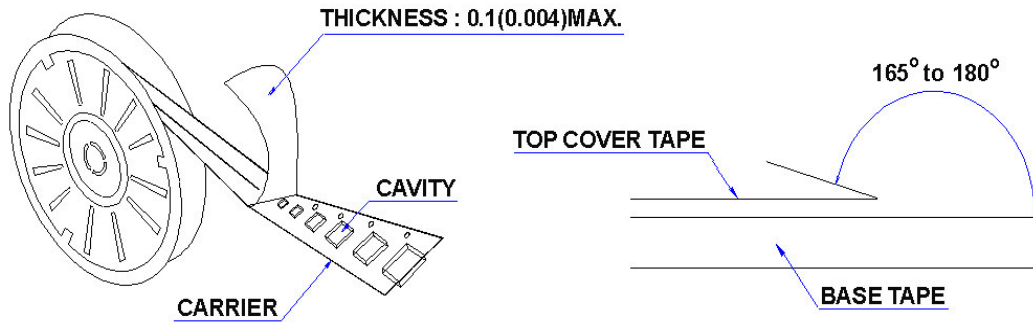


# PBY201209T Series Specification

## 11 PACKAGING

### 11.1 Packaging -Cover tape

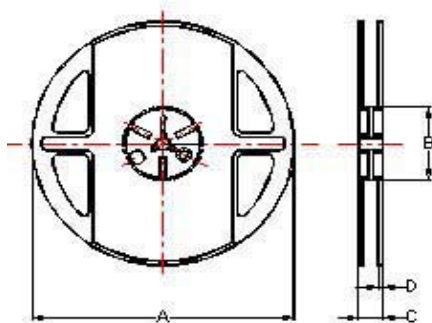
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



### 11.2 Packaging Quantity

TYPE	BULK	CHIP / REEL
PB100505	✓	10000
PB160808	✓	4000
PB201209	✓	4000
PB321611	✓	3000
PB321616	✓	2000
PB322513	✓	2500
PB451616	✓	2000
PB453215	✓	1000

### 11.3 Reel Dimensions



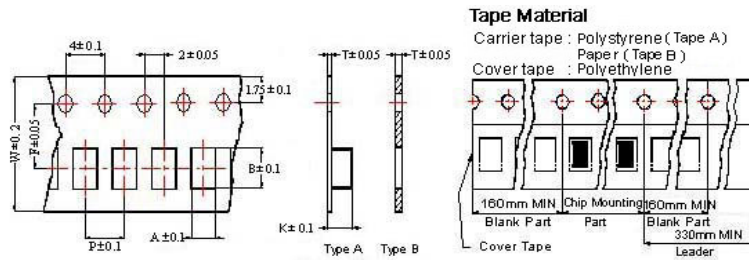
Dimensions in mm

TYPE	A	B	C	D
PB100505	178	60	10	2
PB160808	178	60	10	2
PB201209	178	60	10	2
PB321611	178	60	10	2
PB321616	178	60	10	2
PB322513	178	60	10	2
PB451616	178	60	14	2
PB453215	178	60	14	2

# PBY201209T Series Specification

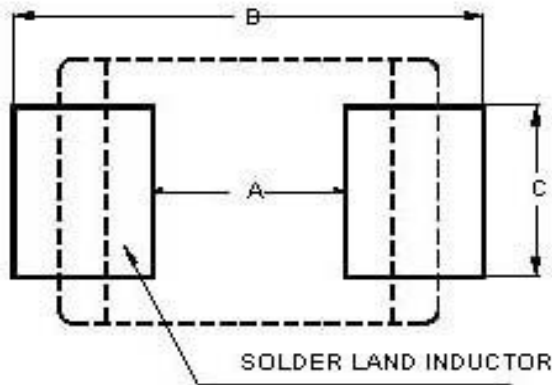
## 11 PACKAGING

### 11.4 Tape Dimensions in mm



TYPE	A	B	T	W	P	F	K	Tape Typ.
PB100505	0.65	1.15	0.60	8	2	3.5		B
PB160808	1.05	1.85	0.95	8	4	3.5		B
PB201209	1.50	2.30	0.97	8	4	3.5		B
PB321611	1.88	3.50	0.22	8	4	3.5	1.27	A
PB322513	2.77	3.42	0.22	8	4	3.5	1.55	A
PB451616	1.93	4.95	0.24	12	4	5.5	1.93	A
PB453215	3.66	4.95	0.24	12	8	5.5	1.85	A

## 12 Recommended Pattern



Dimensions in mm

TYPE	A	B	C
PB100505	0.4	1.2 ~ 1.4	0.5
PB160808	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8
PB201209	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
PB321611	2	4.2 ~ 5.2	1.2
PB322513	2	5.5 ~ 6.5	1.8
PB451616	3	5.5 ~ 6.5	1.2
PB453215	3	5.5 ~ 6.5	2.4

## 13 Note:

1. Please make sure that your product is has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)

# PBY201209T Series Specification

## 14 Curve:

