Transformer Construction Parameters

Var	*Value*	*Units*	*Description*
Core Type	**EI35**		Core Type
Core Material	**PC95**		Core Material
Bobbin Reference	**Generic, 7 pri. + 7 sec.**		Bobbin Reference
Bobbin Orientation	**Horizontal**		Bobbin type
Primary Pins	**7**		Number of Primary pins used
Secondary Pins	**7**		Number of Secondary pins used
LP	**1229**	µH	Nominal Primary Inductance
ML	**0.00**	mm	Safety Margin on Left Width
MR	**0.00**	mm	Safety Margin on Right Width
LG	**1.201**	mm	Estimated Gap Length

Bias Variables

Var	*Value*	*Units*	*Description*
NB	**12**		Bias Winding Number of Turns
Wire Size	**25**	AWG	Wire size of Bias windings
Winding Type	**Bifilar (x2)**		Wire type of Bias windings
Layers	**0.77**		Bias Winding Layers
Start Pin(s)	**4**		Starting pin(s) for Bias winding
Termination Pin(s)	**3**		Termination pin(s) for Bias winding

Primary Winding Section 1

Var	*Value*	*Units*	*Description*
NP1	**109**		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	**1.98**		Primary Winding - Number of Layers
Start Pin(s)	**2**		Starting pin(s) for first section of primary winding
Termination Pin(s)	**1**		Termination pin(s) for first section of primary winding

Primary Output 1 :

Var	*Value*	*Units*	*Description*
VO	**6.00**	V	Typical Output Voltage
IO	**1.00**	A	Output Current
VOUT_ACTUAL	**5.90**	V	Actual Output Voltage
NS	**6**		Secondary Number of Turns
Wire Size	**25**	AWG	Wire size of secondary winding
Winding Type	**Bifilar (x2)**		Output winding number of parallel strands
L_S_OUT	**0.08**		Secondary Output Winding Layers
Start Pin(s)	**7**		Starting pin(s) for Output winding
Termination Pin(s)	**6**		Termination pin(s) for Output winding

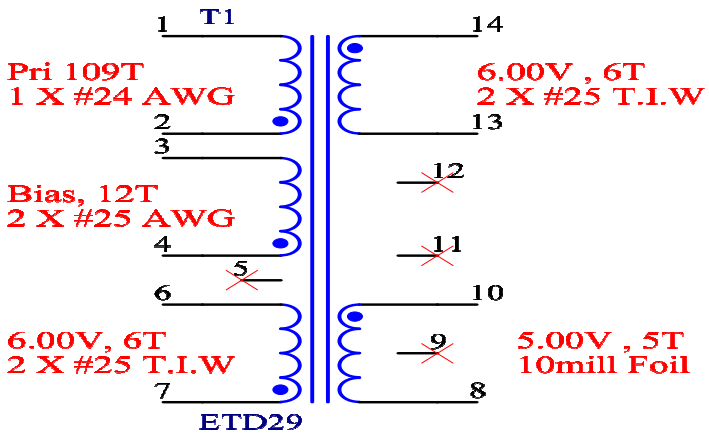
Output 1

Var	*Value*	*Units*	*Description*
VO	**5.00**	V	Typical Output Voltage
IO	**10.00**	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)	**8**		Termination pin(s) for Output winding

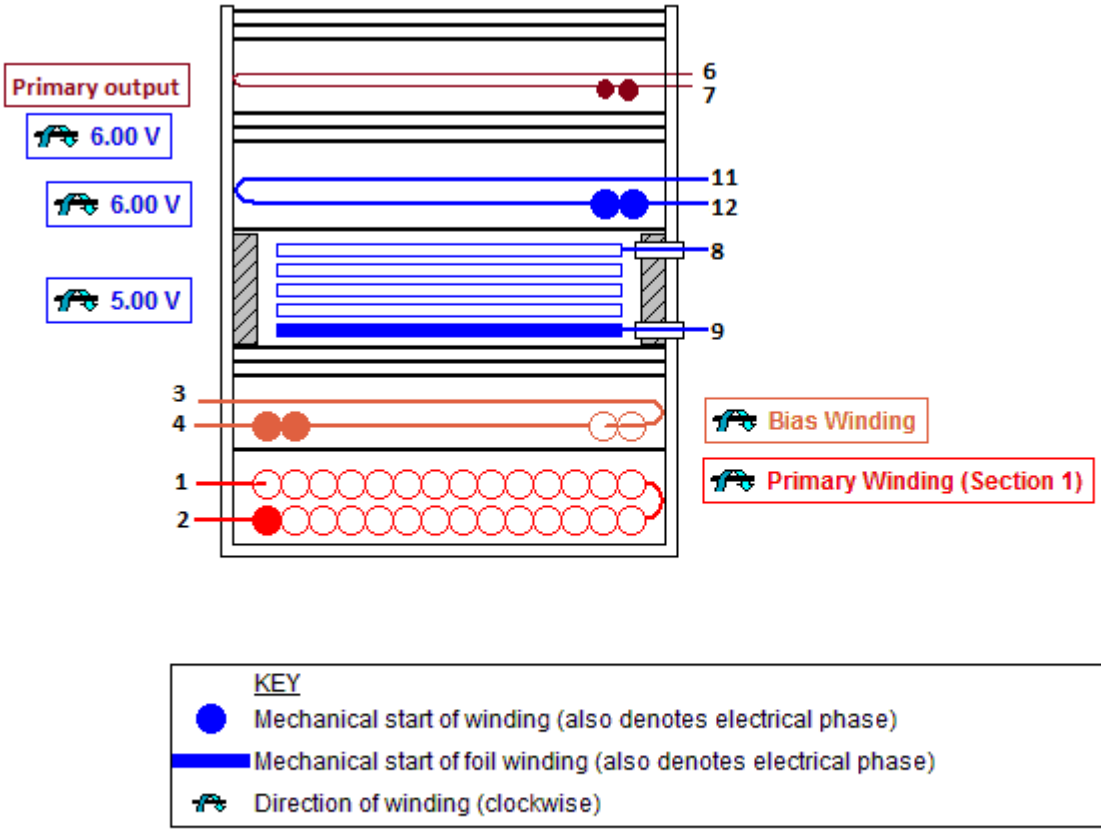
Output 2

Var	*Value*	*Units*	*Description*
VO	**6.00**	V	Typical Output Voltage
IO	**1.00**	A	Output Current
VOUT_ACTUAL	**7.00**	V	Actual Output Voltage
NS	**6**		Secondary Number of Turns
Wire Size	**25**	AWG	Wire size of secondary winding (Manual Overwrite)
Winding Type	**Bifilar (x2)**		Output winding number of parallel strands (Manual Overwrite)
L_S_OUT	**0.08**		Secondary Output Winding Layers
Start Pin(s)	**12**		Starting pin(s) for Output winding
Termination Pin(s)	**11**		Termination pin(s) for Output winding

ELECTRICAL DIAGRAM :



MECHANICAL DIAGRAM :



Winding Instruction

Primary Winding (Section 1)

Start on pin(s) 2 and wind 109 turns (x 1 filar) of item [5]. 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 1 layer of tape, item [3], for insulation.

Bias Winding
Start on pin(s) 4 and wind 12 turns (x 2 filar) of item of item [6].Winding direction is clockwise. Spread the winding evenly across entire bobbin. Finish this winding on pin(s) 3 .

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

Secondary Winding
Use 3 mm margin (item [8]) on the left side and 3 mm margin on the right side (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) 8.

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

Start on pin(s) 12 and wind 6 turns (x 2 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 output
Use 3 mm margin (item [8]) on the left side and 3 mm margin on the right side (to meet safety .Start on pin 7 and wind 6 turns (x2filars) of item [9], Spread the winding evenly across entire bobbin ,winding direction is clockwise, Finish this winding on pin 6.

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

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 103 nH/T²**
[2]	**Bobbin: Generic, 7 pri. + 7 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: 25 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**