

## Transformer Construction Parameters

Var	Value	Units	Description
Core Type	EI35		Core Type
Core Material			Core Material
Bobbin Reference	Generic, 6 pri.6 sec.		Bobbin Reference
Bobbin Orientation	Vertical		Bobbin type
Primary Pins	6		Number of Primary pins used
Secondary Pins	6		Number of Secondary pins used
LP	1225	μH	Nominal Primary Inductance
ML	0.00	mm	Safety Margin on Left Width
MR	0.00	mm	Safety Margin on Right Width
LG	1.007	mm	Estimated Gap Length

## Bias Variables

Var	Value	Units	Description
NB	16		Bias Winding Number of Turns
Wire Size	27	AWG	Wire size of Bias windings
Winding Type	Bifilar (x2)		Wire type of Bias windings
Layers	0.78		Bias Winding Layers
Start Pin(s)	6		Starting pin(s) for Bias winding
Termination Pin(s)	5		Termination pin(s) for Bias winding
LS(Bias)	5.44mH		Bias winding inductance (+/- 10%)

## Primary Winding Section 1

Var	Value	Units	Description
NP1	50		Number of Primary Winding Turns in the First Section of Primary
Wire Size	24	AWG	Primary Winding - Wire Size
Winding Type	Single (x1)		Primary Winding - Number of Parallel Wire Strands
L	1.80		Primary Winding - Number of Layers
Start Pin(s)	3		Starting pin(s) for first section of primary winding
Termination Pin(s)	2		Termination pin(s) for first section of primary winding

## Primary Winding Section 2

Var	Value	Units	Description
NP2	50		Rounded (Integer) Number of Primary winding turns in the second section of primary
Wire Size	24	AWG	Primary Winding - Wire Size
Winding Type	Single (x1)		Primary Winding - Number of Parallel Wire Strands
L2	1.80		Primary Number of Layers in 2nd split winding
Start Pin(s)	2		Starting pin(s) for the second section of primary winding
Termination Pin(s)	1		Termination pin(s) for the second section of primary winding

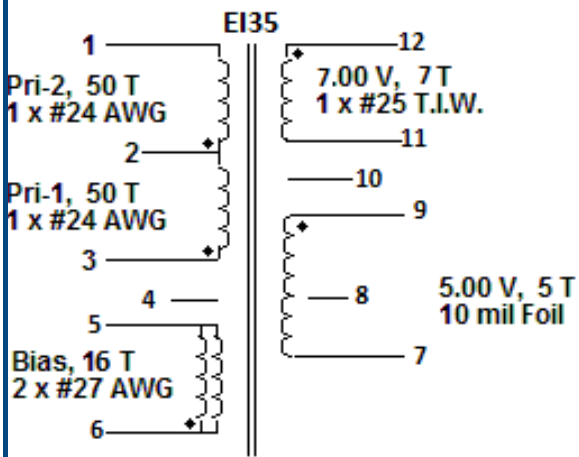
## Output 1

Var	Value	Units	Description
VO	5.00	V	Typical Output Voltage
IO	11.00	A	Output Current
VOUT_ACTUAL	5.00	V	Actual Output Voltage
NS	5		Secondary Number of Turns
Foil Thickness	10	mil	Wire size of secondary winding
Winding Type	Foil		Output winding number of parallel strands
L_S_OUT	5.00		Secondary Output Winding Layers
Start Pin(s)	9		Starting pin(s) for Output winding
Termination Pin(s)	7		Termination pin(s) for Output winding
LS1	1.8uH		Secondary Inductance(+/-10 %)

## Output 2

Var	Value	Units	Description
VO	7.00	V	Typical Output Voltage
IO	1.00	A	Output Current
VOUT_ACTUAL	5.90	V	Actual Output Voltage
NS	7		Secondary Number of Turns
Wire Size	25	AWG	Wire size of secondary winding
Winding Type	Single (x1)		Output winding number of parallel strands
L_S_OUT	0.04		Secondary Output Winding Layers
Start Pin(s)	12		Starting pin(s) for Output winding
Termination Pin(s)	11		Termination pin(s) for Output winding
LS2	27.2uH		Secondary Inductance(+/-10 %)

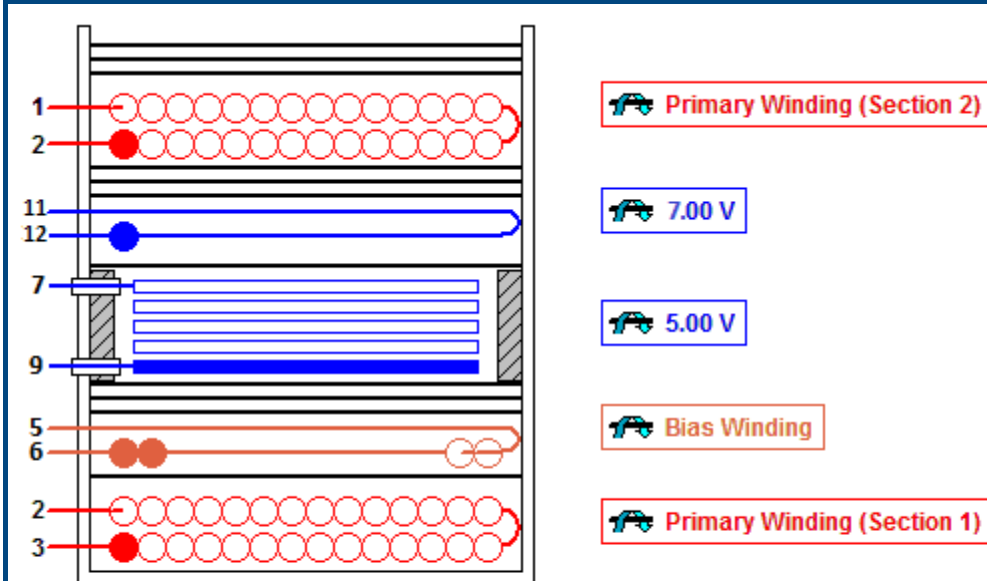
## Electrical Diagram



### KEY

- Pri-1 = Primary Winding (Section 1)
- Pri-2 = Primary Winding (Section 2)
- T.I.W. = Triple Insulated Wire

## Mechanical Diagram



### KEY

- Mechanical start of winding (also denotes electrical phase)
- Mechanical start of foil winding (also denotes electrical phase)
- ↻ Direction of winding (clockwise)

## Winding Instruction

### Primary Winding (Section 1)

Start on pin(s) 3 and wind 50 turns (x 1 filar) of item [5]. in 2 layer(s) from left to right. Winding direction is clockwise. At the end of 1st layer, continue to wind the next layer from right to left. On the final layer, spread the winding evenly across entire bobbin. Finish this winding on pin(s) 2.

Add 1 layer of tape, item [3], for insulation.

#### **Bias Winding**

Start on pin(s) 6 and wind 16 turns (x 2 filar) of item [6]. Winding direction is clockwise. Spread the winding evenly across entire bobbin. Finish this winding on pin(s) 5.

Add 3 layers of tape, item [3], for insulation.

#### **Secondary Winding**

Use 3 mm margin (item [8]) on the top and 3 mm margin on the bottom (to meet safety). Start on pin(s) 9 and wind 5 turns of item [7]. Winding direction is clockwise. Finish this winding on pin(s) 7.

Add 1 layer of tape, item [3], for insulation.

Start on pin(s) 12 and wind 7 turns (x 1 filar) of item [9]. Spread the winding evenly across entire bobbin. Winding direction is clockwise. Finish this winding on pin(s) 11.

Add 3 layers of tape, item [3], for insulation.

#### **Primary Winding (Section 2)**

Start on pin(s) 2 and wind 50 turns (x 1 filar) of item [5]. in 2 layer(s) from left to right. Winding direction is clockwise. At the end of 1st layer, continue to wind the next layer from right to left. On the final layer, spread the winding evenly across entire bobbin. Finish this winding on pin(s) 1.

Add 3 layers of tape, item [3], for insulation.

#### **Core Assembly**

Assemble and secure core halves. Item [1].

#### **Varnish**

Dip varnish uniformly in item [4]. Do not vacuum impregnate.

## Comments

**1. Use of a grounded flux-band around the core may improve the EMI performance.**

**2. For non margin wound transformers use triple insulated wire for all secondary windings.**

## Materials

Item	Description
[1]	Core: EI35, PC95, gapped for ALG of 123 nH/T <sup>2</sup>
[2]	Bobbin: Generic, 5 pri. + 3 sec.
[3]	Barrier Tape: Polyester film [1 mil (25 µm) base thickness], 15.70 mm wide
[4]	Varnish
[5]	Magnet Wire: 24 AWG, Solderable Double Coated
[6]	Magnet Wire: 27 AWG, Solderable Double Coated
[7]	Copper Foil: 10 mil thick, 9.70 mm wide, covered with 1 layer of lapped tape. Terminations to foil: 2 x 23 AWG magnet wire with sleeving
[8]	Tape: Polyester web 3 mm wide
[9]	Triple Insulated Wire: 25 AWG

## Electrical Test Specifications

Parameter	Condition	Spec
Electrical Strength, VAC	60 Hz 1 second, from pins 1,2,3,4,5 to pins 6,7,8.	3000
Nominal Primary Inductance, µH	Measured at 1 V pk-pk, typical switching frequency, between pin 1 to pin 3, with all other Windings open.	1225
Tolerance, ±%	Tolerance of Primary Inductance	10.0
Maximum Primary Leakage, µH	Measured between Pin 1 to Pin 3, with all other Windings shorted.	30.63

Although the design of the software considered safety guidelines, it is the user's responsibility to ensure that the user's power supply design meets all applicable safety requirements of user's product.