

YAGEO CORPORATION

Lead-Free & RoHs Compliance!!

SPECIFICATION FOR APPROVAL

CUSTOMER :

CUSTOMER P/N :

OUR DWG No :

QUANTITY : Pcs. DATE : 2010/11/01

ITEM : PBY201209T-301Y-N

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

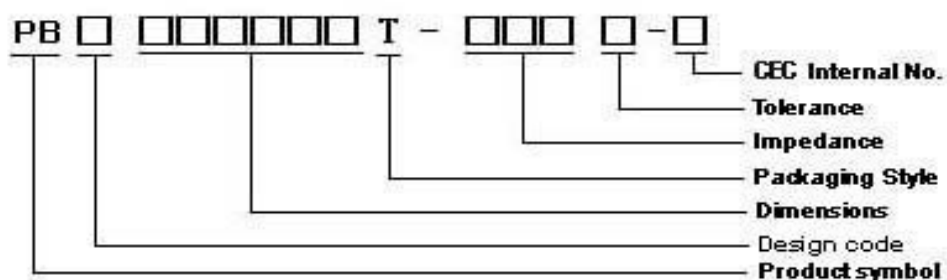
DRAWN BY Sally1	CHECKED BY Ling	APPROVED BY Slddo
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YG10B00072

PBY201209T Series Specification

1 Scope: This specification applies to MUTITLAYER 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:

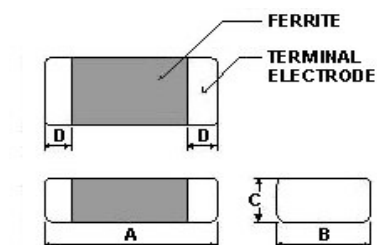
No Marking

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

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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

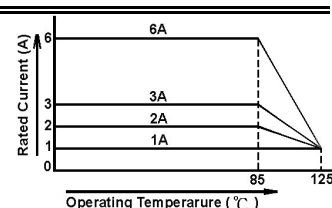
NOTE: □-tolerance Y=±25% / T=±30% / 050Y=5±2 Ω

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)



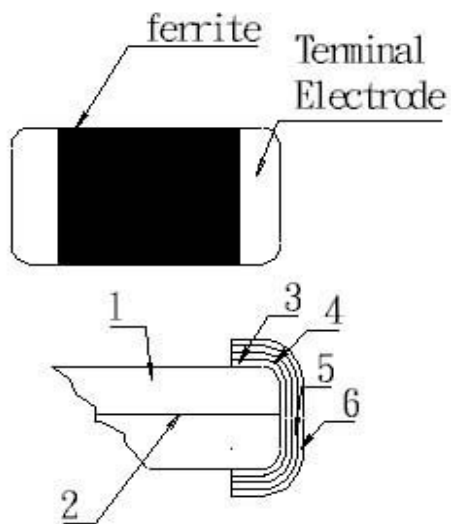
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Part No.	Impedance (Ω)	Test Freq.	RDC (Ω)Max.	Rated Current (mA)Max.
PBY201209T-101□-N	100	100 MHz,200 mV	0.04	3000
PBY201209T-121□-N	120	100 MHZ,200 mV	0.04	3000
PBY201209T-131□-N	130	100 MHZ,200 mV	0.05	2500
PBY201209T-151□-N	150	100 MHZ,200 mV	0.05	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

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8.1 Construction:



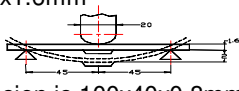
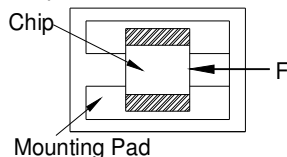
8.2 Material List:

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

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9 Reliability Of Ferrite Multilayer Chip Bead

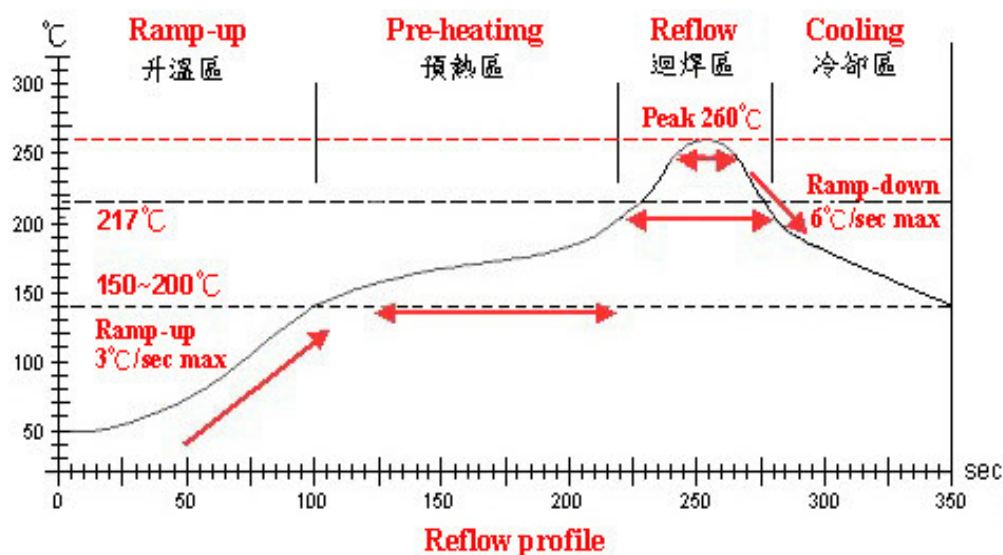
1-1.Mechanical Performance

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  Chip Mounting Pad	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

1-2.Environmental Performance					
No	Item	Specification	Test Method		
1-2-1	Temperature Cycle	Appearance: No damage Impedance: within±30% of initial value	One cycle:		
			Step	Temperature (℃)	Time (min)
			1	-55±3	30
			2	25±2	3
			3	125±3	30
			4	25±2	3
			Total: 100cycles		
Measured after exposure in the room condition for 24hrs					
1-2-2	Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% / Time: 1000hrs Measured after exposure in the room condition for 24hrs		
1-2-3	High Temperature Resistance		Temperature: 125±3℃ / 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±3℃ Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs		

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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 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

NOTE :

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

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10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

DESCRIPTION: PBY201209T-301Y-N

MEAS. Item	Z (Ω)	RDC (Ω)	A m/m	B m/m	C m/m	D m/m					
Spec	Customer	300 $\pm$ 25%									
	Suggest		0.08+0	2.0 $\pm$ 0.2	1.25 $\pm$ 0.2	0.9 $\pm$ 0.2	0.5 $\pm$ 0.3				
Test Freq.	200mV 100MHz										
1	300	0.056	2.08	1.26	0.88	0.53					
2	263	0.051	2.05	1.27	0.95	0.52					
3	268	0.055	2.01	1.23	0.96	0.53					
4	338	0.056	2.01	1.27	0.94	0.51					
5	289	0.053	2.06	1.24	0.92	0.52					
6	266	0.054	2.04	1.26	0.91	0.51					
7	285	0.052	2.04	1.27	0.93	0.51					
8	316	0.054	2.07	1.27	0.89	0.52					
9	311	0.055	2.01	1.26	0.94	0.51					
10	278	0.051	2.03	1.26	0.93	0.53					
11											
12											
13											
14											
15											
$\bar{X}$	291.4	0.0537	2.04	1.259	0.925	0.519					
R	75	0.005	0.07	0.04	0.08	0.02					
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 $^{\circ}$ C)	20 $\pm$ 2 $^{\circ}$ C
Humidity	Ordinary Humidity (25 to 85 %RH)	60 to 70 %RH

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

- 13** **Note:**

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14 Curve:

