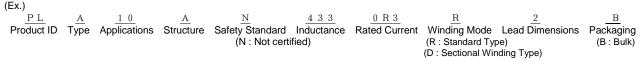
<u>Spec.No.</u> <u>S0941910AN01</u> P 1/9

# 1.Scope

# 2.Part Numbering



# 3.Rating

Item	Specification
Withstand Voltage (between coils)	2000 V(AC)(1minute) or 2400 V(AC)(1second)
Insulation Resistance(between coils : 500VDC)	100 MΩ min.
Winding Temperature rise	60 °C max. (with Rated Current)
Operating Temperature Range	-25 to +60 °C
Storage Temperature Range	-25 to +85 °C

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

#### Standard type

2	Rated		ted tage	Direct Current	Inductance	Inductance Difference
Part No.	Current	V 011	<u></u>	Resistance	(L1,L2)	L1-L2
	(A)	(Vac)	(Vdc)	(Ω max.)	(m H min.)	(m H max.)
PLA10AN4330R3R2B	0.3	300	100	4.0	43.0	0.43
PLA10AN3030R4R2B	0.4	300	100	2.7	30.0	0.36
PLA10AN2030R5R2B	0.5	300	100	1.8	20.0	0.29
PLA10AN1230R6R2B	0.6	300	100	1.2	12.0	0.22
PLA10AN1030R7R2B	0.7	300	100	0.86	10.0	0.20
PLA10AN7420R8R2B	0.8	300	500	0.64	7.4	0.17
PLA10AN5521R0R2B	1.0	300	500	0.46	5.5	0.14
PLA10AN3521R2R2B	1.2	300	500	0.32	3.5	0.11
PLA10AN3021R3R2B	1.3	300	500	0.26	3.0	0.10
PLA10AN2221R5R2B	1.5	300	500	0.22	2.2	0.09
PLA10AN1821R7R2B	1.7	300	500	0.18	1.8	0.08
PLA10AN1522R0R2B	2.0	300	500	0.15	1.5	0.07

#### Sectional Winding type

Part No.	Rated Current		ted age	Direct Current	Inductance (L1,L2)	Inductance Difference L1-L2
	(A)	(Vac)	(Vdc)	Resistance (Ω max.)	(m H min.)	(m H max.)
PLA10AN3630R3D2B	0.3	300	100	4.5	36.0	0.39
PLA10AN2230R4D2B	0.4	300	100	2.7	22.0	0.31
PLA10AN1330R5D2B	0.5	300	100	1.6	13.0	0.23
PLA10AN7720R7D2B	0.7	300	100	0.95	7.7	0.17
PLA10AN3621R0D2B	1.0	300	500	0.44	3.6	0.11
PLA10AN2021R3D2B	1.3	300	500	0.25	2.0	0.08
PLA10AN1821R5D2B	1.5	300	500	0.21	1.8	0.08
PLA10AN1321R7D2B	1.7	300	500	0.16	1.3	0.06
PLA10AN9012R0D2B	2.0	300	500	0.12	0.9	0.05

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.

<u>Spec.No.</u> <u>S0941910AN01</u> P 2/9

# 4. Appearance, Dimensions and Equivalent Circuit Diagram

See Fig.1 and Fig.2.

### 5. Marking

5-1.Product

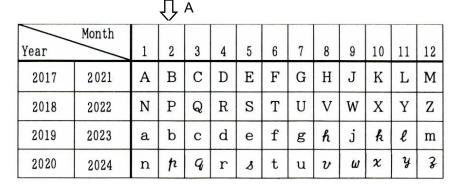
(Ex. PLA10AN4330R3R2B)  $\rightarrow$  4330R3 Lot No.

**\*\*** STAMP

433 <u>OR3</u> <u>A.</u> ① ③ ③

- 1 Inductance
- 2 Rated Current
- ③ Lot No

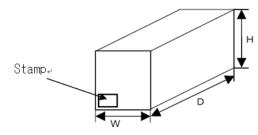
LOT NO. STAMP MANUFACTURE YEARS CABLE ADDRESS TABLE/ EIAJ RC-1001A,2.3 ITEM



5-2. Packaging

Product Name	Lot No.	1
		٤
Amount	TOKYO PARTS INDUSTRIAL CO., LTD.	25 mm
PCS	MADE IN OOOO	21
I	ı	
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.

#### 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.)

<u>Spec.No.</u> <u>S0941910AN01</u> <u>TYPE PLA10A</u> P 3/9

# 8.Electrical Performance

NO.	Item	Specification	Test Method			
8-1	Inductance L1,L2 Inductance Difference  L1-L2	Inductance shall meet item 3.	Measuring terminal :T1-T2(L1), T3-T4(L2) Measuring Instrument : 4284A or equivalent Frequency : 1kHz Mode : SERIES DC BIAS : OFF			
			Inductance (Typical)	1mH max	more than 1mH to 10mH max.	more than 10mH
			Range Measuring Current	1000 µH 10 mA	10 mH 1 mA	100 mH 0.1 mA
			When using ed	quivalent to 42	nductance is me 84A , adjusted on the :	
8-2	Direct Current Resistance	Direct Current Resistance shall meet item 3.	Measuring terr Ambient Temp			
8-3	Temperature rise	The surface of coil : 60°C max.	Applying Curre	ent : Rated Cu	rrent	
8-4	Coil humming noise	Coil humming noise is little audible.	Applying Curre AC Voltage : 5			
8-5	Withstand Voltage	Products shall be no failure.			T3/T4 (between minute) or 240	coils) 0V(AC)(1second)
8-6	Insulation Resistance	Insulation Resistance shall meet item 3.	Measuring terr Test Voltage : Time : 1 minute	500V(DC)	ГЗ/Т4 (between	coils)

# 9.Mechanical Performance

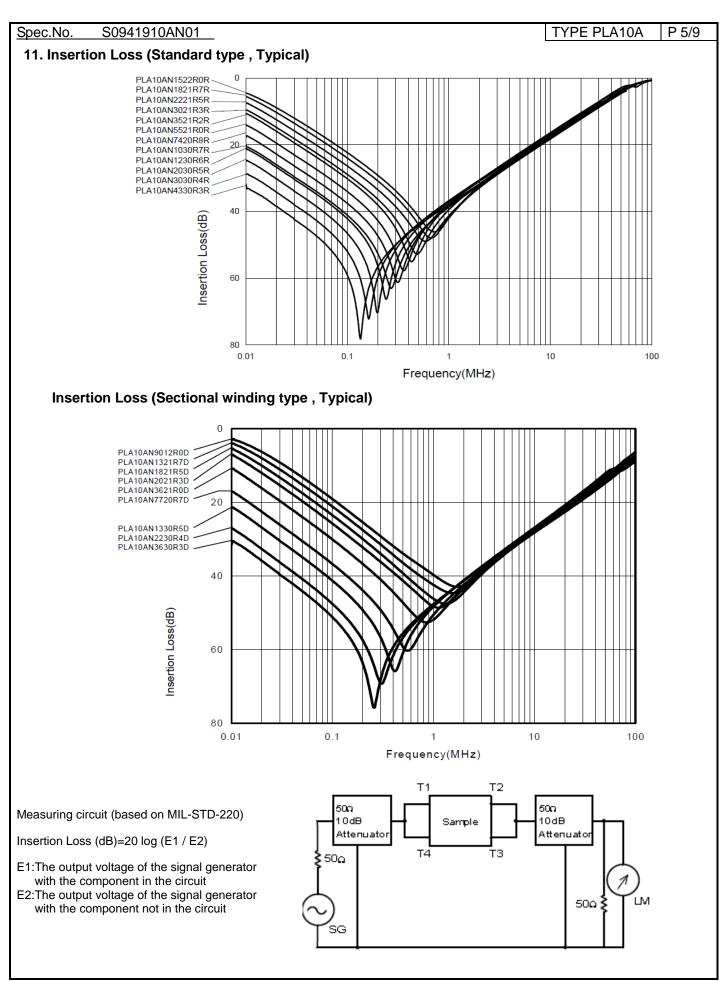
NO.	Item	Specification	Test Method
9-1	Appearance and Dimensions	There shall not be a conspicuous dirt, crack and so on. Dimensions shall be as shown in Fig.1 and Fig.2.	Visual Inspection Measured with slide calipers
9-2	Terminal Strength	The Terminal shall not be damaged. (Cutting of lead wire, missing of terminal etc.)	The body of product shall be fixed, and the force of 9.8N shall be applied gradually and sustained for 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

Spec.	No. S0941910	AN01_		TYPE PLA10A P 4/9
No. 9-4	Item Resistance to soldering heat (In the case of solder bath)	Specification Products shall meet Table 1 . Table 1 Appearance No damage		Test Method  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
		Inductance Change Insulation	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	Resistance to soldering heat (In the case of soldering iron)	Resistance Withstand Voltage	100 MΩ min.  Products shall be no failure.	Tip Temperature : 380 ± 10 °C Time : 3s (+1s,-0s) Then measured after exposure in the room condition for 4 to 24 hours
9-6	Vibration			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)
9-7	Shock			Maximum Acceleration: 981 m / s <sup>2</sup> Normal Duration: 6 ms Wave form: Half-sine wave Velocity Change: 3.75 m / s Direction: along the three mutually perpendicular axes of the product

Times: each direction (total 6 times)

# **10.Environmental Performance**

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		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 Resistance		Temperature: 85 ± 2 °C Time: 1000 h (+24h,-0h) Then measured after exposure in the room condition for 4 to 24 hours.
10-5	Heat Life①		Temperature: 85 ± 2 °C Test Voltage: 500 V(AC) Time: 1000 h (+24h,-0h) Then measured after exposure in the room condition for 4 to 24 hours.
10-6	Heat Life②		Temperature: 85 ± 2 °C Test Voltage: Rated Voltage (DC) Time: 1000 h (+24h,-0h) Then measured after exposure in the room condition for 4 to 24 hours.



Spec.No S0941910AN01 TYPE PLA10A P 6/9



#### 12-1.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 (common mode choke coil) and from surrounding heat sources.

If exceeding these conditions, excessive heat may cause fumes or permanent damage to the product (common mode choke coil).

Please ensure that the product (common mode 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.

#### 12-2. 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 (common mode choke coil).

#### 12-3.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.

- (2)Aerospace equipment (3)Undersea equipment (1)Aircraft 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

#### 12-4.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.

#### 13.Notice

#### 13-1. Magnetic flux leakage

Common Mode 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.

#### 13-2.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.

#### 13-3. Soldering conditions

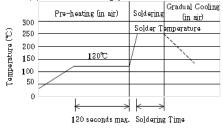
#### (1)Flux, Solder

· 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 >

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 ~ 6 s

<u>Spec.No.</u> S0941910AN01\_\_ | TYPE PLA10A | P 7/9

(3)Solder iron

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

#### 13-4.Cleaning

Avoid cleaning product due to non-waterproof construction.

#### 13-5. 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.

#### 13-6.Other

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

#### 14. 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.]

### 15. 🤼 Note

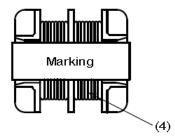
- 15-1.Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- 15-2. You are requested not to use our product deviating from the agreed specifications.
- 15-3. Please return one duplicate of this product specification to us 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.
- 15-4.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.

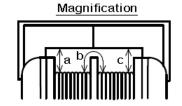
<u>Spec.No.</u> <u>S0941910AN01</u> TYPE PLA10A P 8/9

Fig. 1

# PLA10A Appearance and Dimensions (Standard Type)

Method to unite Core and Bobbin : Varnish

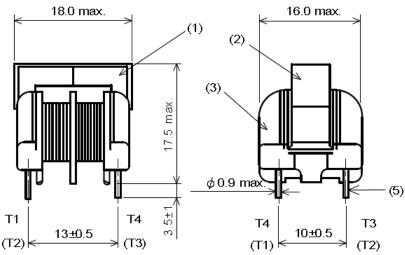




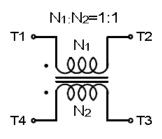
Spacing through air (a+c): 3.2 min.

(a) : 1.0 min. (c) : 1.0 min.

Spacing over surface (b) : 3.2 min.



# Equivalent Circuit Diagram



Bobbin thickness: 0.5 min.

(in mm)

# ■Unit Weight (Typical value) 7.2 g

# Material

NO.	Item	Material
(1)	Core	Ferrite
(2)	Spring	SUS301
(3)	Bobbin	Phenolic(PF): PM-8315、UL94V-0
(4)	Coil	Polyurethane Enameled Copper Wire 2UEW
(5)	Terminal	Solder coated CP wire (Sn-5Cu)

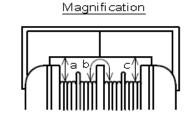
Spec.No. S0941910AN01 PLA10A P 9/9 TYPE

Fig. 2

# PLA10A Appearance and Dimensions (Sectional Winding Type)

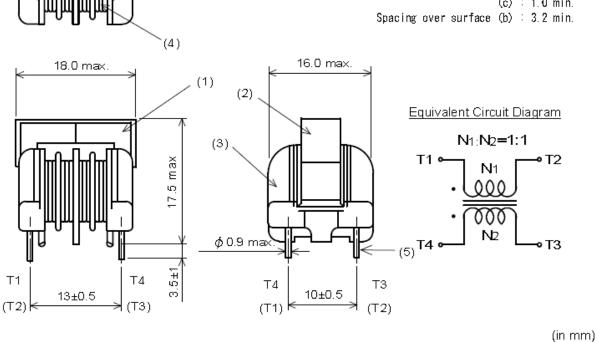
Method to unite Core and Bobbin : Varnish

Marking



Spacing through air (a+c): 3.2 min. (a) : 1.0 min.

(c)  $\div$  1.0 min.



# **Material**

Bobbin thickness: 0.5 min.

NO.	Item	Material
(1)	Core	Ferrite
(2)	Spring	SUS301
(3)	Bobbin	Phenolic(PF): PM-8315、UL94V-0
(4)	Coil	Polyurethane Enameled Copper Wire 2UEW
(5)	Terminal	Solder coated CP wire (Sn-5Cu)

■Unit Weight (Typical value) 7.2 g