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1.Scope

This specification applies to Hybrid Choke Coil (PLY10AS series).

2.Part Numbering

(Ex.

3.Rating

Item	Specification		
Rated Voltage	300V(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	-25 to +60 °C		
(Ambient Temperature Range + winding Temperature Rise)	-23 to +00 0		
Storage Temperature Range	-25 to +85 °C		
Safety Standard			

[%]Please use in the condition that operating temperature is 120°C max. on operating in the final assembled product.

Standard type

	Rated	Direct	Commo	n Mode	Normal
Part Number	Current	Current Resistance	Inductance L1,L2	Inductance Difference L1-L2	Mode Inductance Ln
	(A)	(Ω max.)	(m H min.)	(m H max.)	(μH min.)
PLY10AS1430R5R2B	0.5	2.50	14.0	0.22	1000
PLY10AS9920R6R2B	0.6	1.70	9.9	0.19	690
PLY10AS8720R7R2B	0.7	1.20	8.7	0.17	530
PLY10AS6220R8R2B	0.8	1.00	6.2	0.15	400
PLY10AS4321R0R2B	1.0	0.70	4.3	0.14	300
PLY10AS2821R2R2B	1.2	0.50	2.8	0.11	190
PLY10AS2121R4R2B	1.4	0.37	2.1	0.092	150
PLY10AS1521R6R2B	1.6	0.30	1.5	0.063	110
PLY10AS1121R8R2B	1.8	0.25	1.1	0.064	90
PLY10AS9012R0R2B	2.0	0.19	0.9	0.059	65

^{*}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.

Sectional Winding type

	Rated	Direct	Commo	n Mode	Normal
Part Number	Current	Current Resistance	Inductance L1,L2	Inductance Difference L1-L2	Mode Inductance Ln
	(A)	(Ω max.)	(m H min.)	(m H max.)	(μH min.)
PLY10AS1130R5D2B	0.5	2.70	11.0	0.20	840
PLY10AS9720R6D2B	0.6	2.00	9.7	0.21	670
PLY10AS8720R7D2B	0.7	1.10	8.7	0.21	500
PLY10AS4420R8D2B	0.8	0.90	4.4	0.13	320
PLY10AS3521R0D2B	1.0	0.70	3.5	0.12	240
PLY10AS2321R2D2B	1.2	0.50	2.3	0.099	160
PLY10AS1421R4D2B	1.4	0.43	1.4	0.069	110
PLY10AS1121R7D2B	1.7	0.25	1.1	0.068	65
PLY10AS7012R0D2B	2.0	0.18	0.7	0.053	50

4. Appearance, Dimensions and Equivalent Circuit Diagram

See Fig.1 and Fig.2

5. Marking

5-1.Product (Ex. PLY10AS1430R5R2B) \rightarrow \bigcirc 0R5Lot No.

***** STAMP



- ${\color{red} \textcircled{1}} \; \text{VDE mark}$
- ② Company Logo
- ③ Inductance
- 4 Rated Current
- ⑤ Lot No

LOT NO. STAMP

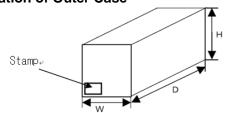
MANUFACTURE YEARS CABLE ADDRESS TABLE/ EIAJ RC-1001A,2.3 ITEM

			Ĺ	ļ			A						
Year	Month	1	2	3	4	5	6	7	8	9	10	11	12
2017	2021	Α	В	С	D	Е	F	G	Н	J	K	L	M
2018	2022	N	P	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	s	t	u	υ	ω	x	y	3

5-2. Packaging

Product Name	Lot No.	<u> </u>			
		E			
Amount	TOKYO PARTS INDUSTRIAL CO., LTD.	25			
PCS	MADE IN OOOO				
100 mm					

6. Specification of Outer Case



Outer Ca	Quantity /		
W	D	Ι	Box (Pcs)
385	310	218	1000

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

<u>Spec.No.</u> <u>S0991910HN01</u> <u>TYPE PLY10A</u> P 3/8

7.Reference test condition

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 :7 Measuring Instrumen Frequency : 1kHz Mode : SERIES DC BIAS : OFF		
			Inductance (Typical)	Range	Measuring Current
			1mH max.	1000 μH	10 mA
			more than 1mH to 10mHmax.	10 mH	1 mA
			more than 10mH	100 mH	0.1 mA
	Normal Mode		(Caution) Range shall be fixed When using equivale Measuring Current sh Measuring terminal:	nt to 4284A , nall be adjusted on tl T1-T4(Ln) (Connect	he same value. t terminal T2 to T3)
	Inductance (Ln)		The other test method		
8-2	Withstand Voltage (line to line)	Products shall be no failure.	Measuring terminal : T1(T2)-T3(T4) (between coils) Test Voltage : 1600V(AC)(1minute) or 2000V(AC)(2seconds)		
8-3	Insulation Resistance	Insulation Resistance shall meet item 3.			
8-4	Direct Current Resistance	Direct Current Resistance shall meet item 3.	Measuring terminal:	T1-T2, T3-T4	
8-5	Temperature rise	Surface of coil : 60°C max.	Applying Current : Ra	ited Current	

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 and Fig.2	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

						
NO.	Item	Specification		Test Method		
9-4	Resistance to soldering heat	Products shall r Table 1	meet Table 1	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		
		Appearance	No damage	Immersion Time: 10 ± 1 s		
		Inductance Change	within ± 10%	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	Insulation Resistance	10 MΩ min.	Vibration Frequency : 10 to 55 to Hz / for 1 minute Amplitude : 1.5 mm		
		Withstand Voltage	Shall meet item 8-2.	Time and direction: A period of 2 hours in each of 3 mutually perpendicular directions. (Total 6 hours)		
		Insulation Resistance	Shall meet item 8-2.			

TYPE PLY10A

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10.Environmental Performance

S0991910HN01

Spec.No.

No.	Item	Specification	Test Method
10-1	Temperature Cycle	Products shall meet Table 1.	1 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	Products shall meet Table 1.	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.

11. 🛕 Caution

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).

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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

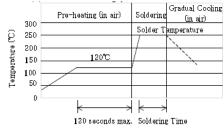
(1)Flux, Solder

· 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 >

acing prome		
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

(3)Solder iron

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

Spec.No. S0991910HN01 | TYPE PLY10A | P 6/8

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. 🛕 I

- 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.

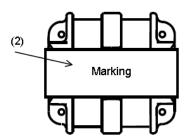
<u>Spec.No. S0991910HN01</u> TYPE PLY10A P 7/8

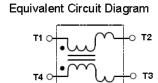
Fig. 1

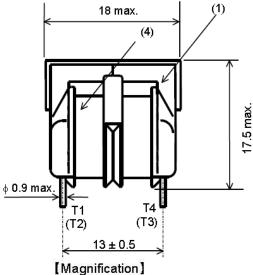
PLY10A Type Appearance and Dimensions

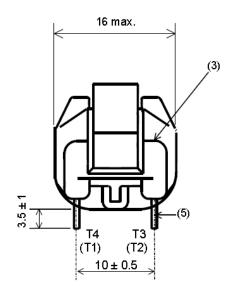
(Standard Type)

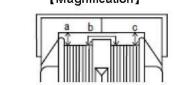
Method to unite Core and Bobbin : Vamish



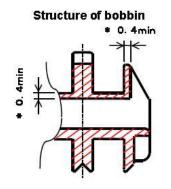








Spacing through air (a+c): 3.2 min. Spacing over surface (b): 3.2 min.

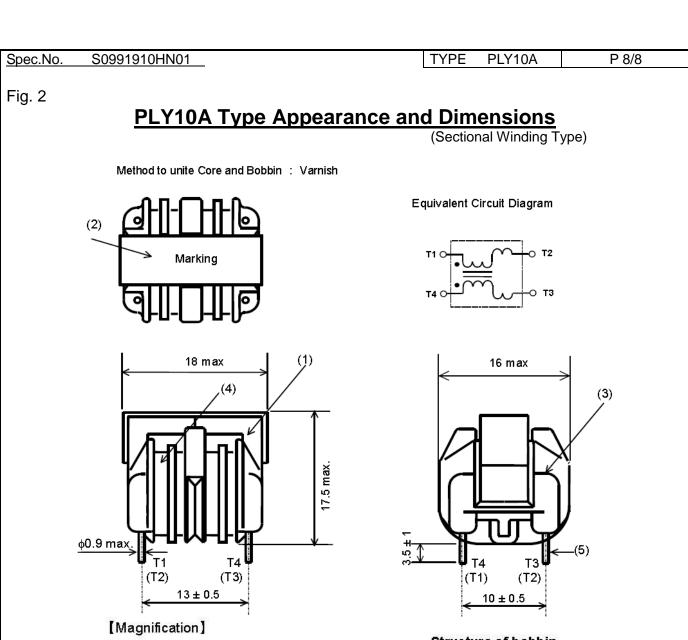


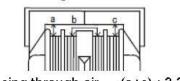
Bobbin thickness:0.4min. (*Minimum bobbin thickness)

■Unit Weight (Typical value) 9.9g <u>Material</u>

(in mm)

I	NO.	Item	Material
Ī	(1)	Core	Ferrite
I	(2)	Spring	SUS301
I	(3)	Bobbin	Polyamide 6(PA6): MC100LK31, UL94V-0
	(4)	Coil	Polyurethane Enameled Copper Wire(2UEW)
	(5)	Terminal	Solder coated CP wire (Sn-5Cu)





Spacing through air (a+c): 3.2 min. Spacing over surface (b): 3.2 min.

Bobbin thickness:0.4min. (*Minimum bobbin thickness)

■ Unit Weight (Typical value) 9.9g

Material NO. Item Ferrite Core (1) (2) Spring SUS301 Polyamide 6(PA6): MC100LK31, UL94V-0 (3) Bobbin Polyurethane Enameled Copper Wire(2UEW) (4)Coil (5)**Terminal** Solder coated CP wire (Sn-5Cu)

)

(in mm)