Spec.No.	S1051910LN01	P	1/	/7	

## 1.Scope

This specification applies to Hybrid Choke Coil (PLY17BS series).

## 2.Part Numbering

(Ex.)

P LY1 7BS9 3 20 R 6Amount of the control of the

## 3.Rating

Item	Specification
Rated Voltage	250 V(AC)
Withstand Voltage (between coils)	1600 V(AC)(1minute) or 2000V(AC)(2seconds)
Insulation Resistance(between coils)	10 MΩ min.
Winding Temperature rise	60 °C max. (with Rated Current)
Operating Temperature Range	
(Ambient Temperature Range +	-25 to +60 °C
Winding Temperature Rise)	
Storage Temperature Range	-25 to +85 °C
Safety Standard	

<sup>※</sup>Please use in the condition that operating temperature is 120°C max. on operating in the final assembled product.

<sup>\*</sup>Maximum allowable temperature at the surface of coil (ambient temperature + winding temperature rise ) is in accordance with each safety standard that final assembled product is applicable to.

			Commo		
Part Number	Rated Current (A)	Direct Current Resistance (mΩ MAX.)	Inductance L1,L2 (m H min.)	Inductance Difference  L1-L2  (m H max.)	Normal Mode Inductance Ln (µHmin.)
PLY17BS9320R6A2B	0.6	1300	9.3	0.20	350
PLY17BS9320R6B2B					460
PLY17BS7820R7A2B PLY17BS7820R7B2B	0.7	950	7.8	0.18	290 390
PLY17BS5620R8A2B	0.8	660	5.6	0.15	210
PLY17BS5620R8B2B					280
PLY17BS3721R0A2B	1.0	440	3.7	0.12	140
PLY17BS3721R0B2B	-	-		-	180
PLY17BS2921R2A2B	1.2	300	2.9	0.11	110
PLY17BS2921R2B2B		-			140
PLY17BS1721R5A2B	1.5	200	1.7	0.087	67
PLY17BS1721R5B2B					88
PLY17BS1121R8A2B	1.8	140	1.1	0.071	44
PLY17BS1121R8B2B	1.0	110	1.1	0.07 1	58
PLY17BS9612R0A2B	2.0	110	0.96	0.064	36
PLY17BS9612R0B2B	2.0	110	0.90	0.004	47
PLY17BS4912R4A2B	2.4	80	0.49	0.045	18
PLY17BS4912R4B2B	2.4	00	0.49	0.045	24
PLY17BS1023R0A2B	2.0	70	1.0	0.064	36
PLY17BS1023R0B2B	3.0	73	1.0	0.004	47

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## 4. Appearance, Dimensions and Equivalent Circuit Diagram

See Fig.1

## 5. Marking

5-1.Product (Ex. PLY17BS9320R6A2B)  $\rightarrow$   $\swarrow$  9320R6Lot No.

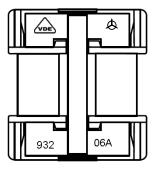
※ STAMP



- ① VDE mark
- ② Company Logo
- ③ Inductance
- 4 Rated Current
- ⑤ Lot No.

LOT NO. STAMP

## MANUFACTURE YEARS CABLE ADDRESS TABLE/EIAJ RC-1001A,2.3ITEM)

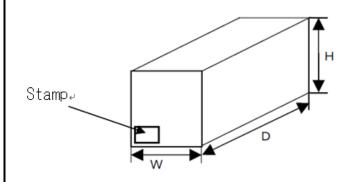


Year	Month	,	2	3		5	6	7	8	9	10	11	10
Teal		1	4	J	4	0	0		0	9	10	11	12
2017	2021	Α	В	С	D	Е	F	G	Н	J	K	L	M
2018	2022	N	Р	Q	R	S	Т	U	V	W	X	Y	Z
2019	2023	a	b	С	d	е	f	g	h	j	k	l	m
2020	2024	n	p	q	r	8	t	u	υ	ω	x	y	3

### 5-2. Packaging

Product Name	Lot No.	$\overline{}$
		٤
Amount	TOKYO PARTS INDUSTRIAL CO., LTD.	25 m
PCS	MADE IN OOOO	~\ 
100 mm		

## 6. Specification of Outer Case



	Outer	Case Dime (mm)	Quantity / Box	
	W	D	Н	(Pcs)
3	360	320	120	500

Above Outer Case size is typical. It depends on a quantity of an order.

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## 7.Reference test condition

<Unless otherwise specified> Temperature : 15 to 35 °C Humidity : 25 to 85%(RH) <In case of doubt>
Temperature : 20 ± 2 °C
Humidity : 60 to 70 %(RH)
Atmospheric Pressure : 86 to 106 kpa

For an AC Voltage, unless otherwise specified, frequency is 50 or 60 Hz, and value of AC Voltage is measured in

term of Root-mean-square value.

(After, the reference test condition is called room condition.)

## **8.Electrical Performance**

NO.	Item	Specification		Test Method	
8-1	Common Mode Inductance (L1,L2  L1-L2 )	Inductance shall meet item 3.	Measuring terminal :T Measuring Instrument Frequency : 1kHz Mode : SERIES DC BIAS : OFF	, ,	•
			Inductance (Typical)	Range	Measuring Current
			less than 1mH.	1000 μH	10 mA
			more than 1mH to 10mHmax.	10 mH	1 mA
			(Caution)		
			Range shall be fixed v	when inductance is	measured.
			When using equivaler	nt to 4284A,	
			Measuring Current sh	all be adjusted on the	ne same value.
	Normal Mode		Measuring terminal:	T1-T4(Ln) (Connect	t terminal T2 to T3)
	Inductance (Ln)		All other than the mea	surement pin is me	asured under the
			same conditions as de	escribed above.	
8-2	Withstand Voltage	Products shall be no failure.	Measuring terminal : Test Voltage :	Γ1(T2)-T3(T4) (betw	veen coils)
	(line to line)		1600V(AC	)(1minute) or 2000\	/(AC)(2seconds)
8-3	Insulation	Insulation Resistance shall meet	Measuring terminal:		veen coils)
	Resistance	item 3.	Test Voltage : 500V(D	DC)	
			Time : 1 minute		
8-4	Direct Current Resistance	Direct Current Resistance shall meet item 3.	Measuring terminal:	Г1-Т2, Т3-Т4	
8-5	Temperature rise	Surface of coil : 60°C max.	Applying Current : Ra	ted Current	·

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## 9.Mechanical Performance

NO.	Item	Specification	Test Method
9-1	Appearance and Dimensions	There shall not be a conspicuous dirt, crack and so on. Dimensions shall be as shown in Fig.1.	Visual Inspection Measured with slide calipers
9-2	Terminal Strength	The Terminal shall not be damaged. (cutting of lead wire, missing of terminal etc.)	The body of product shall be fixed, and the force of 9.8N shall be applied gradually and sustained for 1 to 5 seconds to each terminal in axial direction of the terminal.
9-3	Solderability	Along the circumference of terminal shall be covered with new solder at least 90%.	Flux: Ethanol solution of rosin,25(wt)% Pre-heat: 150°C ± 10°C, 60s to 90s Solder: Sn-3.0Ag-0.5Cu Solder Temperature: 240 ± 3 °C Immersion Time: 3 ± 1 s Immersion Depth: 3.6 ± 0.8 mm from the root of terminal
9-4	Resistance to soldering heat	Products shall meet Table 1 . Table 1  Appearance No damage Inductance Change within ± 10%	Flux: Ethanol solution of rosin,25(wt)% Pre-heat: 150°C ± 10°C, 60s to 90s Solder: Sn-3.0Ag-0.5Cu Solder Temperature: 270 ± 5 °C Immersion Time: 10 ± 1 s Immersion Depth: 3.6 ± 0.8 mm from the root of terminal Then measured after exposure in the room condition for 4 to 24 hours.
9-5	Vibration	Withstand Products shall be Noltage no failure. Insulation Resistance 10 MΩ min.	Vibration Frequency : 10 to 55 to Hz / for 1 minute Amplitude : 1.5 mm Time and direction : A period of 2 hours in each of 3 mutually perpendicular directions. (Total 6 hours)

## **10.Environmental Performance**

No.	Item	Specification	Test Method
10-1	Temperature	Products shall meet Table 1.	1 cycle :
	Cycle		step 1 :-25 °C(+0°C, -3°C) / 30minutes
			step 2 : Ordinary temp. / 3 minutes max.
			step 3: +85 °C(+3°C, -0°C) / 30minutes
			step 4 : Ordinary temp. / 3 minutes max.
			Total of 10 cycles
			Then measured after exposure in the room condition for 4 to
			24 hours.
10-2	Humidity		Temperature : 40 ± 2 °C
			Humidity: 90 to 95 %(RH)
			Time: 1000 h (+24h,-0h)
			Then measured after exposure in the room condition for 4 to
			24 hours.
10-3	Cold Resistance		Temperature : -40 ± 2 °C
			Time: 1000 h (+24h,-0h)
			Then measured after exposure in the room condition for 4 to
			24 hours.
10-4	Heat Life		Temperature: 85 ± 2 °C
			Time: 1000 h (+24h,-0h)
			Test Voltage : 500 V(AC)
			Then measured after exposure in the room condition for 4 to
			24 hours.

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#### 11-1.Rated Current

Operating Current should not exceed the rated value.

Even if operating current is under the rated value, adequate ventilation is required to avoid excessive heat generated within the product (choke coil) and from surrounding heat sources.

If exceeding these conditions, excessive heat may cause fumes or permanent damage to the product (choke coil). Please ensure that the product (choke coil) is evaluated and confirmed against the specification when it is mounted in your final assembled product.

Winding temperature should be less than 120°C.

Maximum allowable temperature at the surface of coil (ambient temperature + winding temperature rise) is in accordance with each safety standard that final assembled products applicable to.

When the temperature at winding exceeds maximum allowable temperature of safety standard, the rated current should be derated.

#### 11-2.Surge current

Surge current should not exceed 10 times rated current within 1/4 cycle of 50/60Hz commercial power line. Excessive surge current or excessively repeated surge current (with interval between surge: less than 10 seconds) may cause fumes or permanent damage to the product (choke coil).

#### 11-3.Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- (1)Aircraft equipment (2)Aerospace equipment (3)Undersea equipment
- (4)Power plant control equipment (5)Medical equipment
- (6)Transportation equipment (vehicles, trains, ships, etc.)
- (7)Traffic signal equipment (8)Disaster prevention / crime prevention equipment
- (9) Data-processing equipment
- (10)Application of similar complexity and/or reliability requirements to the applications listed in the above

#### 11-4.Fail-safe

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

#### 12.Notice

#### 12-1. Magnetic flux leakage

Choke Coils generate small amounts magnetic flux leakage that may adversely affect equipment operation according to components arrangement.

Testing should be completed by your final assembly product to ensure equipment performance is not effected.

#### 12-2. Coil humming noise

Magnetic flux generated between the choke coil windings creates repulsive power between the coil windings. This repulsive power causes the coil winding to vibrate and create a humming noise.

The amount of hum produced by the coil windings is proportionate to the amount of harmonic distortion generated by the operating current.

This does not influence the electrical performance of the coils, but it should be considered and tested in actual circuit application.

## 12-3. Soldering conditions

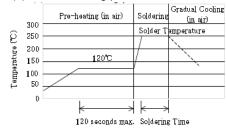
### (1)Flux, Solder

· Rosin-based flux should be used.

Do not use strong acidic flux with halide content exceeding 0.2(wt)% (chlorine conversion value).

• Use Sn-3.0Ag-0.5Cu solder.

#### (2) Flow soldering profile.



#### < Limited s

## oldering profile >

٠,	ideinig preine			
	Solder Temperature	Soldering Time	Cycle of flow	
	265°C ± 3°C	5 s	2 cycles	

#### <Standard soldering profile >

Solder Temperature	Soldering Time				
250°C ± 2 °C	4~6s				

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(3)Solder iron

Tip temperature : 350°C max.
Solder Time : 3(+1,-0)s
Times : 2 times max.

#### 12-4.Cleaning

Avoid cleaning product due to non-waterproof construction.

#### 12-5. Storage and Handling conditions

(1)Storage period

Use the products within 12 months after delivered. Solderability should be checked if this period is exceeded.

#### (2)Storage condition

Storage temperature : -10 to +40°C
 Relative humidity : 30 to 70%

Products should be storaged without sudden changes in temperature and humidity.

Don't keep products in corrosive gases such as sulfur, chlorine gas or acid, or it may cause oxidation of lead terminals resulting in poor solderability or corrosion of windings.

- · Products should be storaged on the palette for prevention of the influence from humidity, dust and so on.
- · Products should be storaged in the warehouse without heat shock, vibration, direct sunlight and so on.

#### (3) Handling conditions

Care should be taken when transporting or handling products to avoid excessive vibration or mechanical shock.

#### 12-6.Other

Please do not proceed productsd secondary, like processing of lead or pouring a resin

#### 13. Country of origin, Production Plant

MADE IN CHINA

[SHANTOU SPECIAL ECONOMIC ZONE TOKYO PARTS CO.,LTD:6/F, 8TH Building, Longhu Processing Disteict, SHANTOU SEZ, Guangdong, China.]

## 14. 🛕 Note

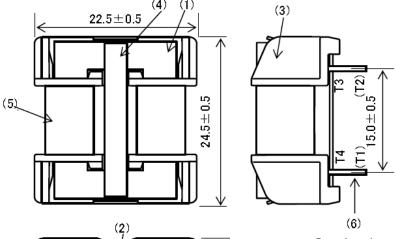
- 14-1.Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- 14-2. You are requested not to use our product deviating from the agreed specifications.
- 14-3.Please return one duplicate of this product specification to us with your signature to acknowledge your receipt. If the duplicate is not returned by two month after issued date, the product specification will be deemed to have been received by you.
- 14-4.We consider it not appropriate to include any terms and conditions with regard to the business transaction in the product specifications, drawings or other technical documents. Therefore, if your technical documents as above include such terms and conditions such as warranty clause, product liability clause, or intellectual property infringement liability clause, they will be deemed to be invalid.

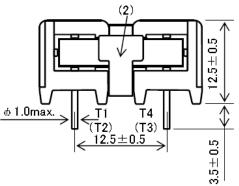
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Fig. 1

# **PLY17B Type Appearance and Dimensions**

Method to unite Core and Bobbin : Varnish



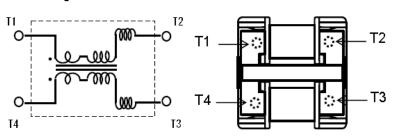


Spacing through air : 3.2mm
Spacing over surface : 3.2mm
\*) In case of PLY17BS1023R0□2B,
Spacing through air : 2.8mm
Spacing over surface : 2.8mm

Bobbin thickness: 0.46 mm min

(in mm)

## Equivalent Circuit Diagram



## ■Unit Weight (Typical value)

Type A:11.2g Type B:11.9g

## **Material**

NO.	Item	Material
(1)	Core	Ferrite
(2)	Spring	SUS301
(3)	Bobbin	Phenolic(PF) :PM8315 or PM9820、UL94V-0
(4)	Separator	Type A: Phenolic(PF): PM8315 or PM9820、UL94V-0
		Type B : Polyamide 6(PA6) :MC100LK31、UL94V-0
(5)	Coil	Polyurethane Enameled Copper Wire(2UEW)
(6)	Terminal	Solder coated CP wire (Sn-5Cu)