



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





## Transformers for Switching Power Supplies

Pin terminal type (For multiple outputs)

# ECO series

---

ECO20XXSEO(Vertical/Horizontal types)

ECO22XXSEO(Vertical/Horizontal types)

ECO24XXSEO(Vertical/Horizontal types)

ECO24XXSLD(Vertical/Horizontal types)

---

## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

#### REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).  
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.  
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.  
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.  
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/Aviation equipment

(2) Transportation equipment (cars, electric trains, ships, etc.)

(3) Medical equipment

(4) Power-generation control equipment

(5) Atomic energy-related equipment

(6) Seabed equipment

(7) Transportation control equipment

(8) Public information-processing equipment

(9) Military equipment

(10) Electric heating apparatus, burning equipment

(11) Disaster prevention/crime prevention equipment

(12) Safety equipment

(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

# Switching Power Supply Transformers

## ECO Series

Conformity to RoHS Directive  
Halogen-free  
Compatible with lead-free solders

# Overview of the ECO Series

## Development Concept

The ECO series is compliant with worldwide safety standards\*. It is a pin-compatible, newly developed transformer that can be downsized and thinned.

\* Applicable as of April 2007: UL/IEC/J 60065 Ver.7 (TV, DVD, STB), UL/IEC/60950 Ver.3 (printer), UL/IEC 60335-1 Ver.4 (home appliance)

### ■ MATERIAL

Optimum materials and core shape have been developed. No insulation-supporting material is used, and this secures the insulating distance.

While optimizing materials, TDK has further improved its proprietary core shape to develop a new-type ECO core.  
TDK has downsized the product considerably in order to securing the necessary creepage distance.

### ■ MANUFACTURING METHOD

Since the ECO Series supports automatic winding, the product is of a high quality and can be manufactured stably.

It is designed to support automatic winding, which enables a remarkable reduction in the loss generated to achieve a proficient in manual winding until stable production.

In addition, the characteristic variations of the winding wire and creepage tape have largely been removed, stabilizing the transformer's characteristics.

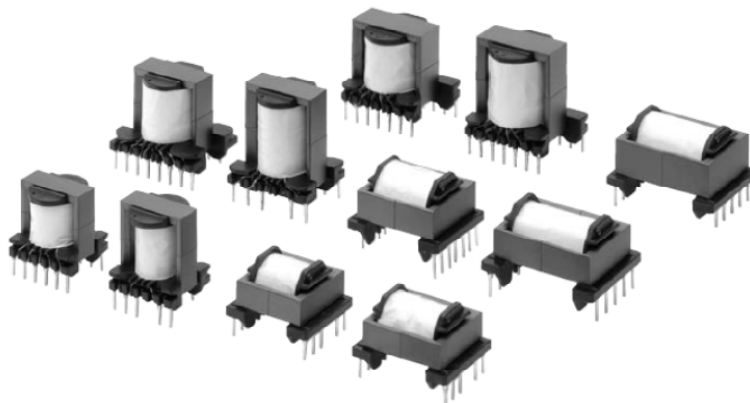
### ■ OPTIMIZATION DESIGN

Using design tools developed with TDK's comprehensive know-how, high-precision design has been achieved in a short period of time.

- 1) For optimization design and high-quality stable production, customers can use a specification request form.  
If you provide the necessary information in the form, you will receive the optimization design in a short time.
- 2) We have prepared an individual specifications request document for the home appliance market.
- 3) TDK recommends design with a standard core gap (AL-value) for optimization and shorter trial and mass production lead time.
- 4) Plans for standard winding connection (patterns of recommended pin arrangement and winding structure) are available.  
These help to speed up the design process, support automatic winding, and prevent deterioration in quality.

### ■ ENVIRONMENT

The ECO series is RoHS directive-compliant and halogen-free product.

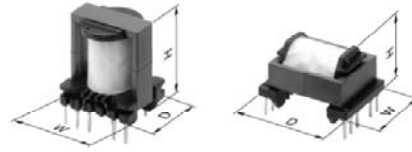


- Ferrite cores, bobbins, cases, etc. are not sold individually.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted ópir.

· All specifications are subject to change without notice.  
Please read the precautions before using this catalog.

# Replacement Parts List

We have made a new lineup of replacement parts for products with different shapes that meet our customers' needs for smaller products. We can also provide different transformer shapes not shown in the catalog, so feel free to contact us.



## REPLACEMENT PARTS LIST

General-purpose shaped core	Existing EGG <sup>*1</sup>	New ECO <sup>*1</sup>	Bobbin type <sup>*2</sup>	Maximum external size DxWxH (mm)max.	Reference output power <sup>*3</sup> (W)	Switching frequency fsw(kHz)	Cross-sectional center leg area Ae (mm <sup>2</sup> )	Bobbin terminal						
								Pin pitch (mm)	Lead space F (mm)	Number of pins				
<b>Vertical type</b>														
EI22 EE25/19	EGG2017	ECO2017	VI	19.5x22.5x24.0	12	50	36.3	3.75	15.0	12				
		ECO2020	VI	19.5x22.5x27.0	20									
		ECO2023	VI	19.5x22.5x30.0	26									
EED2820 EER28	EGG2420	ECO2219	VI	23.0x28.5x25.0	25	50	46.4	5.0	17.5	12				
		ECO2219	VII	23.0x24.0x25.0				4.0						
		ECO2219	VIII	23.0x30.0x25.0				3.75						
	EGG2425	ECO2225	VI	23.0x28.5x31.0	36	50	46.4	5.0	17.5	12				
		ECO2225	VII	23.0x24.0x31.0				4.0						
		ECO2225	VIII	23.0x30.0x31.0				3.75						
EER28L	EGG2425	ECO2230	VI	23.0x28.5x36.0	48	50	46.4	5.0	17.5	12				
		ECO2230	VII	23.0x24.0x36.0				4.0						
		ECO2420	VI	24.0x28.5x26.5				35			50	63.8	5.0	17.5
	ECO2420	VII	25.0x31.5x26.5	4.0										
	ECO2425	VI	24.0x28.5x31.5	50	50	63.8	5.0		17.5	12				
	ECO2425	VII	25.0x35.5x31.5				4.0							
ECO2430	VI	24.0x28.5x36.5	68				50	63.8			5.0	17.5	12	
ECO2430	VII	25.0x35.5x36.5		4.0										
EER32	EGG2625	Under development <sup>*4</sup>		VI										
		Under development <sup>*4</sup>	VII											
		Under development <sup>*4</sup>	VI											
		Under development <sup>*4</sup>	VII											
EER35	EGG2833	Under development <sup>*4</sup>	VI											
		Under development <sup>*4</sup>	VII											
<b>Horizontal type</b>														
EE25/19	NEW	ECO2017	HI	24.5x23.5x20.0	5	50	36.3	3.75	20.0	12				
		ECO2020	HI	27.0x23.5x20.0	14									
		ECO2023	HI	29.5x23.5x20.0	20									
EER2820	NEW	ECO2219	HI	25.0x29.0x24.0	18	50	46.4	5.0	20.0	12				
		ECO2219	HII	25.0x26.0x24.0				4.0						
		ECO2225	HI	30.5x29.0x24.0	30			50			46.4	5.0	25.0	12
		ECO2225	HII	30.5x26.0x24.0								4.0		
EER28	EGG2425	ECO2230	HI	35.5x29.0x24.0	42	50	46.4		5.0	30.0		12		
		ECO2230	HII	35.5x26.0x24.0					4.0					
		ECO2425	HI	30.5x30.0x25.0	41			50	63.8		5.0		25.0	12
		ECO2425	HII	30.5x27.0x25.0							4.0			
EER28L	EGG2430	ECO2430	HI	36.0x30.0x25.0	59	50	63.8			5.0	30.0	12		
		ECO2430	HII	36.0x27.0x25.0						4.0				
EER35	EGG2833	Under development <sup>*4</sup>	HI											

<sup>\*1</sup> Ferrite cores, bobbin are not sold separately.

<sup>\*2</sup> The bobbin is made from phenol with a flame resistance grade of 94V-2 or higher.

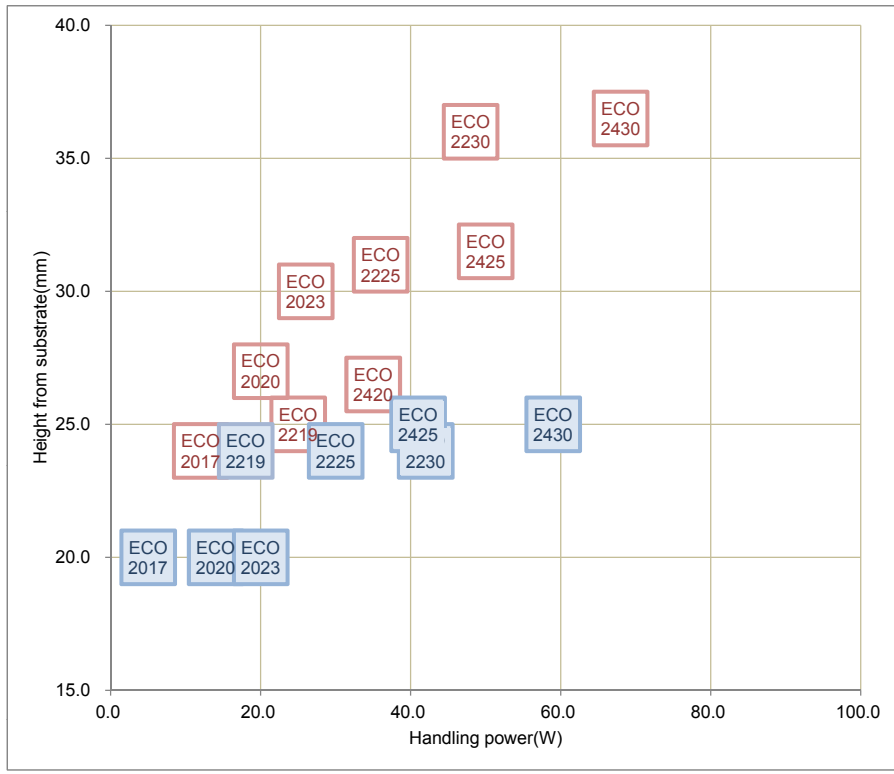
<sup>\*3</sup> The reference output was obtained under conditions where the frequency was 50kHz and creepage distance was 4mm. (See the relevant page for details of each shape.) The reference output differs depending on the switching device, switching frequency, transformer temperature, conditions, etc. Use this output for reference.



<sup>\*4</sup> Scheduled to be supported from April 2010 onwards (prior to that date, it is supported by the EGG type)

All specifications are subject to change without notice.

Please read the precautions before using this catalog.

# Lineup of ECO Series



-  Vertical type
-  Horizontal type

# Composition of appellation for ECO Series

## ■ SCOPE

This standard applies insulation transformer for switching power supply and choke-coil for Power-factor circuit of the ECO series that Magnetics Business Group takes part in the design, production, and sales.

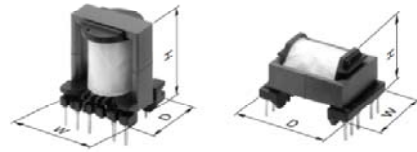
## ■ COMPOSITION OF APPELLATION FOR ECO SERIES

- Insulation transformer for switching power supply

ECO  $\frac{\square \square \square \square}{1}$   $\frac{\blacksquare \square \square}{2}$   $\frac{\blacksquare \square \square}{3}$   $\frac{\blacksquare}{4}$  —  $\frac{\square \square \square}{5}$   $\frac{\blacksquare \square}{6}$   $\frac{\blacksquare \square}{7}$   $\frac{\blacksquare \square}{8}$   $\frac{\square}{9}$  ex) ECO2225SEO-201V018

1. Core Size	ex) 2017, 2020, 2219, 2425 etc.
2. Usage	ex) Switching : S, PFC : P
3. Core Shape	ex) Core of ECO type : EO, Core of LQD type : LD, etc.
4. Number of Bobbin sections(Nothing if 1 section)	ex) 2, 5, 9 etc.
5. Serial number at each design site	Japan : 2xx, Taiwan : Txx, Xiamen : Xxx, Malaysia : Mxx, US : Uxx, Europe : Exx
6. Bobbin construction	Vertical type : V, Horizontal type : H, SMD type : S
7. Shielding method ※Not include a shield winding	Non : 0, Copper foil on the coil : 1, Wire shielded : 2, Copper foil on the core : 3
8. Applicable Safety regulation	No : 0, Yes : 1
9. Number of windings	ex) 2, 5, 12 etc.

# Product Line-Up



## PRODUCT LINE-UP

TDK Part No.	Core Size	Vin	Switching frequency fsw(kHz)	Out1	Out2	Out3	Application
<b>Vertical type</b>							
ECO2017SEO-D01V017		75Vdc~326Vdc	-	12.8V/0.6A	12V/0.09A	15.2V/0.05A	Air Con(Outdoor)
ECO2017SEO-D02V016		110Vac	100KHz PWM	12V/0.62A(1.6Ap)	-	-	Blu-Ray Player
ECO2017SEO-D03V014	ECO2017	85Vac ~ 264Vac	-	12V /1A typ/ 1.3A Max	-	-	Refrigerator
ECO2017SEO-D04V015		160Vac ~ 288Vac	100KHz PWM	12V/0.3A	-	-	Refrigerator
ECO2017SEO-D05V016		169Vac ~ 312Vac	-	5V/0.25A	15V/0.2A	-	Washing Machine
ECO2020SEO-D01V016		70Vac ~ 265Vac	50KHz PWM	12.5V/0.8A	15V/0.1A	-	Air Con(Indoor)
ECO2020SEO-D03V016	ECO2020	85Vac~276Vac	124KHz PWM	12V/0.85A	17V/0.15A	17V/0.1	Air Con(Outdoor)
ECO2020SEO-D09V015		154Vac ~ 312Vac	-	12V/0.5A	15/0.1A	-	Refrigerator
ECO2020SEO-D10V017		96Vac ~ 276Vac	-	15V/0.4A	18V/0.4A	5V/0.1A	Washing Machine
ECO2219SEO-D01V018		85Vac~276Vac	-	12V/0.32A	8V/0.3A	8V/0.3A	Air Con(Indoor)
ECO2219SEO-D02V016	ECO2219	264Vdc-373Vdc	100KHz PWM	12.4V/0.3A	5V/0.09A	19V/0.14	Air Con(Indoor)
ECO2219SEO-D03V017		170Vdc-400Vdc	-	12V/0.54A	5V/0.11A	19V/0.02	Air Con(Outdoor)
ECO2225SEO-D02V0112	ECO2225	220Vac	41KHz ~	12.3V/3.2A(5.0Ap)	-	-	Blu-Ray Recorder
ECO2420SEO-D01V019		200Vdc-300Vdc	-	12V/0.8A	17V/0.17A	17V/0.02A	Air Con(Outdoor)
ECO2420SEO-D02V019	ECO2420	110Vac	33KHz ~	12.3V/3.3A	-	-	Blu-Ray Recorder
ECO2420SEO-D03V018		169Vac ~ 312Vac	60KHz PWM	12V/2.7A	5V/0.3A	-	Refrigerator
ECO2420SEO-D04V0110		214Vdc ~ 404Vdc	-	12V/1.2A	14V/0.5A	7V/0.05A	Refrigerator
ECO2425SEO-D01V019		264Vdc-373Vdc	100KHz PWM	12.7V/1.18A	5V/0.14A	20V/0.07A	Air Con(Outdoor)
ECO2425SEO-D02V016	ECO2425	96Vac ~ 276Vac	-	20V/0.2A	18V/0.5A	3.3V/0.7A	Washing Machine
ECO2425SEO-D03V014		170Vac ~ 230Vac	30KHz ~	36.5V/0.9A Max	-	-	Washing Machine
ECO2425SEO-D04V017		169Vac ~ 312Vac	65KHz PWM	22.0V/1.5A typ/2.0Ap	15V/0.5A	7V/0.2A	Washing Machine
<b>Horizontal type</b>							
ECO2020SEO-D02H015		75Vdc~326Vdc	-	12.7V/0.6A	18.5V/0.06A	-	Air Con(Indoor)
ECO2020SEO-D04H015		110Vac	67KHz PWM	12V/1.5A(2.4Ap)	-	-	Blu-Ray Player
ECO2020SEO-D06H015	ECO2020	WW	80KHz ~	19.7V/0.267A(0.35Ap)	-	-	LED Lamp
ECO2020SEO-D07H016		WW	65KHz PWM	21.5V/0.465A(1.4Ap)	-	-	Printer
ECO2020SEO-D08H016		WW	65KHz PWM	30.0V/0.333A(1.0Ap)	-	-	Printer
ECO2023SEO-D01H016	ECO2023	WW	100KHz PWM	12V/1.3A(2.2Ap)	-	-	Blu-Ray Player
ECO2225SEO-D01H016	ECO2225	WW	67KHz PWM	12V/1.5A(2.4Ap)	-12V/50mA(70mAp)	-	Blu-Ray Player
ECO2430SEO-D01H0110	ECO2430	390Vdc PFC	100KHz PWM	12V/2.0A(2.75Ap)	17V/0.5A(1.74p)	-	Flat-TV
ECO2430SEO-D03H016		220Vac	67KHz PWM	5V/1A	24V/2A	-	Printer
ECO2425SLD-D01H017	LQD2425	100Vdc~370Vdc	-	12.7V/2.33A	16V/0.05A	-	Air Con(Indoor)
ECO2425SLD-D02H0111		WW	67KHz PWM	5V/2.2A(4.7Ap)	12V/0.2A(1.5Ap)	-	Blu-Ray Player

· All specifications are subject to change without notice.  
Please read the precautions before using this catalog.



## General Specifications

### OPERATING TEMPERATURE RANGE

Temperature Range	Operating	-30 to +120°C[including self-heating]
	Storage	-40 to +85°C
Humidity Range	Operating	10 to 95(%)RH[Maximum wet-bulb temperature 38°C, without dewing]
	Storage	10 to 95(%)RH[Maximum wet-bulb temperature 38°C, without dewing]

### PACKAGE QUANTITY, PRODUCT WEIGHT

TDK Part No.	Core Size	Package quantity (pieces/box)	Individual weight (g)
<b>Vertical type</b>			
ECO2017SEO-D01V017	ECO2017	210	13.8
ECO2017SEO-D02V016		210	13.8
ECO2017SEO-D03V014		210	13.1
ECO2017SEO-D04V015		210	13.2
ECO2017SEO-D05V016		210	12.0
ECO2020SEO-D01V016	ECO2020	225	14.9
ECO2020SEO-D03V016		180	16.9
ECO2020SEO-D09V015		225	15.2
ECO2020SEO-D10V017		225	15.1
ECO2219SEO-D01V018	ECO2219	210	18.9
ECO2219SEO-D02V016		210	19.8
ECO2219SEO-D03V017		210	18.7
ECO2225SEO-D02V0112	ECO2225	150	32.0
ECO2420SEO-D01V019	ECO2420	150	28.2
ECO2420SEO-D02V019		150	26.6
ECO2420SEO-D03V018		120	26.5
ECO2420SEO-D04V0110		120	26.5
ECO2425SEO-D01V019		ECO2425	135
ECO2425SEO-D02V016	150		33.5
ECO2425SEO-D03V014	150		31.7
ECO2425SEO-D04V017	135		33.2
<b>Horizontal type</b>			
ECO2020SEO-D02H015	ECO2020	200	14.7
ECO2020SEO-D04H015		200	16.2
ECO2020SEO-D06H015		205	14.6
ECO2020SEO-D07H016		300	15.8
ECO2020SEO-D08H016		300	15.6
ECO2023SEO-D01H016	ECO2023	180	17.3
ECO2225SEO-D01H016	ECO2225	120	22.7
ECO2430SEO-D01H0110	ECO2430	90	35.4
ECO2430SEO-D03H016		90	37.8
ECO2425SLD-D01H017	LQD2425	192	23.9
ECO2425SLD-D02H0111		192	22.3

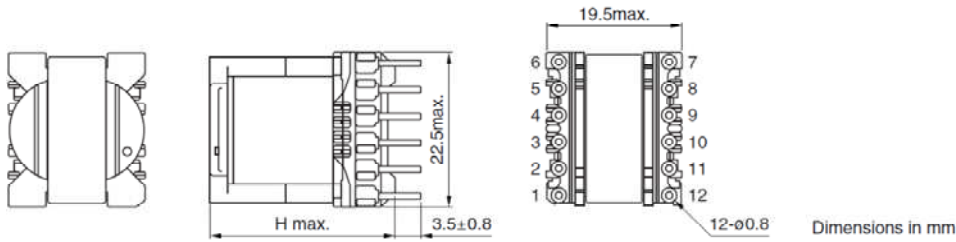
· All specifications are subject to change without notice.

Please read the precautions before using this catalog.

## ECO20 Series for Multiple Outputs (Vertical Type)

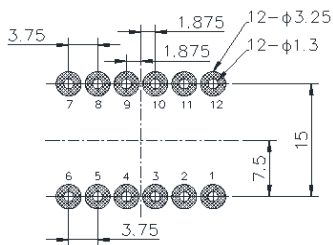
Compatible with lead-free solders

### ■ SHAPES AND DIMENSIONS (BOBBIN TYPE: V I)



Part No.	Bobbin type	H max.
ECO2017	VI	24.0
ECO2020	VI	27.0
ECO2023	VI	30.0

### ■ RECOMMENDED BASE MATERIAL OPENING SIZE



Dimensions in mm

Default Tolerance : ±0.1

### ■ ITEMS APPLICABLE

Series	Bobbin Type	Part No.
ECO2017	VI	ECO2017SEO-D01V017
		ECO2017SEO-D02V016
		ECO2017SEO-D03V014
		ECO2017SEO-D04V015
		ECO2017SEO-D05V016
		ECO2020SEO-D01V016
ECO2020		ECO2020SEO-D03V016
		ECO2020SEO-D09V015
		ECO2020SEO-D10V017

· Compatible ferrite materials for this product are the PC47 family.

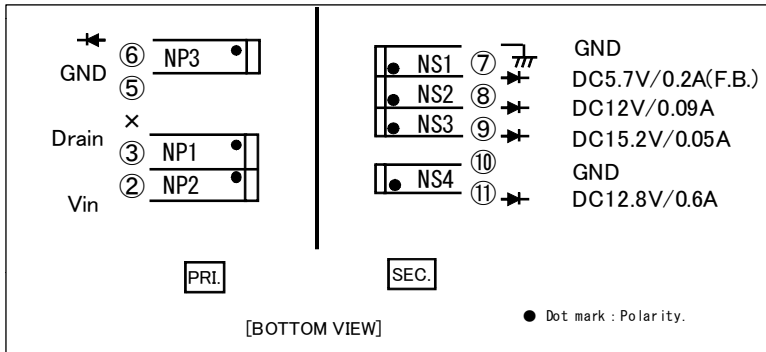
· Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted ópir.

· All specifications are subject to change without notice.

Please read the precautions before using this catalog.

**SPECIFICATIONS / ECO2017SEO-D01V017**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARDS	
Over Surface & Air Spacings	
PRI. - SEC.	2.5mm MIN.
PRI. - CORE	1.3mm MIN.
SEC. - CORE	1.3mm MIN.

**■ WINDING SPECIFICATIONS**

No.	Order	coil	terminal	turns	wire	note
1	1	N P1	3 - 2	30	UEW 0.16	NP1+NP2=91ts
2	2	N P3	6 - 5	11	UEW 0.23 ×2	
3	3	N S4	12 - 11	11	UEW 0.23 ×2	
4	4	N S3	10 - 9	2	UEW 0.26	
5	5	N S2	9 - 8	5	UEW 0.26	
6	6	N S1	8 - 7	6	UEW 0.26	
7	7	N P2	2 - 1	61	UEW 0.16	

## SPECIFICATIONS / ECO2017SEO-D01V017

Compatible with lead-free solders

## ■ ELECTRICAL CHARACTERISTICS

(Test Conditions)					
(Temperature)		:	25±10°C		
(Relative Humidity)		:	25~75%RH		
No	Parameter	Test Terminal	Specification	Conditions	Test Instruments
4.1	Inductance	3 - 1	1.49mH ± 10%	10 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
4.2	Leakage Inductance	3 - 1 (6,5,SEC. short)	35.0 uH MAX		
4.3	DC. Resistance	2 - 1	2.238Ω ±15%		Milli ohm meter ADEX : AX-114N or Equivalent
		3 - 2	0.744Ω ±20%		
		6 - 5	74.5mΩ ±30%		
		8 - 7	79.3mΩ ±30%		
		9 - 8	65.3mΩ ±30%		
		10 - 9	30.1mΩ ±30%		
12 - 11	81.1mΩ ±30%				
4.4	Insulation Resistance	PRI.-SEC. PRI.,SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent
4.5	Withstanding Voltage	PRI.-SEC.	Without Breakdown  Sense:2mA	AC 1.5kVrms 1min	Puncture Tester Kikusui : TOS8650 or Equivalent
		PRI.-CORE SEC.-CORE		AC 1.0kVrms 1min	
4.6	Impulse Test	3 - 1	Without Breakdown	Pulse 600Vo-p 1s	Impulse Tester ECG : DWS-05 or Equivalent
4.7	Polarity & Turns Ratio X-X / 3 - 1	2 - 1	STD(0.6807)±2.0%	f=10kHz	Ratio Meter Ryowa : TRM-101A or Equivalent
		6 - 5	STD(0.1178)±5.5%		
		10 - 9	STD(0.0214)±15%		
		9 - 8	STD(0.0537)±10%		
		8 - 7	STD(0.0660)±10%		
		12 - 11	STD(0.1189)±5.5%		

## SPECIFICATIONS / ECO2017SEO-D01V017

Compatible with lead-free solders

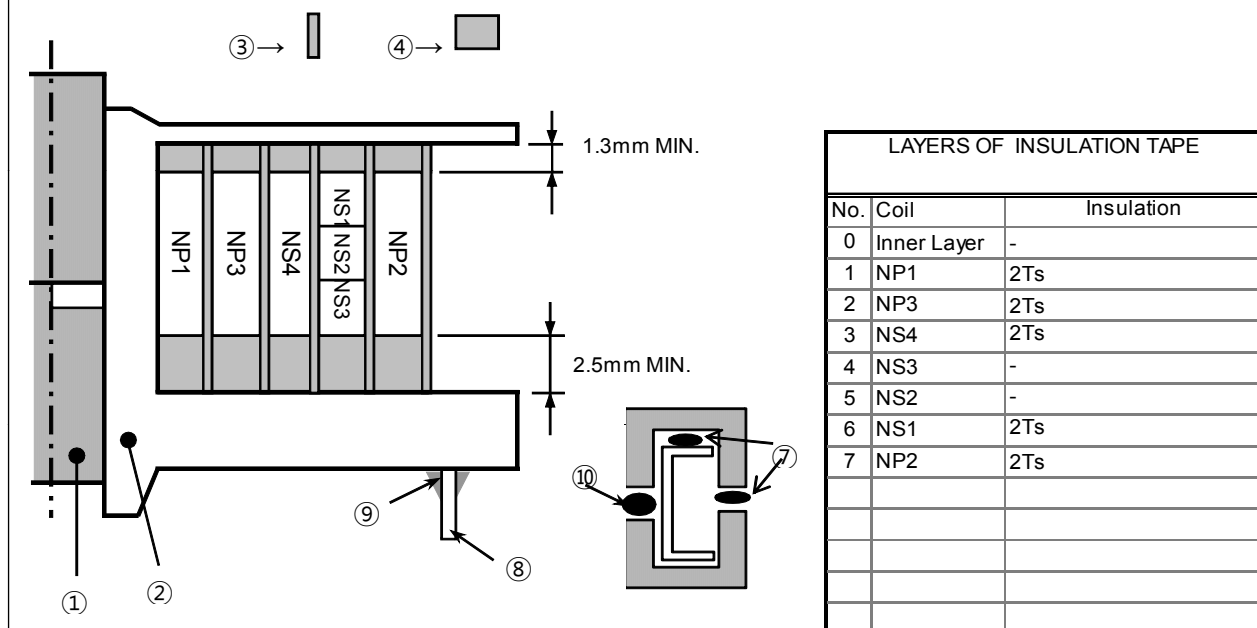
## MATERIAL LIST AND INSULATING CONSTRUCTION

No	ITEM & MATERIAL	MIN.THICKNESS OF LAYER	UL T.I (°C)	MANUFACTURER	UL FILE NO.
①	CORE Ferrite 20.9mm x17.6mm x7.7mm	—	—	TDK Corporation	—
②	BOBBIN Phenol Resin PM-9820	0.65 mm MIN.	150 94V-0	SUMITOMO BAKELITE CO.,LTD.	E41429
③	INSULATION TAPE Polyester Color : YELLOW	1318 or 1350F	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
④	FIXING TAPE FOR WIRE (Barrier Tape) Polyester	44 or 44D or 44-18MIL or 673F or 673A	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD) TERAOKA SEISAKUSHO CO.,LTD.	E17385 E56086
⑤	WINDING WIRE Polyurethane Enameled Copper Wire 0.16 mm DIAx1 : NP1, NP2 0.23 mm DIAx2 : NP3	—	130	PROSPERITY ELECTRIC WIRE & CABLE CO. XIAMEN HUNG'S ENTERPRISE CO.,LTD.	E196072 E219154
⑥	WINDING WIRE Polyurethane Enameled Copper Wire 0.26 mm DIAx1 : NS1, NS2, NS3 0.23 mm DIAx2 : NS4	—	130	HANGZHOU WEIFENG ELECTRONIC CO.,LTD. SHENZHEN FUJI FINE FACTORY	E229341 E303260
⑦	ADHESIVE Acrylic, Urethane or Epoxy			Optional	
⑧	TERMINAL PIN Copper Clad Steel WireΦ0.8(Soldered) Under Coating(Copper)25% Weight Ratio. (Ref)Surface Plating(Sn100%)3µm or More.			Optional	
⑨	SOLDER (For junction of a wire and aterminal) Lead-Free Sn-Ag-Cu			Optional	
⑩	ADHESIVE Polyestel, Urethane or Epoxy			Optional	

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

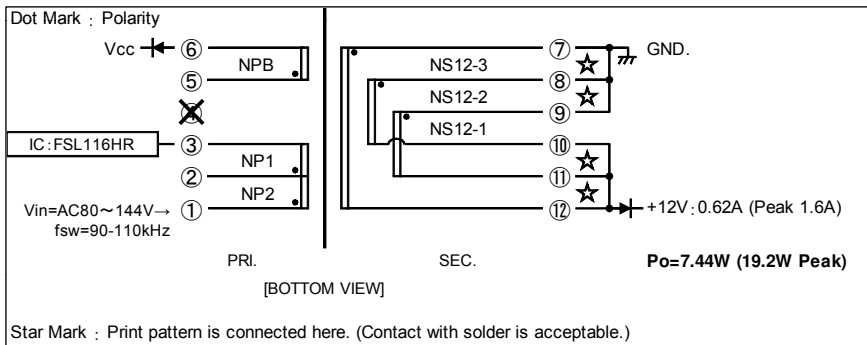
※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.

☆BOBBIN UL94 : 94V-0 ,CTI(IEC112) : 175~250V (UL Level 3)



**SPECIFICATIONS / ECO2017SEO-D02V016**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARDS		
*UL60065-Ed.7, *IEC60065-Ed.7		
	Inside of Coil	Outside of Coil
Between Pri. and Sec.	4.8mm MIN.	8.0mm MIN.
Between Pri. and Core	2.4mm MIN.	4.0mm MIN.
Between Sec. and Core	2.4mm MIN.	4.0mm MIN.

**■ WINDING SPECIFICATIONS**

No.	Order	Coil	Terminal	Turns	Wire	Note
1	1	N S12-1	9 - 11	13	UEW 0.25	
2	2	N P1	2 - 3	42	UEW 0.23	NP1+NP2=71Ts.
3	3	N S12-2	8 - 10	13	UEW 0.25	
4	4	N P2	1 - 2	29	UEW 0.23	
5	5	N S12-3	7 - 12	13	UEW 0.25	
6	6	N PB	5 - 6	17	UEW 0.20	

## SPECIFICATIONS / ECO2017SEO-D02V016

Compatible with lead-free solders

## ■ ELECTRICAL CHARACTERISTICS

Test Conditions		Temperature	:	25±10°C		
		Relative Humidity	:	25~75%RH		
No	Parameter	Test Terminal	Specification	Condition <sub>s</sub>	Test Instruments	
4.1	Inductance	1 - 3	712 μH ± 10%.	10 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent	
4.2	Leakage Inductance	1 - 3 (7~12 short)	15.0 μH MAX.	100 kHz 1Vrms		
4.3	DC. Resistance	1 - 3	1.12 Ω ± 20%.		Milli ohm meter ADEX : AX-114 or Equivalent	
		5 - 6	0.462 Ω ± 20%.			
		9 - 11	0.149 Ω ± 20%.			
		8 - 10	0.184 Ω ± 20%.			
		7 - 12	0.217 Ω ± 20%.			
4.4	Insulation Resistance	PRI.-SEC. PRI.,SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent	
4.5	Withstanding Voltage	PRI.-SEC.	Without Breakdown  Sense:1mA f=50or60Hz	AC 3.0kVrms 1min or AC 3.6kVrms 1s	Puncture Tester Kikusui : TOS8650 or Equivalent	
		PRI.-CORE SEC.-CORE		AC 1.5kVrms 1min or AC 1.8kVrms 1s		
4.6	Impulse Test	1 - 3	Without Breakdown	Pulse 0.8kVo-p 3--5 Pulse	Impulse Tester ECG : DWS-05 or Equivalent	
4.7	Polarity & Turns Ratio  X-X/ 1 - 3	5 - 6	(0.2402)± 4.7%.	f=10kHz	Ratio Meter Ryowa : TRM-101A or Equivalent	
		9 - 11	(0.1744)± 6.1%.			
		8 - 10	(0.1822)± 6.1%.			
		7 - 12	(0.1835)± 6.1%.			

## SPECIFICATIONS / ECO2017SEO-D02V016

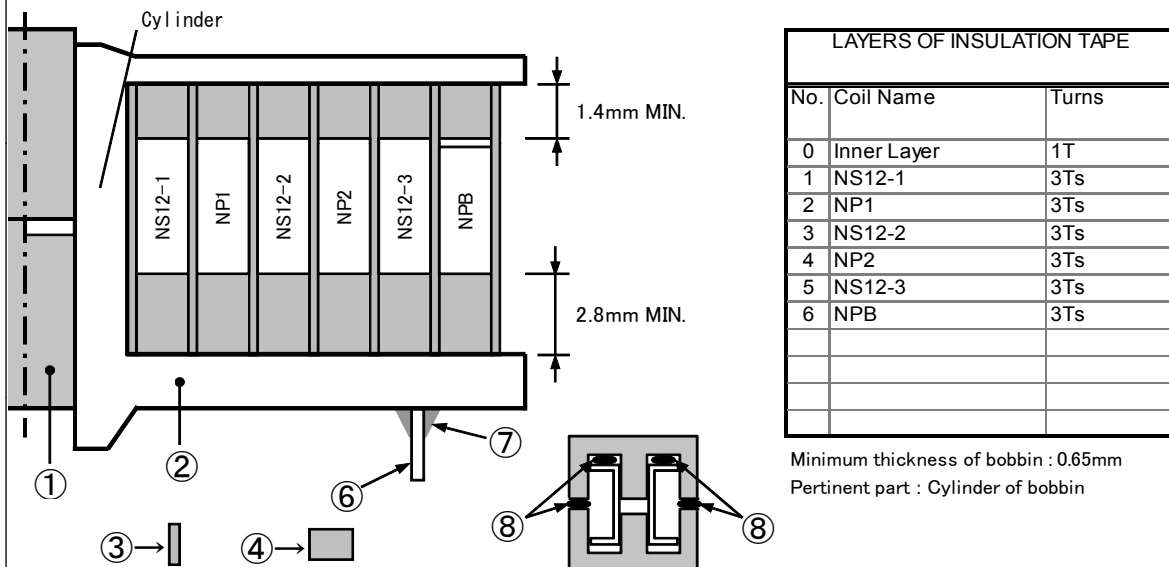
Compatible with lead-free solders

## MATERIAL LIST AND INSULATING CONSTRUCTION

No	ITEM & MATERIAL	MIN.THICKNESS OF 1 LAYER	UL T.I (°C)	MANUFACTURER	UL FILE NO.
①	CORE Ferrite 20.9mmx17.6mmx7.7mm	—	—	TDK-EPC Corporation	—
②	BOBBIN Phenol Resin	PM-9820	0.65 mm	SUMITOMO BAKELITE CO.,LTD.	E41429
		T375J		CHANG CHUN PLASTICS CO.,LTD	E59481
③	INSULATION TAPE Polyester Material group II MIN. (400V<CTI≤600V MIN.)	1318-1 or 1350F-1	0.05 mm	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
④	FIXING TAPE FOR WIRE (Barrier Tape) Polyester  Material group I (CTI≥600V)	44D-A or 44T-A	—	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
		343BN@@		NITTO DENKO CORP.	E34833
		WF with suffixes		JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111
⑤	WINDING WIRE (Primary) Polyurethane Enameled Copper Wire  0.23 mm DIA : NP1, NP2 0.20 mm DIA : NPB	—	130	PROSPERITY ELECTRIC WIRE & CABLE CO.	E196072
				HANGZHOU WEIFENG ELECTRONIC CO.,LTD.	E229341
				TAI ELECTRIC WIRE&CABLE CO LTD	E85640
				ZHUHAI WEIHAN WIRE CO LTD	E339217
				SHENZHEN FUJI FINE FACTORY	E303260
	WINDING WIRE (Secondary) Polyurethane Enameled Copper Wire  0.25 mm DIA : NS12-1,-2,-3	—	130	HITACHI CABLE (JOHOR) SDN BHD	E215594
				THAI HITACHI ENAMEL WIRE CO LTD	E137472
				ELEKTRISOLA (MALAYSIA) SDN BHD	E143312
⑥	TERMINAL PIN Φ0.8 (Soldered) Copper Clad Steel Wire Under Coating(Copper)25% Weight Ratio. (Ref)Surface Plating(Sn100%)3μm or More.	—	—	Optional	—
⑦	SOLDER (For junction of a wire and a terminal) Lead-Free Sn-Ag-Cu	—	—	Optional	—
⑧	ADHESIVE Acrylic, Urethane or Epoxy	—	—	Optional	—

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.



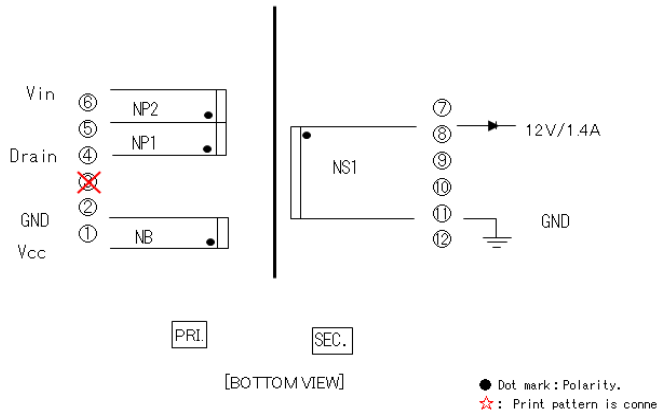
· All specifications are subject to change without notice.

Please read the precautions before using this catalog.



**SPECIFICATIONS / ECO2017SEO-D03V014**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARDS	
IEC60335-1 Ed.4	
Over Surface & Air Spacings	
PRI. - SEC.	4.0 mm MIN.(inside coil)
PRI. - CORE	4.0 mm MIN.(outside coil)
SEC. - CORE	4.0 mm MIN.(outside coil)
REMOVE PIN	PIN No. 3

**■ WINDING SPECIFICATIONS**

No.	order	coil	terminal	turns	wire	WIDING METHOD	note
0		600V $\leq$ CTI					NP1+NP2=47ts
1	CW	N P1	4 - 5	24	2UEW 0.28	2Layer sol	
2	CW	N S1	8 - 11	6	2UEW 0.45	1Layer sol	
3	CCW	N B	2 - 1	7	2UEW 0.28	1Layer sol	
4	CW	N P2	5 - 6	23	2UEW 0.28	2Layer sol	

## SPECIFICATIONS / ECO2017SEO-D03V014

Compatible with lead-free solders

## ■ ELECTRICAL CHARACTERISTICS

(Test Conditions)					
(Temperature)		:	25±10°C		
(Relative Humidity)		:	25~75%RH		
No	Parameter	Test Terminal	Specification	Condition <sub>s</sub>	Test Instruments
4.1	Inductance	4 - 6	555uH ± 15%	1 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
				100 kHz 1Vrms	
				200 kHz 1Vrms	
4.2	Leakage Inductance	4 - 6 (1,2,SEC. short)	20 uH MAX	100 kHz 1Vrms	
4.3	DC. Resistance	4 - 5	0.218 ±20%		ADEX : AX-114N or Equivalent
		8 - 11	0.025 ±30%		
		1 - 2	0.084 ±30%		
		5 - 6	0.279 ±20%		
4.4	Insulation Resistance	PRI.-SEC. PRI.,SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent
4.5	Withstanding Voltage	PRI.-SEC.	Without Breakdown	AC 3.0kVrms 1min or AC 3.6kVrms 1s	Puncture Tester Kikusui : TOS8650 or Equivalent
4.6	Impulse Test	4 - 6	Without Breakdown	Pulse 600Vo-p 3~5 pluse	Impulse Tester ECG : DWS-05 or Equivalent
4.7	Polarity & Turns Ratio	4 - 5	0.5060 ±10%	f=10kHz	Ratio Meter or Equivalent
		8 - 11	0.1259 ±10%		
		1 - 2	0.1483 ±10%		
4.8	Inductance	4 - 5	144.8 ±25%	100 kHz 1Vrms	Agilent : 4263B or Equivalent
		8 - 11	9.0 ±25%		
		1 - 2	12.6 ±25%		
		5 - 6	137.6 ±25%		

## SPECIFICATIONS / ECO2017SEO-D03V014

Compatible with lead-free solders

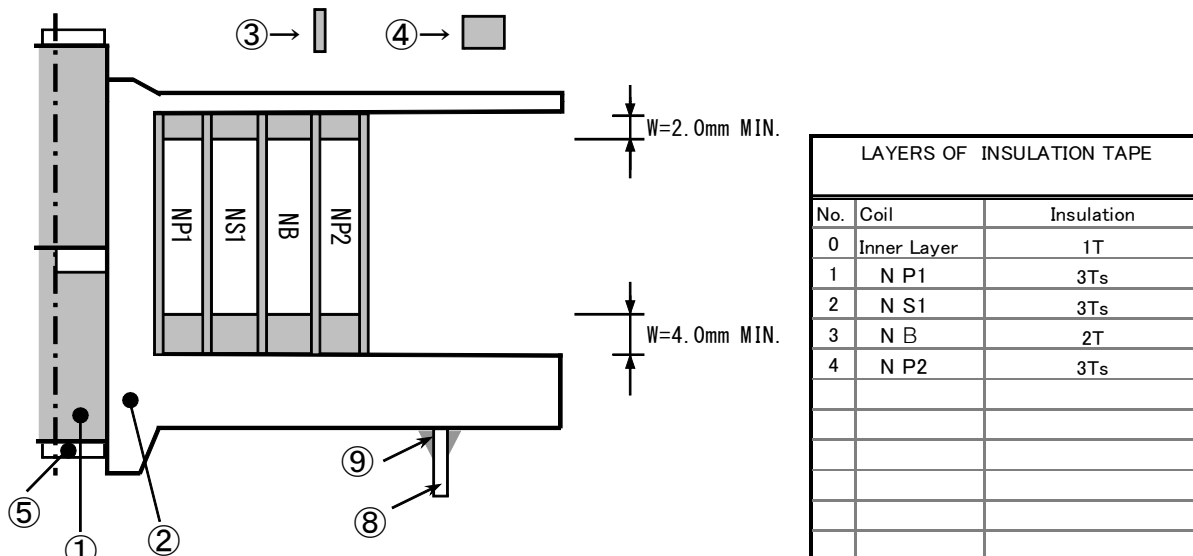
## MATERIAL LIST AND INSULATING CONSTRUCTION

No.	ITEM & MATERIAL		MIN.THICKNESS OF LAYER	UL T1 (°C)	MANUFACTURER	UL FILE NO.
①	CORE PCB47 ECO2017		—	—	TDK Corporation	—
②	BOBBIN Phenol Resin PM-9820		0.65 mm MIN.	150 94V-0	SUMITOMO BAKELITE CO.,LTD.	E41429
③	INSULATION TAPE Polyester  Color : YELLOW	CT280	0.05 mm	130	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111
		35660Y			SYMBIO INC	E50292
		1318-1			3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
④	FIXING TAPE FOR WIRE (Barrier Tape)  Polyester	44D-A	—	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
		35660Y			SYMBIO INC	E50292
		WF with suffixes			JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111
⑤	FIXING TAPE FOR CORE Polyester  Color : YELLOW	CT280	0.05 mm	130	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111
		1318-1			3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
⑥	WINDING WIRE Polyurethane Enameled Copper Wire		—	130	TAI-I ELECTRIC WIRE & CABLE CO LTD	E85640
					PROSPERITY ELECTRIC WIRE & CABLE CO.	E196072
					XIAMEN HUNG'S ENTERPRISE CO.,LTD.	E219154
⑦	ADHESIVE Varnish TVB2024				KYOCERA CHEMICAL CORPORATION	E83702
⑧	TERMINAL PIN Copper Clad Steel Wire $\Phi 0.8$ (Soldered) Under Coating(Copper)25% Weight Ratio. (Ref)Surface Plating(Sn100%)3 $\mu$ m or More.				Optional	
⑨	SOLDER (For junction of a wire and a terminal) Lead-Free Sn-Ag-Cu				Optional	
⑩	MARKING	Laser			LA MARK LP-V SERIES	

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.

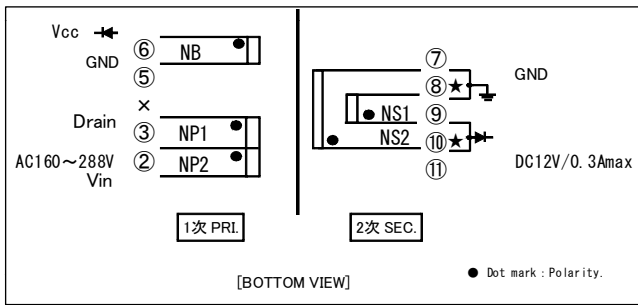
☆BOBBIN UL94:94V-0 ,CTI(IEC112):175~250V (UL Level 3)



· All specifications are subject to change without notice.  
Please read the precautions before using this catalog.

**SPECIFICATIONS / ECO2017SEO-D04V015**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARDS	
IEC60335-1 Ed.4	
Over Surface & Air Spacings	
PRI. - SEC.	4.0mm MIN.
PRI. - CORE	4.0mm MIN.
SEC. - CORE	4.0mm MIN.

**■ WINDING SPECIFICATIONS**

No.	Order	coil	terminal	turns	wire	note
0	0	600 ≤ CTI				
1	1	N P1	3 - 2	69	UEW 0.12	NP1+NP2=120ts
2	2	N S1	10 - 9	26	UEW 0.18	
3	3	N P2	2 - 1	51	UEW 0.12	
4	4	N S2	11 - 8	26	UEW 0.18	
5	5	N B	6 - 5	26	UEW 0.18	

## SPECIFICATIONS / ECO2017SEO-D04V015

Compatible with lead-free solders

## ■ ELECTRICAL CHARACTERISTICS

(Test Conditions)					
(Temperature)		:	25±10°C		
(Relative Humidity)		:	25~75%RH		
No	Parameter	Test Terminal	Specification	Condition <sub>s</sub>	Test Instruments
4.1	Inductance	3 - 1	3.18mH ± 13%	10 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
4.2	Leakage Inductance	3 - 1 (SEC.short)	35 μH MAX	100 kHz 1Vrms	
4.3	DC. Resistance	3 - 2	3.06Ω ±15%		Milli ohm meter ADEX : AX-114N or Equivalent
		10 - 9	0.58Ω ±20%		
		11 - 8	0.70Ω ±20%		
		6 - 5	0.77Ω ±20%		
		2 - 1	2.80Ω ±15%		
4.4	Insulation Resistance	PRI.-SEC. PRI.,SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent
4.5	Withstanding Voltage	PRI.-SEC.	Without Breakdown  Sense:1mA	AC 3.0kVrms 1min or AC 3.6kVrms 1s	Puncture Tester Kikusui : TOS8650 or Equivalent
		PRI.-CORE SEC.-CORE		AC 1.5kVrms 1min or AC 1.8kVrms 1s	
4.6	Impulse Test	3 - 1	Without Breakdown	Pulse 600Vo-p 1s	Impulse Tester ECG : DWS-05 or Equivalent
4.7	Polarity & Turns Ratio X-X / 3 - 1	3 - 2	STD(0.5720) ±2.0%	f=10kHz	Ratio Meter Ryowa : TRM-101A or Equivalent
		10 - 9	STD(0.2166) ±3.0%		
		11 - 8	STD(0.2171) ±3.0%		
		6 - 5	STD(0.2165) ±3.0%		

## SPECIFICATIONS / ECO2017SEO-D04V015

Compatible with lead-free solders

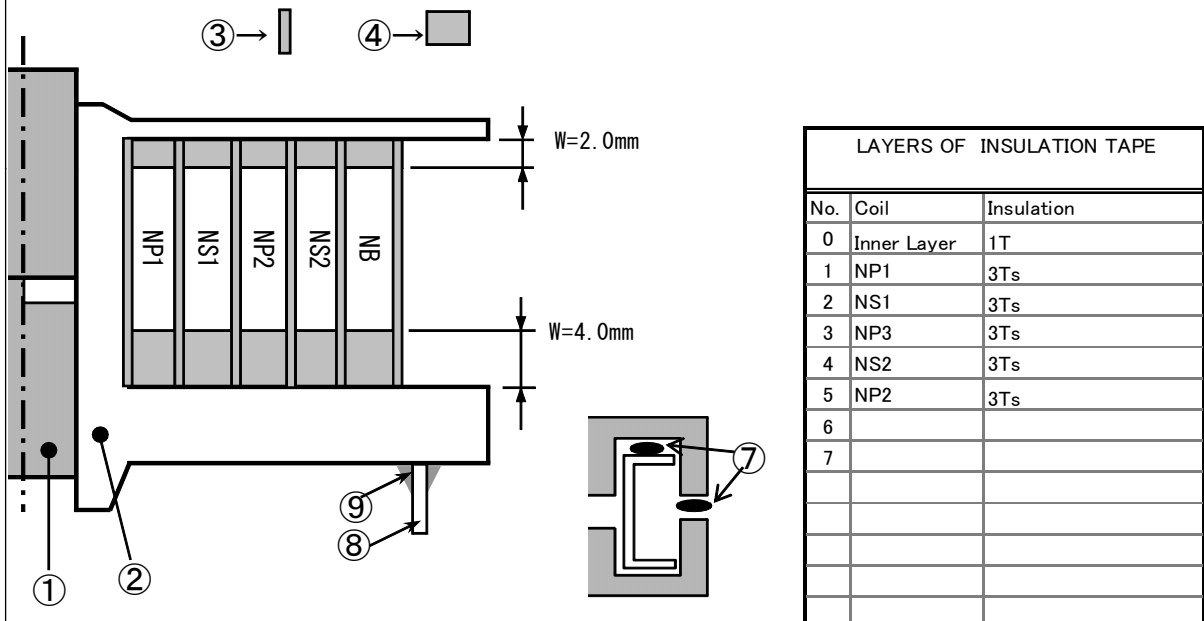
## MATERIAL LIST AND INSULATING CONSTRUCTION

No.	ITEM & MATERIAL	MIN.THICKNESS OF LAYER	UL T1 (°C)	MANUFACTURER	UL FILE NO.	
①	CORE Ferrite 20.9mm x17.6mm x7.7mm	—	—	TDK-EPC Corporation	—	
②	BOBBIN Phenol Resin PM-9820	0.65 mm MIN.	150 94V-0	SUMITOMO BAKELITE CO.,LTD.	E41429	
③	INSULATION TAPE Polyester Color : WHITE	1318 0.05 mm	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385	
④	FIXING TAPE FOR WIRE (Barrier Tape) Polyester	44 or 44D or 44-18MIL or 673F or 673A	—	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
					TERAOKA SEISAKUSHO CO.,LTD.	E56086
⑤	WINDING WIRE Polyurethane Enameled Copper Wire 0.12 mm DIAx1 : NP1,NP2 0.18 mm DIAx1 : NB	—	130	PROSPERITY ELECTRIC WIRE & CABLE CO.	E196072	
⑥	WINDING WIRE Polyurethane Enameled Copper Wire 0.18 mm DIAx1 : NS1,NS2	—		HANGZHOU WEIFENG ELECTRONIC CO.,LTD.	E229341	
				TAI-I COPPER(GUANGZHOU) CO.,LTD	E85640	
				Zhuhai Wei Han Wire Co., Ltd	E339217	
			ELEKTRISOLA (MALAYSIA) SDN BHD	E143312		
⑦	ADHESIVE Acrylic , Urethane or Epoxy			LOCTITE		
⑧	TERMINAL PIN Copper Clad Steel Wire $\Phi$ 0.8(Soldered) Under Coating(Copper)25% Weight Ratio. (Ref)Surface Plating(Sn100%) $3\mu$ m or More.			XIAMEN KEXIN ELECTRON CO.,LTD.		
⑨	SOLDER (For junction of a wire and a terminal) Lead-Free Sn-Ag-Cu			SENJU METAL Vendor::SOLNET METAL INDUSTRY CO.,LTD.		

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

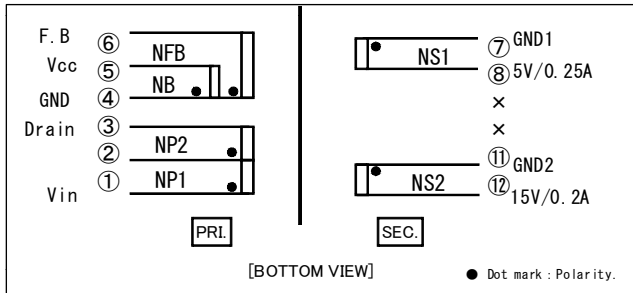
※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.

★BOBBIN UL94: 94V-0 ,CTI(IEC112): 175~250V (UL Level 3)



**SPECIFICATIONS / ECO2017SEO-D05V016**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARDS	
IEC60335-1 Ed.4	
Over Surface & Air Spacings	
PRI. - SEC.	4.0 mm MIN.(inside core)
PRI. - CORE	4.0 mm MIN.(outside core)
SEC. - CORE	4.0 mm MIN.(outside core)

**■ WINDING SPECIFICATIONS**

No.	order	coil	terminal	turns	wire	note		
0	0	600V $\leq$ CTI						
1	1	N P2	2 - 3	44	UEW 0.16	NP1+NP2=95ts		
2	2	N B	4 - 5	12	UEW 0.16			
3	3	N FB	4 - 6	5	UEW 0.16			
4	4	N S1	7 - 8	6	UEW 0.20			
5	5	N S2	11 - 12	16	UEW 0.20			
6	6	N P1	1 - 2	51	UEW 0.16			
* BARRIER TAPE & INSULATION TAPE SPECIFICATIONS								
					Insulation tape Color : <b>Yellow</b>			
No.	order	coil	terminal	Pin side	Core side	Ts	Insulation tape 17.5mm	note
0	0			-	-	-	t=25u 1 ts	
1	1	N P2	2 - 3	4.0	2.0	2ts	t=25u 1 ts	
2	2	N B	4 - 5	4.0	2.0	1ts	t=25u 1 ts	
3	3	N FB	4 - 6	4.0	2.0	-	t=25u 3 ts	
4	4	N S1	7 - 8	4.0	2.0	1ts	t=25u 1 ts	
5	5	N S2	11 - 12	4.0	2.0	1ts	t=25u 3 ts	
6	6	N P1	1 - 2	4.0	2.0	3ts	t=25u 3 ts	

· All specifications are subject to change without notice.  
Please read the precautions before using this catalog.

## SPECIFICATIONS / ECO2017SEO-D05V016

Compatible with lead-free solders

## ■ ELECTRICAL CHARACTERISTICS

(Test Conditions)					
(Temperature)		:	25±10°C		
(Relative Humidity)		:	25~75%RH		
No	Parameter	Test Terminal	Specification	Conditions	Test Instruments
4.1	Inductance	1 - 3	1.80mH ± 13%	10 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
4.2	Leakage Inductance	1 - 3 (4,5,6,SEC. short)	35.0uH MAX		
4.3	DC. Resistance	1 - 2	1.716Ω ±15%		Milli ohm meter ADEX : AX-114N or Equivalent
		2 - 3	1.129Ω ±15%		
		4 - 5	0.351Ω ±20%		
		4 - 6	0.164Ω ±20%		
		7 - 8	0.133Ω ±20%		
		11 - 12	0.336Ω ±20%		
4.4	Insulation Resistance	PRI.-SEC. PRI.,SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent
4.5	Withstanding Voltage	PRI.-SEC.	Without Breakdown  Sense:1mA	AC 3.0kVrms 1min or AC 3.6kVrms 1s	Puncture Tester Kikusui : TOS8650 or Equivalent
		PRI.-CORE SEC.-CORE		AC 1.5kVrms 1min or AC 1.8kVrms 1s	
4.6	Impulse Test	1 - 3	Without Breakdown	Pulse 600Vo-p 1s	Impulse Tester ECG : DWS-05 or Equivalent
4.7	Polarity & Turns Ratio X-X / 1 - 3	4 - 5	STD(0.1243)±7.0%	f=10kHz	Ratio Meter Ryowa : TRM-101A or Equivalent
		7 - 8	STD(0.0632)±9.9%		
		11 - 12	STD(0.1700)±5.0%		
		4 - 6	STD(0.0529)±9.9%		
4.8	Inductance	1 - 2	534.7uH ± 13%	10 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
		2 - 3	380.7uH ± 13%		
		4 - 5	28.4uH ± 13%		
		4 - 6	5.3 uH ± 13%		
		7 - 8	7.3 uH ± 13%		
		11 - 12	52.0uH ± 13%		



## SPECIFICATIONS / ECO2017SEO-D05V016

Compatible with lead-free solders

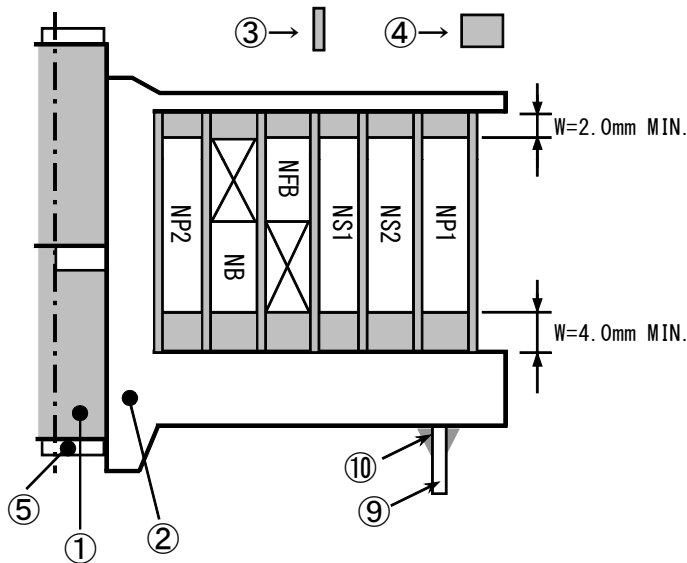
## MATERIAL LIST AND INSULATING CONSTRUCTION

No	ITEM & MATERIAL	MIN.THICKNESS OF LAYER	UL T.I (°C)	MANUFACTURER	UL FILE NO.
①	CORE Ferrite 20.9mm x17.6mm x7.7mm	—	—	TDK-EPC Corporation	—
②	BOBBIN Phenol Resin PM-9820	0.65 mm MIN.	150 94V-0	SUMITOMO BAKELITE CO.,LTD.	E41429
③	INSULATION TAPE Polyester Color : YELLOW	CT280	0.05 mm	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD 3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E165111
		1318-1			E17385
④	FIXING TAPE FOR WIRE (Barrier Tape) Polyester	44D-A or	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E17385
		WF with suffixes			JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD
⑤	FIXING TAPE FOR CORE Polyester Color : YELLOW	CT280	0.05 mm	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD 3M COMPANY ELECTRICAL MARKETS DIV (EMD)	E165111
		1318-1			E17385
⑥	WINDING WIRE Polyurethane Enameled Copper Wire 0.16 mm DIAx1 : NP1,NP2,NB NFB	—	130	PROSPERITY ELECTRIC WIRE & CABLE CO.	E196072
				XIAMEN HUNG'S ENTERPRISE CO.,LTD.	E219154
				HANGZHOU WEIFENG ELECTRONIC CO.,LTD.	E229341
⑦	WINDING WIRE Polyurethane Enameled Copper Wire 0.20 mm DIAx1 : NS1,NS2	—	—	—	—
⑧	IMPREGNATION Epoxy Varnish	—	—	Optional	—
⑨	TERMINAL PIN Copper Clad Steel WireΦ0.8(Soldered) Under Coating(Copper)25% Weight Ratio. (Ref)Surface Plating(Sn100%)3μm or More.	—	—	Optional	—
⑩	SOLDER (For junction of a wire and a terminal) Lead-Free Sn-Ag-Cu	—	—	Optional	—

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.

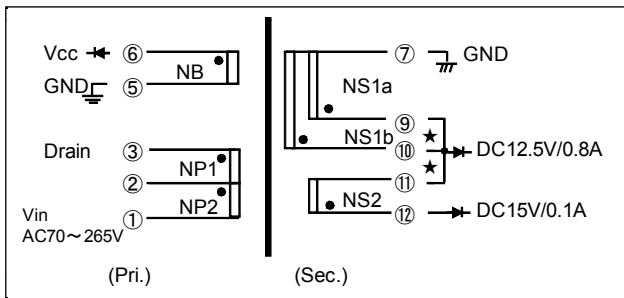
☆ BOBBIN UL94 : 94V-0 ,CT(IEC112) : 175~250V (UL Level 3)



LAYERS OF INSULATION TAPE		
No.	Coil	Insulation
0	Inner Layer	1T
1	NP2	1T
2	NB	1T
3	NFB	3Ts
4	NS1	1T
5	NS2	3Ts
6	NP1	3Ts
7		

**SPECIFICATIONS / ECO2020SEO-D01V016**

Compatible with lead-free solders

**■ SCHEMATICS**

**■ SAFETY STANDARDS**

SAFETY STANDARD : IEC60335

\* All products do not obtain the above standard approvals. But insulating construction and materials are designed to consider the above Standard.

**■ WINDING SPECIFICATIONS**

No	COIL	TERMINAL	TURNS	WIRE	WINDING METHOD
1	N P 1	3 - 2	28	1UEW 0.20	osculation
2	N S 1a	9 - 7	15	1UEW 0.30	osculation
3	N S 2	12 - 11	3	1UEW 0.30	equality
4	N B	6 - 5	25	1UEW 0.20	equality
5	N S 1b	10 - 7	15	1UEW 0.30	osculation
6	N P 2	2 - 1	28	1UEW 0.20	osculation