

Transformers

For Power Supply

Pin Terminal

SRW Series

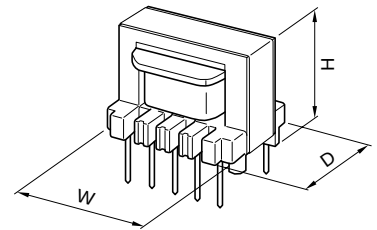
The SRW series transformers employ PC type ferrite material, which exhibit outstanding efficiency in the frequency band associated with switching power supplies.

FEATURES

- The use of a specially engineered ferrite core ensures low power loss and high magnetic flux density. The result is a series of remarkably compact, high-efficiency transformers that generate little heat.
- TDK is able to design these transformers with a wide variety of shapes and dimensions to accommodate a broad range of output power requirements.
- Bobbins and other components are available specifically for designs that must conform to major electrical safety standards, including UL and VDE.

APPLICATIONS

Switching mode power transformers and inductors for TVs, VCRs, DVD players, printers, copiers, air conditioners, AC adapters.



STANDARD PRODUCT

Part No.	Dimensions W×D×H(mm)	Maximum output power (W)	Core sectional area (cm ²)	No. of pin terminal	Fig.
SRW13ES	14×14×13.5	3	0.17	10	1
SRW16ES	18.5×14.5×17.5	6	0.2	10	2
SRW16LES	20×16.5×27.5	7	0.2	9	3
SRW19ES	22.5×17×20	9	0.23	10	4
SRW25SEC	17.5×20.5×22.5	12	0.42	8	5
SRW2820ED-1	37×27.5×27	25	0.82	16	6
SRW2820ED-2	30.5×26×25	25	0.82	12	7
SRW2820ED-3	35×27×26.5	25	0.82	16	8
SRW2924ED	31×30×31	35	0.82	12	9
SRW2929ED(18pin)	37×27.5×37.5	50	0.82	18	10
SRW2929ED(12pin)	31×30×37	50	0.82	12	11
SRW3333ED	39.5×30×39.5	70	0.82	16	12
SRW35EC	40×31.5×50	70	1.17	20	13
SRW40EC	47×35×51	120	1.48	18	14
SRW42EC	47×35×54	160	1.86	18	15
SRW45LEC	50×38×65	180	1.85	18	16
SRW49EC	52×37×55	200	2.32	18	17
SRW49LEC	52×38×63	220	2.32	18	18
SRW2820ED5	31×31×24	25	0.82	14	19
SRW3020ED5	35.5×33×24	25	0.82	16	20
SRW2820ED7*	33×27×26.5	25	0.82	16	21
SRW13EPC	15×15×8.5	2	0.1	10	22
SRW17EPC	19×19×13	5	0.19	10	23
SRW19EPC	20.5×21×13	6	0.19	11	24
SRW2220EM	24×22.5×17	15	0.51	9	25
SRW27EM	29×29×17	15	0.44	11	26
SRW28EC(F)	31×38×26	30	0.77	12	27

* Bobbin material: Polyethylene phthalate

• Bobbin material: UL Grade (over 94V-2), phenol

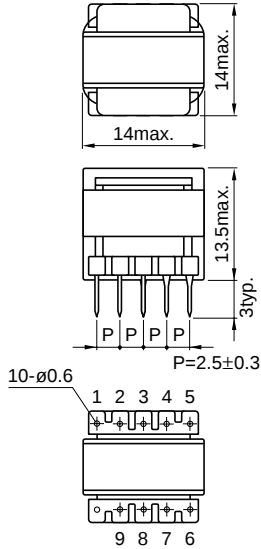
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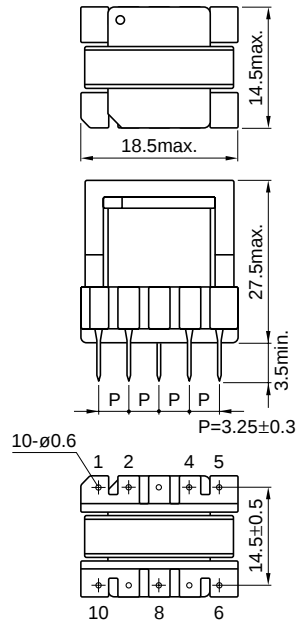
SRW Series

SHAPES AND DIMENSIONS

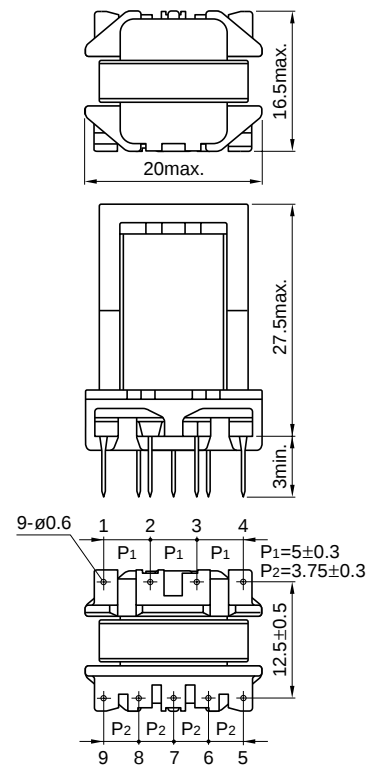
SRW13ES(Fig.1)



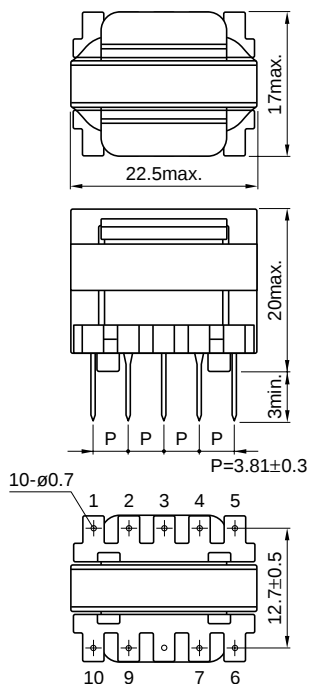
SRW16ES(Fig.2)



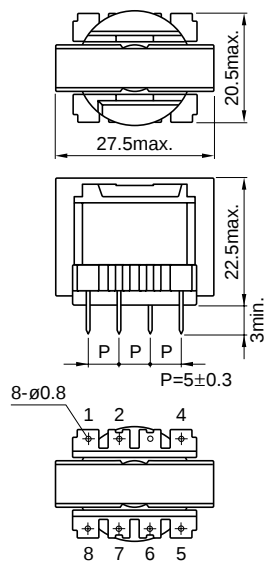
SRW16LES(Fig.3)



SRW19ES(Fig.4)

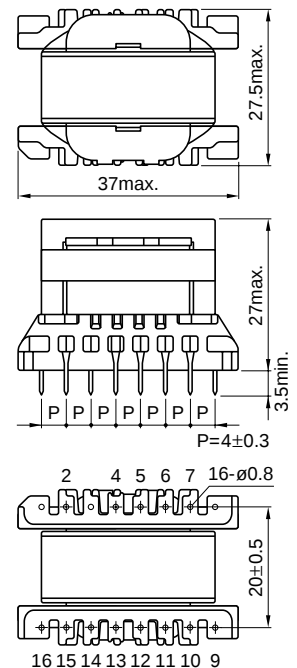


SRW25SEC(Fig.5)



SRW2820ED-1(Fig.6)

For VCR



Dimensions in mm

Transformers

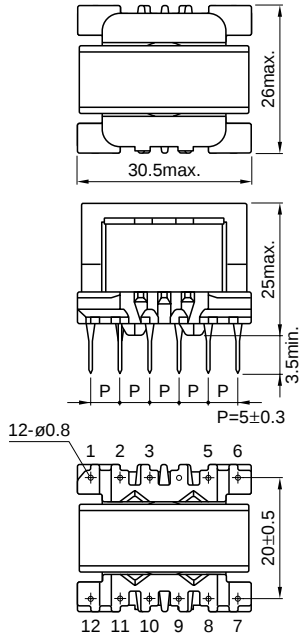
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Pin Terminal

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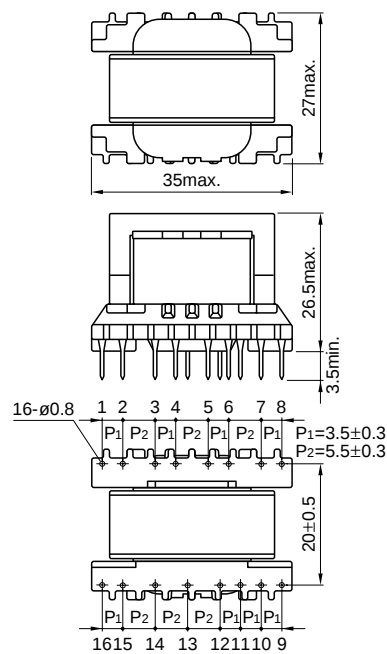
SRW2820ED-2(Fig.7)

For adapter

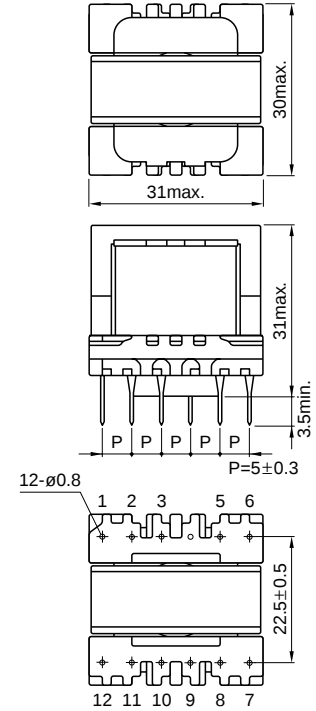


SRW2820ED-3(Fig.8)

For air conditioner

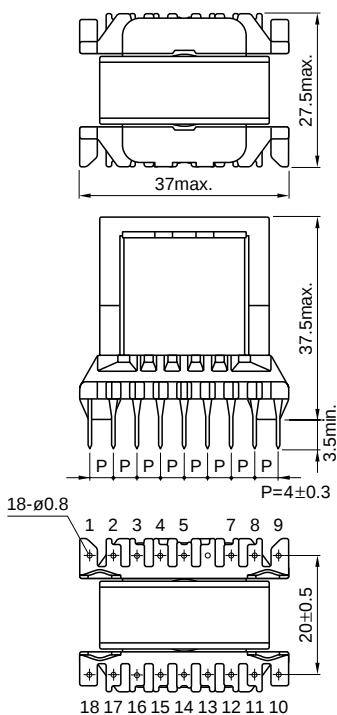


SRW2924ED(Fig.9)



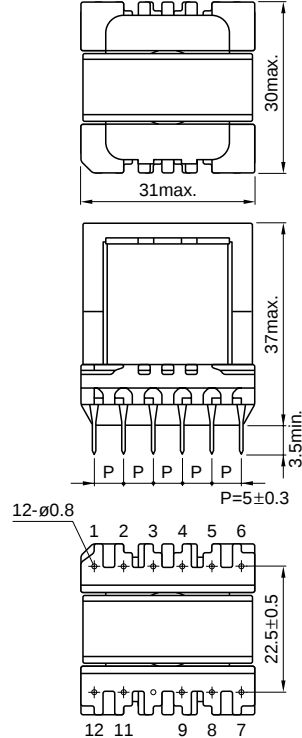
SRW2929ED(Fig.10)

18-pin

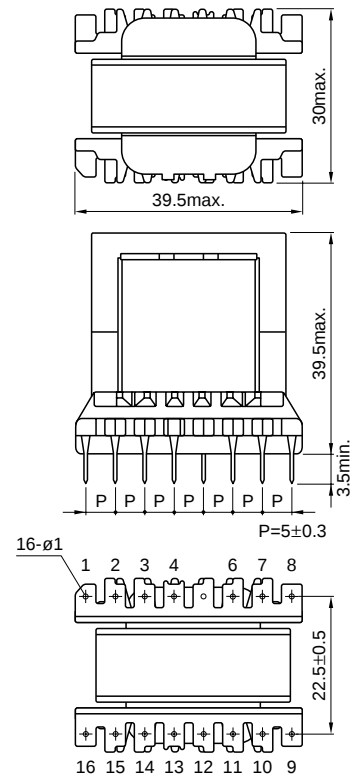


SRW2929ED(Fig.11)

12-pin



SRW3333ED(Fig.12)



Dimensions in mm

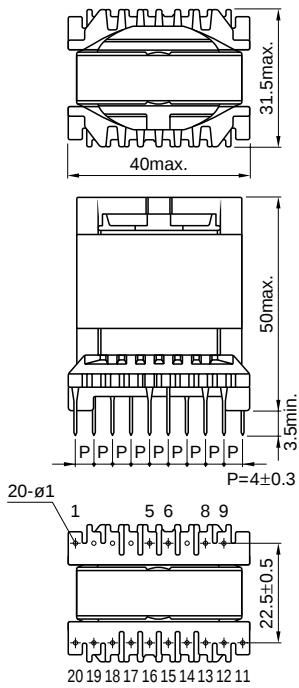
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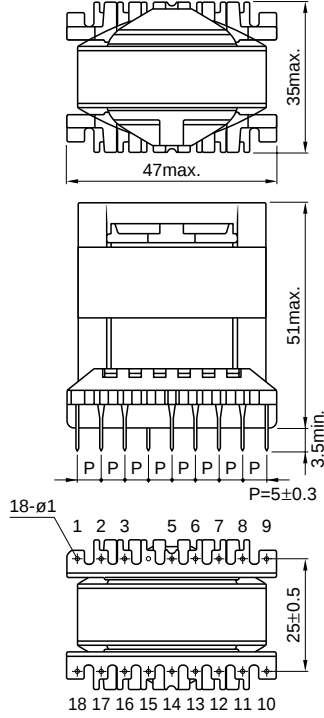
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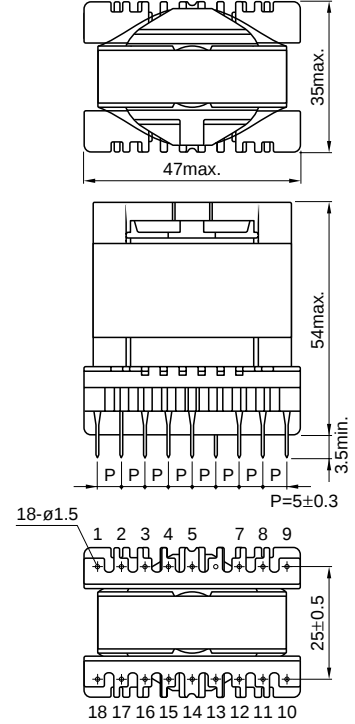
SRW35EC(Fig.13)



SRW40EC(Fig.14)



SRW42EC(Fig.15)



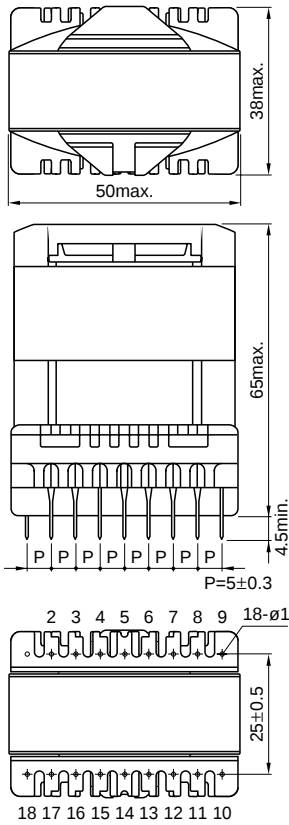
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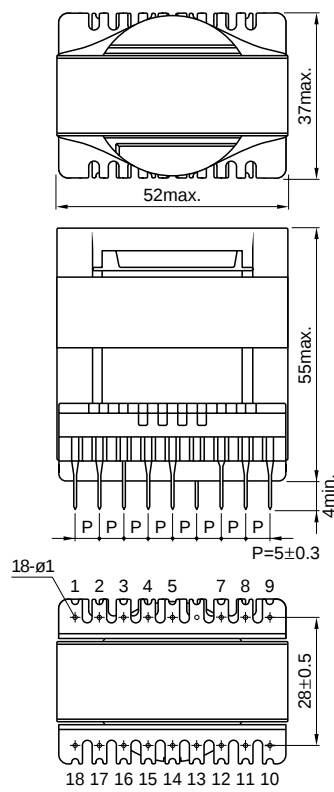
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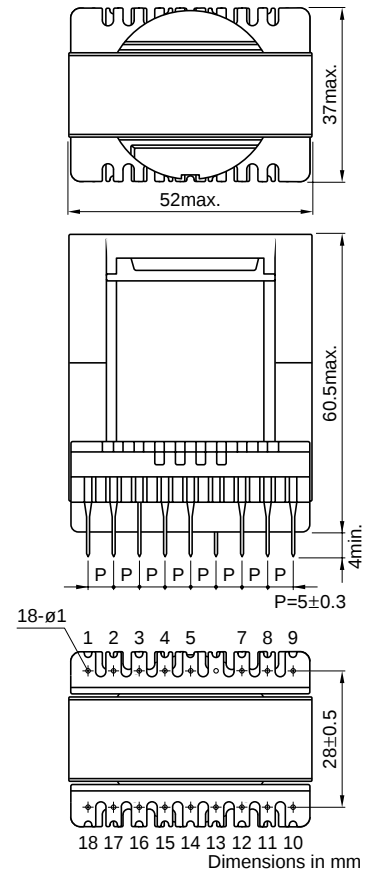
SRW45LEC(Fig.16)



SRW49EC(Fig.17)



SRW49LEC(Fig.18)



Transformers

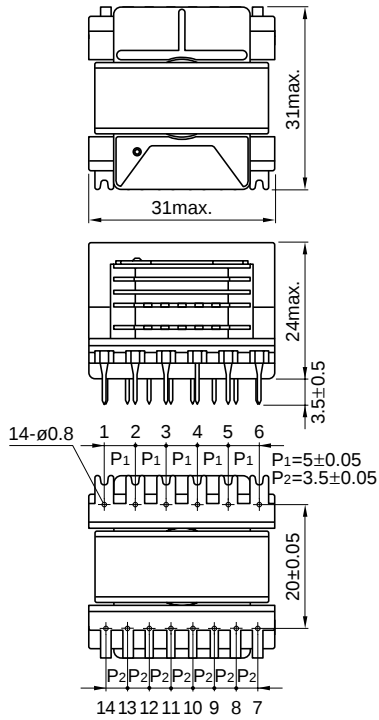
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Pin Terminal

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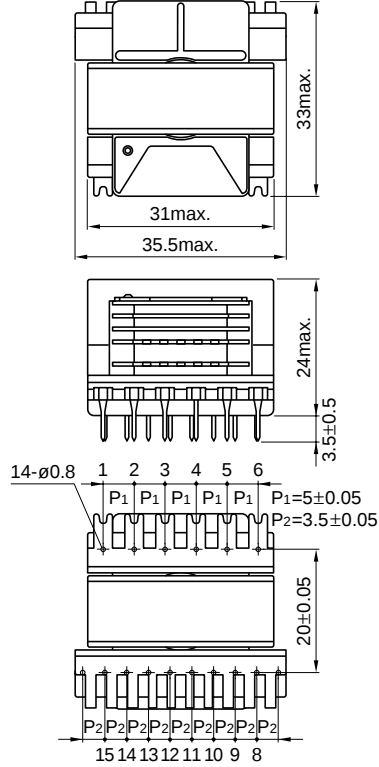
SRW2820ED5(Fig.19)

For VCR, DVD



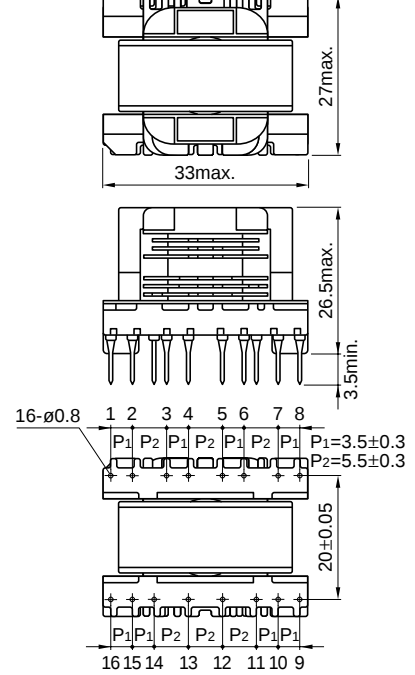
SRW3020ED5(Fig.20)

For VCR, DVD

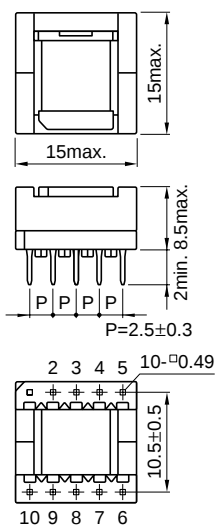


SRW2820ED7(Fig.21)

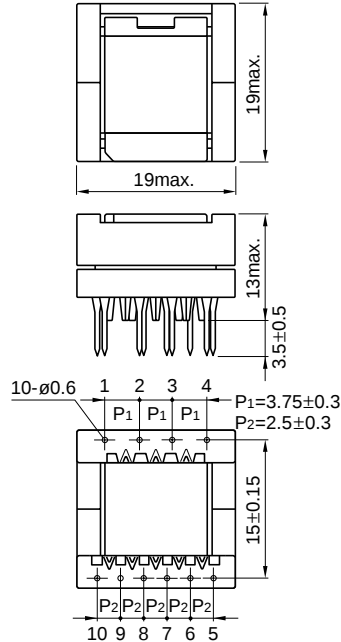
For air conditioner



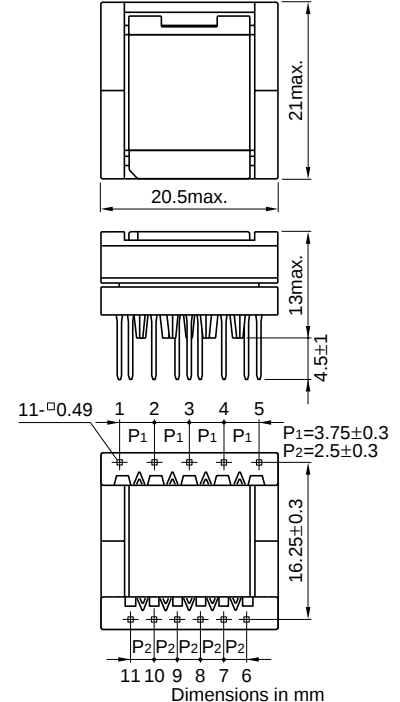
SRW13EPC(Fig.22)



SRW17EPC(Fig.23)



SRW19EPC(Fig.24)



Dimensions in mm

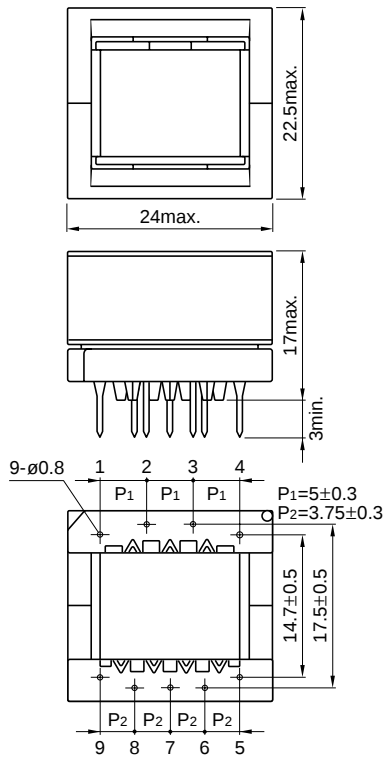
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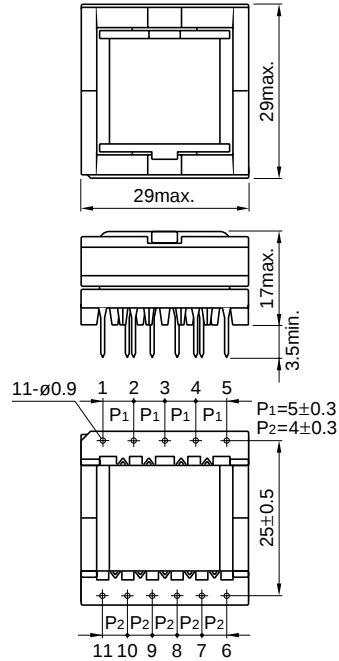
SRW Series

SHAPES AND DIMENSIONS

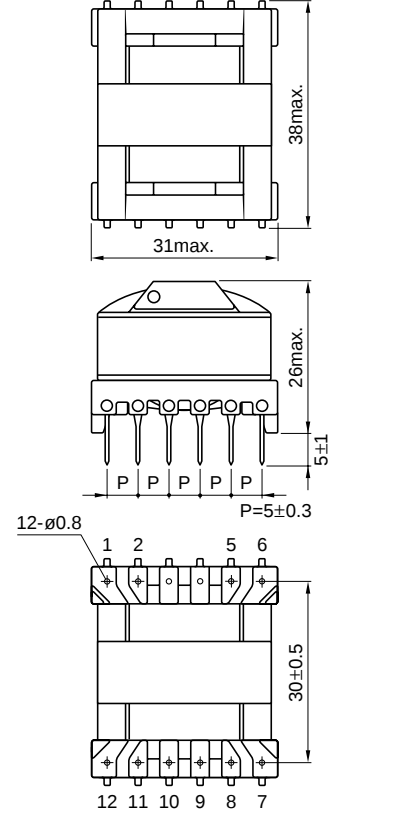
SRW2220EM(Fig.25)



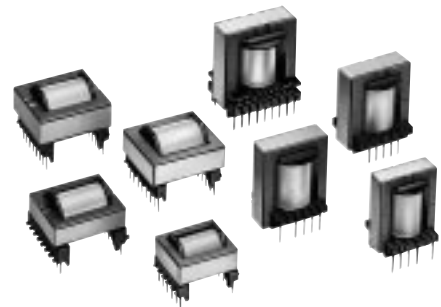
SRW27EM(Fig.26)



SRW28EC(F)(Fig.27)



Dimensions in mm



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GENERAL CHARACTERISTICS

Standard test conditions

Ambient temperature: +5 to +35°C/Relative humidity : 45 to 85(%)RH [without dewing]

Items	Standards	Test methods
Inductance	Individual specification (tolerance $\pm 10\%$)	Use LCR meter (f=1kHz), YHP4261 or equivalent.
DC resistance	1 Ω min.: +10% max. Less than 1 Ω : +15% max. Less than 0.1 Ω : +30% max.	Use Milliohm-meter VP2941 or equivalent.
Turn ratio and polarity	Specified value ± 1 to 20 %, individual specification	Use turn ratio tester TRD-09 (f=1 to 50kHz) or equivalent.
Withstand voltage	No abnormality between the primary and secondary windings, between the primary winding and the core, and so on.	Apply separately specified AC voltage (50Hz) for 1min.
Insulation resistance	10M Ω min.	Measure by applying DC 500V. Use insulation resistance meter SM-5E or equivalent.
Terminal strength	9.8Nmin.	Apply 9.8N load in the direction of terminal axis for 30 $\pm$ 5s. Any terminal must not be pulled out or chatter.
Temperature rise	Standard design value 45°C max. (thermocouple method) 55°C max. (resistance method)	Measure the core surface by thermocouple method, and the windings by resistance method or thermocouple method.
Solderability	Solder covers more than 90%.	Dip in solder with the temperature of 230 $\pm$ 5°C for 2 $\pm$ 0.5s.

RELIABILITY TESTS

Items	Standards	Test methods
Vibration resistance		Conform to JIS-C 5025. Sweep 1.5mm amplitude and 10-to-50-to-10Hz in 1min in X, Y, and Z directions for 2h respectively
Heat resistance	Standard of inductance, insulation resistance, withstand voltage must be satisfied.	Measure in normal temperature after leaving in 120 $\pm$ 2°C for 96h.
Cold resistance		Measure in normal temperature after leaving in -40 $\pm$ 2°C for 96h.
Humidity resistance		Measure in normal temperature after leaving in 60 $\pm$ 2°C and 90 to 95(%) RH for 96h.
Damp-proof lifetime		Apply maximum AC. 250V between the primary and secondary windings under the same conditions as above, leave for 500h, and then measure.
Temperature cycle		One cycle is -25°C for 30min, normal temperature for 30min, and 85°C for 30min; measure after 10 cycles of the test have been performed.

CAUTIONS

To design a transformer, the following items must be specified as conditions.

- Circuit method
Single transistor RCC, single transistor forward, push-pull, half-bridge, etc.
- Input voltage range
Especially, rectified DC lower limit voltage is important.
- Operating frequency
Especially for RCC method, lower limit frequency under the maximum load must be determined.
- Maximum duty
This item specifies the maximum ON time when input voltage is at the lower limit. For separate excitation, the maximum duty is about 45%.
- Maximum temperature rise
This item determines the temperature rise tolerated by the transformer, calculated by subtracting the maximum ambient temperature from the heat resistant grade 120°C (105°C for transformers conforming to UL) of the used material.
The standard maximum temperature rise is 55°C (for resistance method).
- Conformity to safety standards
Any structure and material conforming to various standards can be selected.
- Output voltage/current
Necessary to determine the turn ratio and used wire material.
- Direction on the circuit diagram or transformer wiring
Necessary because the winding voltage differs especially according to whether the diode used for the secondary side is first recovery type or Schottky barrier type.

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