

**Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.**



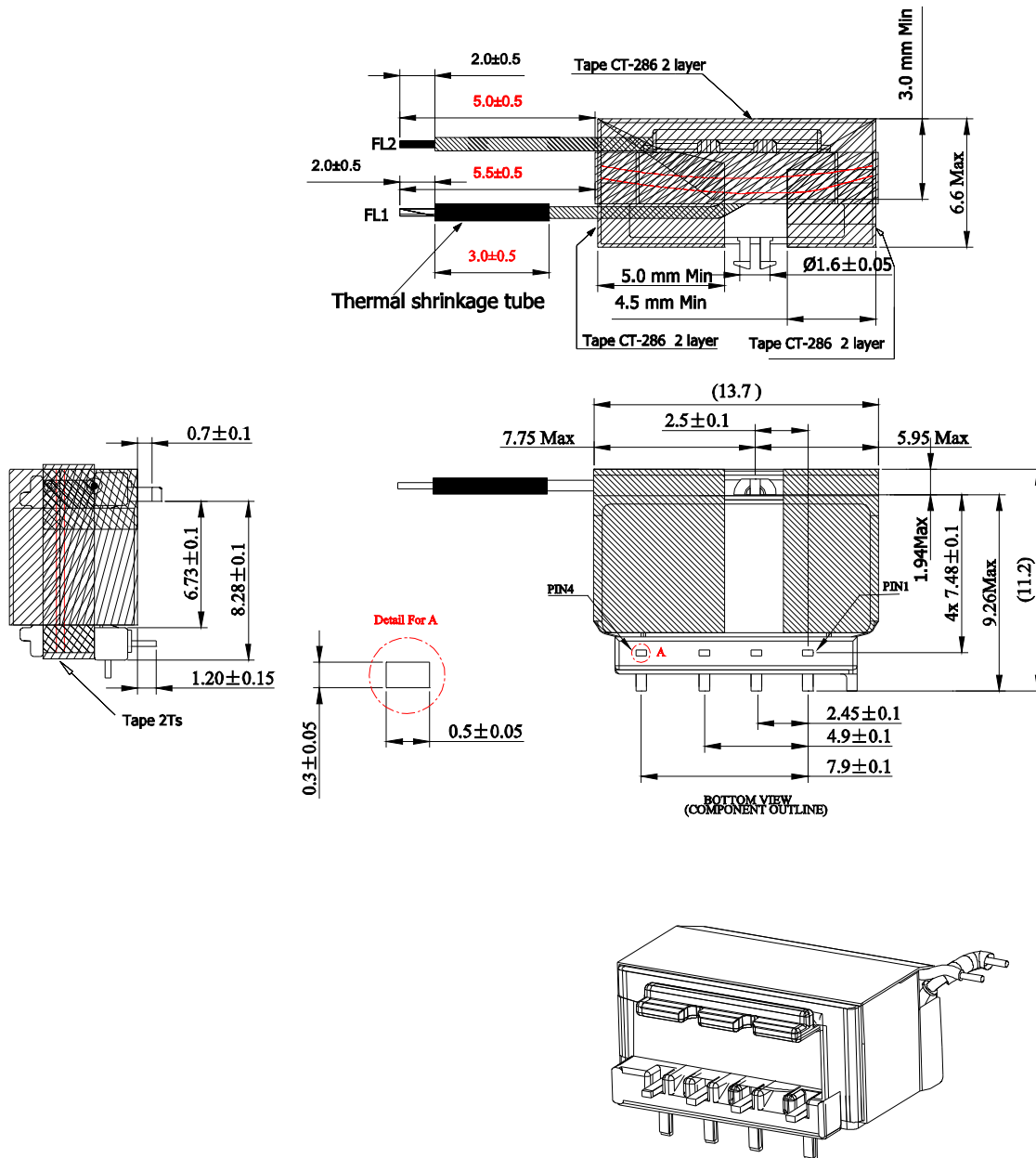
**Drawing NO.:FPS-228-D0000131-101**  
**Description: Main transformer**

Part No	Date	Drafted	Revision	Designer	Approved	Description of Change
FPS-228-D0000131-101	2011-01-26	May He	01	White		Release for proto.
FPS-228-D0000131-101	2011-02-15	May He	02	White		Adjust the dimension.
FPS-228-D0000131-101	2011-02-28	May He	03	White		Adjust the primary wire size to 0.13mm.

<b>Supplier Name</b>	
<b>Date</b>	
<b>Signature</b>	

Supplier agrees to manufacture without deviations to this specification.

### 1. Dimensions (UNIT:mm)



Note:

1. FL1 marking with thermal shrinkage tube
2. the insulation layer of the FL2 can't be melt to appear the bare copper since the center of the insulation part to the root of the winding.
3. the thermal shrinkable tube can't be melt to crack to appear the insulation layer of the wire.

Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.

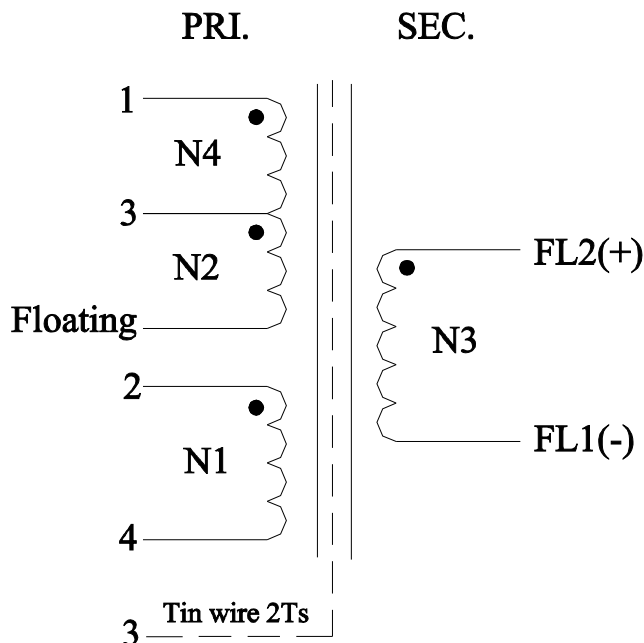
**2.Electrical Specification:**

ITEM	SPEC	Measuring Condition	Measuring Equipment
INDUCTANCE(2-4)	500uH±8%	@ 100KHz/1V	Agilent 4284A or Equiv
LEAKAGE INDUCTANCE(2-4)	35 uH Max	@ 100KHz/1V SHORT FL1,FL2	Agilent 4284A or Equiv
Q(2-4)	130Min	@ 100KHz/1V	Agilent 4284 A or Equiv
D.C.R (2-4)	2.0Ω Max	@ 25degC	CHROMA 16502 or Equiv
D.C.R (1-3)	0.8Ω Max	@ 25degC	CHROMA 16502 or Equiv
D.C.R (FL1-FL2)	39.0mΩ Max	@ 25degC	CHROMA 16502 or Equiv
HI-POT PRI.-SEC.	3600Vac	@ 1mA/3sec	CHROMA 19073 or Equiv
HI-POT (1-3)-(2-4)	500Vac	@ 0.5mA/3sec	CHROMA 19073 or Equiv
HI-POT SEC.-CORE	3600Vac	@ 0.5mA/3sec	CHROMA 19073 or Equiv
HI-POT USB-CORE	3600Vac	@ 0.5mA/3sec	CHROMA 19073 or Equiv

**Note:** All electrical parameters to be tested 100% unless otherwise specified.

**Note2:** Pls. refer to IQC-08002 for detailed test procedure. Flex will have the discretion to change the limits based on limit sample data

**3.Schematic:**



Proprietary Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.

#### 4. Winding Construction Instructions:

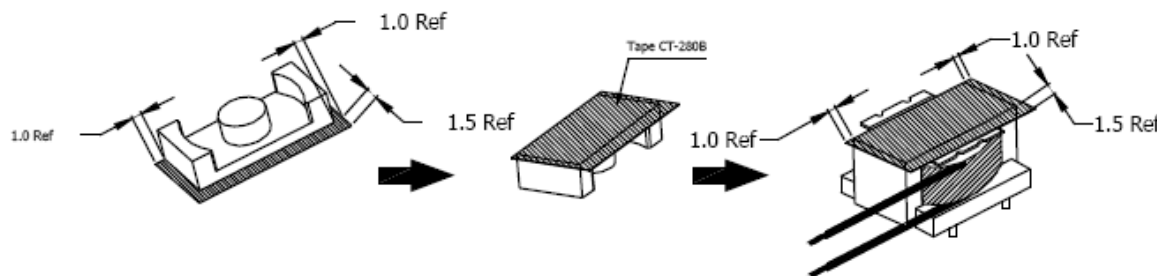
NO .	Terminal start/end	Wire	Turns
N1	2 - 4	0.13 2UEW	66T (4 full layers)
N2	3- float	0.15 2UEW	14.75T (1 full layer)
N3	FL2 – FL1	0.30 TEX-E	5T (1 full layer)
N4	1--3	0.11 2UEW	12T (1 layer -center)
N5	3 --3	0.15mm Tinned Cu wire	2T

#### Notes:

1. For N1,N2, N3, N4- winding should cover the whole bobbin window/
2. All windings should be wound evenly, ideally no space between wires
3. N3 will be flywired on the side of groove ,detail pls see the mechanical view.
4. the tin wire should locate in the upside a little bit of the core and make sure the wrap orientation is clockwise to increase the distance between the tin wire and pin2.(绕制镀锡线的位置稍微偏向磁芯中部偏上, 同时挂脚时采用顺时针方向, 增加镀锡线和pin2脚之间的距离, 避免短路。同时镀锡线必须绕指不能松动, 以保证和磁芯可靠接触。)
- 5.点胶的位置建议在内测, 避免和镀锡线直接接触, 影响镀锡线你和磁芯表面的可靠接触。

#### 5. ASSEMBLE INSTRUCTIONS:

- A)To avoid the tape to be broken by the sharp corner of the core, firstly put a thin(0.035) tape on the top surface of the core, to ensure the tape extend to the core edge a little bit, this can reinforce the wrapping safety tape, please refer to the picture below.  
 为避免安规胶带被磁芯的拐角刺破,故先在顶部磁芯上加贴一层厚度为0.035mm (CT-280B) 的胶带, 以便给安规胶带一个缓冲, 然后再包安规胶带。具体尺寸和张贴方式见下图:



- B)Need epoxy/产品需要点胶固定。

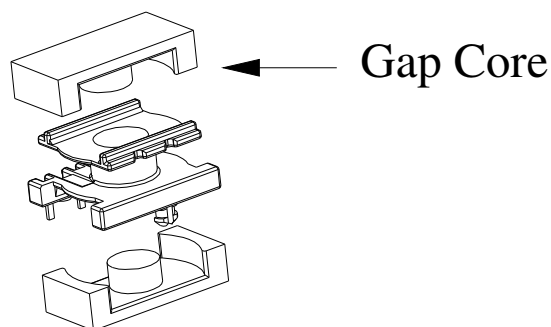
- C)FL1 marking with thermal shrinkage tube, and the tube must be extended the end of soldering /FL1 需要热缩套管标识清楚,并且套管需要伸到浸锡的根部。

- D)To avoid N5 and N1 to short , add the sleeving tape after finish the N4 winding./在完成 N4 绕组后需要加一块胶带, 以避免 N5 绕组与 N1 绕组之间短路。

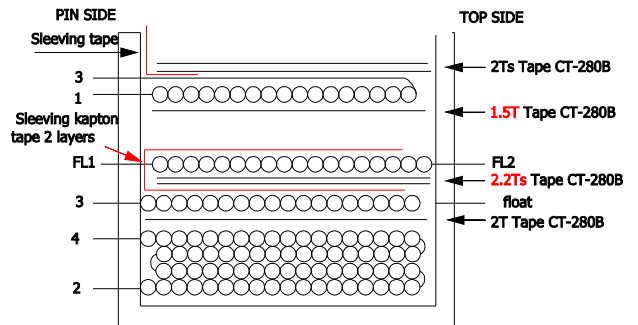
- E)add the sleeving.

- F)此产品绕组与绕组之间都用黄色胶带(CT-280B),产品外包胶带用白色胶带(CT-286).

- G) 注意将有气隙的磁芯放在在骨架的顶部/pls put the gap core on the top of the bobbin.



#### Winding Stack UP:

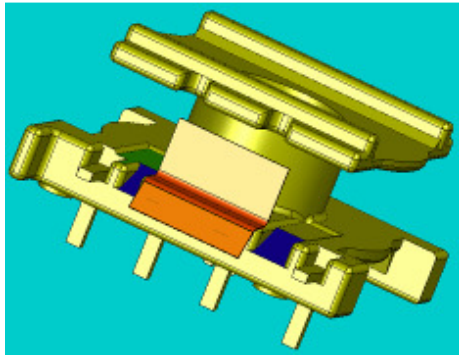


**Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.**

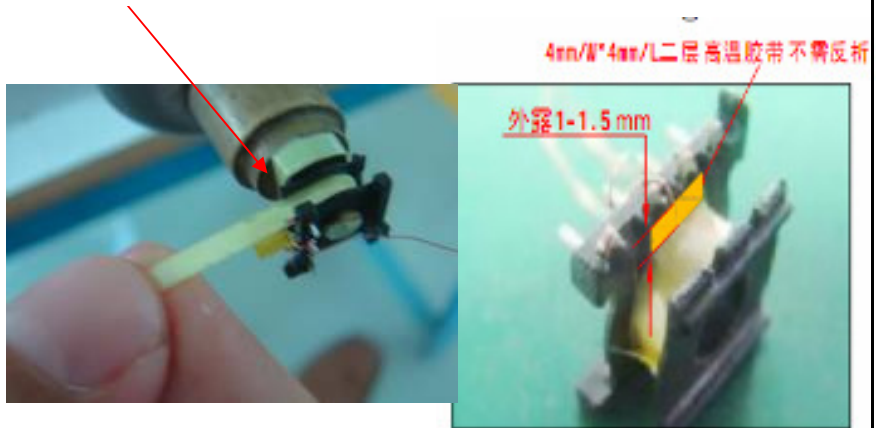
H) Add the sleeving tape for N3, the tape is must be kapton tape(201).

Afer wind the N2, wrap 1 layer yellow tape first, then put on 2 layers for 4mmX4mm kapton tape(201) on the cross position, make sure the cross position between the N2 lead and the fly wire was covered enough. Then wrap the second turn of the yellow tape.

屏蔽绕组绕完后, 先绕一层黄胶带, 再将 2 层 4mm\*4mm 的 kapton 胶带固定在相应的位置, 注意, 必须充分保证 N2 和飞线接触和挤压的位置必须被 kapton 胶带充分覆盖, 在绕第二层黄胶带如下图所示。

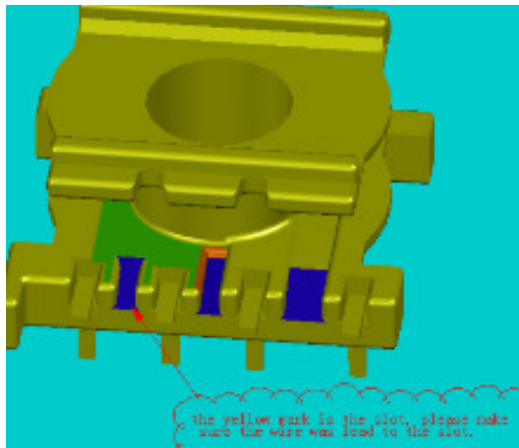


**2 layer 4mm\*4mm kapton**



I) make sure the wire was lead to the slot.

the 8mm\*7mm yellow tape was put between the proper, make sure the pin3 was isolated with the Tin wire,



Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.

K) Fly wire FL1 have to be routed over the outside tape as shown on Figure A. Figure B show incorrect routing method.

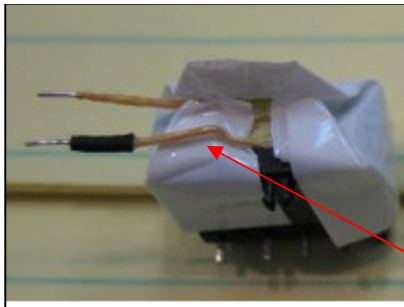


Figure A

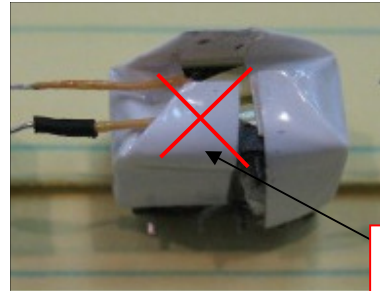
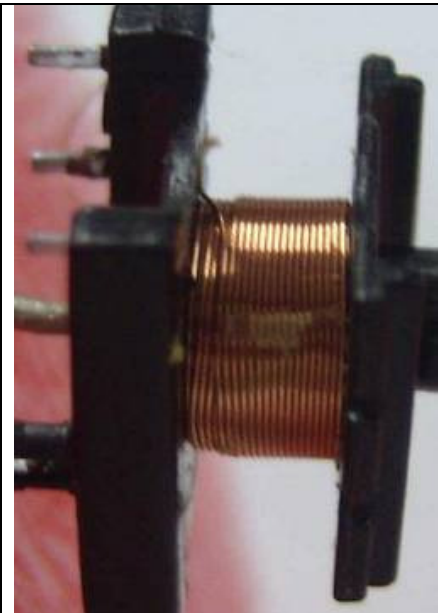


Figure B

L) Below are pictures showing good and bad winding layering

N1 Winding (primary)

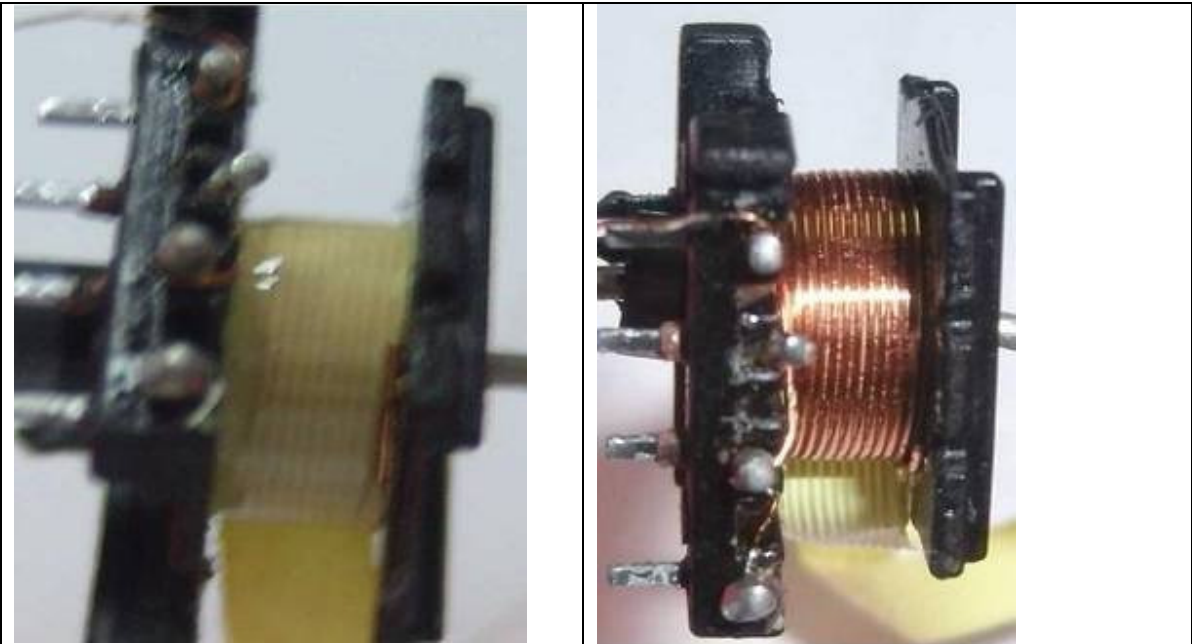


Turns: 66T(4 Layer)  
First layer: 17T  
Secondly layer: 17T  
Thirdly layer: 16T  
Fourthly layer: 16T  
**The winding need to smooth, no cross.**

Turn: 66T Without gap and crossing

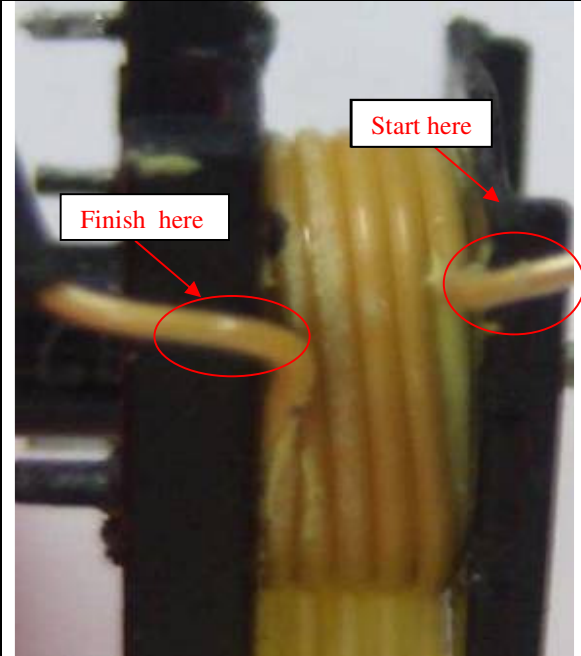
Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.

N2 Winding(shielding)



full layer without gap and crossing.

N3 Winding (secondary)

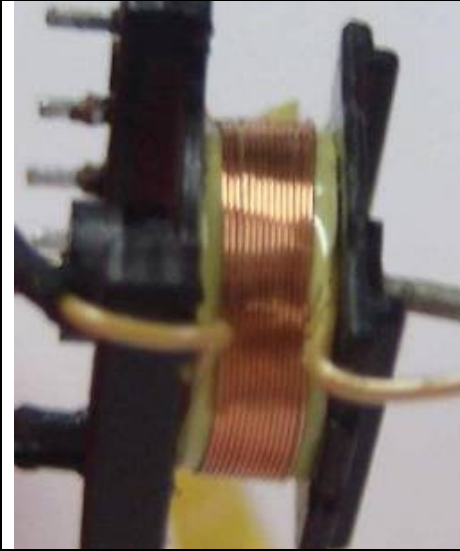


For the secondary winding ,the start and finish need put in the middle of the bobbin , the process pls see left picture.

Turns: 5T Full layer without gap and crossing

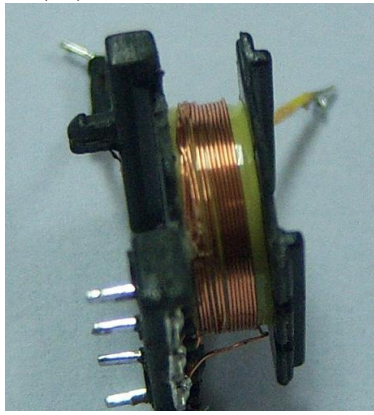
Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.

N4 Winding (auxillary)

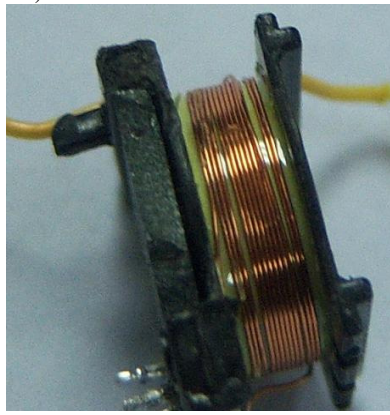


Turns: 14T winding position in the middle without gap and crossing

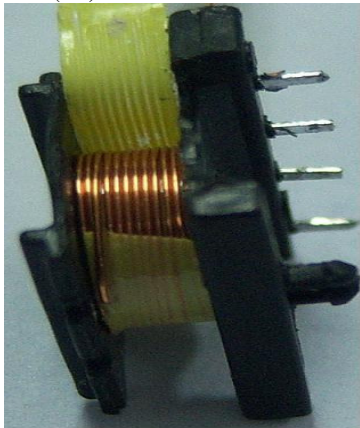
auxiliary winding with badly cross (N4)



Auxiliary winding with big gap N4



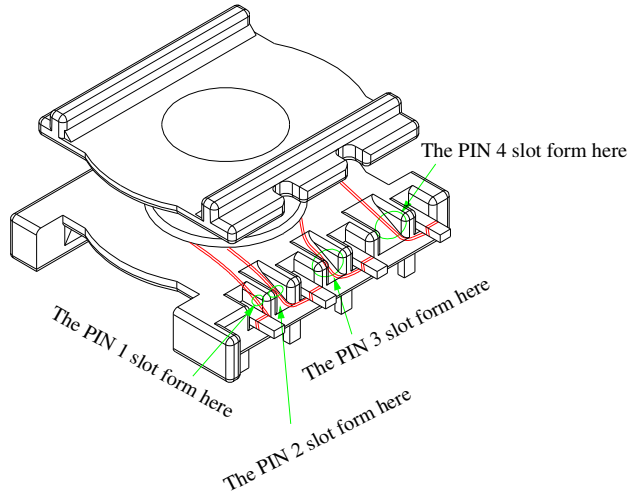
shield winding with badly cross(N2)





**Propriety Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with “For Information Only” or “Controlled Copy” by Documentation Control.**

M).Below is the process for which slot need to be used, pls follow。



**6.Bill of Materials:**

**No Material substitutions without Flextronics International written approval:**

NO.	NAME	MATERIAL	RATING	UL NO.	MANUFACTURER	
1	CORE	EER12.7/6.1 JPP-44A	NA	NA	1	A-CORE JIANGMEN ELECTRONICS CO.,LTD.
		EER12.7/6.1 PG242			2	MAGSOURCE
		EER12.7/6.1 TP4A			3	TDG
2	BOBBIN	LCP E4008	150°C	E41938	1	SUMITOMO BAKELITE CO LTD
3	WIRE	POLYURETHANE MW75C UEW/U	130°C	E201757	1	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO.,LTD
					2	TAI-I ELECTRIC WIRE & CABLE CO.,LTD.
4	TRIPLE WIRE	TEX-E	130°C	E206440	1	FURUKAWA ELECTRIC CO., LTD.
5	TAPE	POLYESTER TAPE CT-286 CT-280B	130°C	E165111	1	JINJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD
		92	180°C	E17385	2	3M
6	TUBE	CB-HFT	125°C	E180908		Chang Yuan Electronics(Shenzhen)Co.,Ltd.

**Proprietary Information, No Dissemination or Use Allowed Without Flextronics Prior Written Permission. All printed copies are considered Uncontrolled copies unless the copies are stamped with "For Information Only" or "Controlled Copy" by Documentation Control.**

**7.Safety and Compliance Requirements:**

- 1) The transformer must meet RoHS Directive 2002/95/EC.
- 2) PEC-REG-1-003-00 Rev L Flextronics Banned Substances
- 3) EN60950-1 Reinforced insulation as applicable
- 4) **The transformer must meet halogen free.**

**8.Other Applicable Documents:**

- 1) Leads Solderability per ANSI-J-STD-002 Section 4.2
- 2) Flammability IEC695-2-2
- 3) Tape and Reel if applicable EIA-481 per latest revision.
- 4) Matrix Trays if applicable JEDEC Standard No 95-1 Section 6. Matrix trays require Flextronics approval prior to mass production.

**9.Other Material Requirements:**

- 1) All Materials Shall be UL94V-1 or UL94V-0 (Burn Rate)
- 2) All Materials must have ASTM D2863 Oxygen Index 28% or better or meet IEC 695-2-2 (Fire Test Response)
- 3) All Wire insulation materials must be UL Recognized.

**10.Operating Ambient Temperature:**

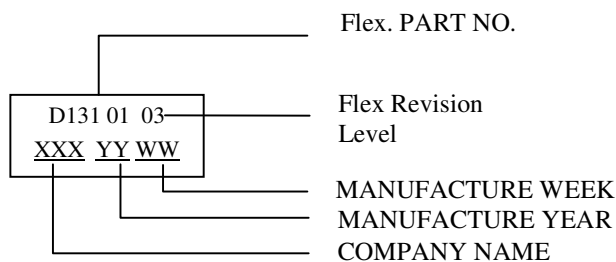
All listed electrical and Mechanical specifications must be within tolerance from -40°C to 85°C unless otherwise specified. DC resistance must be within specification at 25°C.

**11.Storage Temperature:**

-40°C to 125°C unless otherwise specified.

**12.Marking:**

- 1) Flextronics Part Number
- 2) Date code marking
- 3) Manufacturers Name or Logo



**13.Qualification Requirements:**

- 1) Supplier must submit minimum of 25pcs sample batch, each transformer shall have label for test correlation. Test report must contain all parameters in the specification, average, standard deviation, cpk, minimum and maximum value should be present on the report. Suppliers must include 2pcs without varnish or epoxy for tear down and design verification.