

Demo Board Test Report for LD7830+LD8105

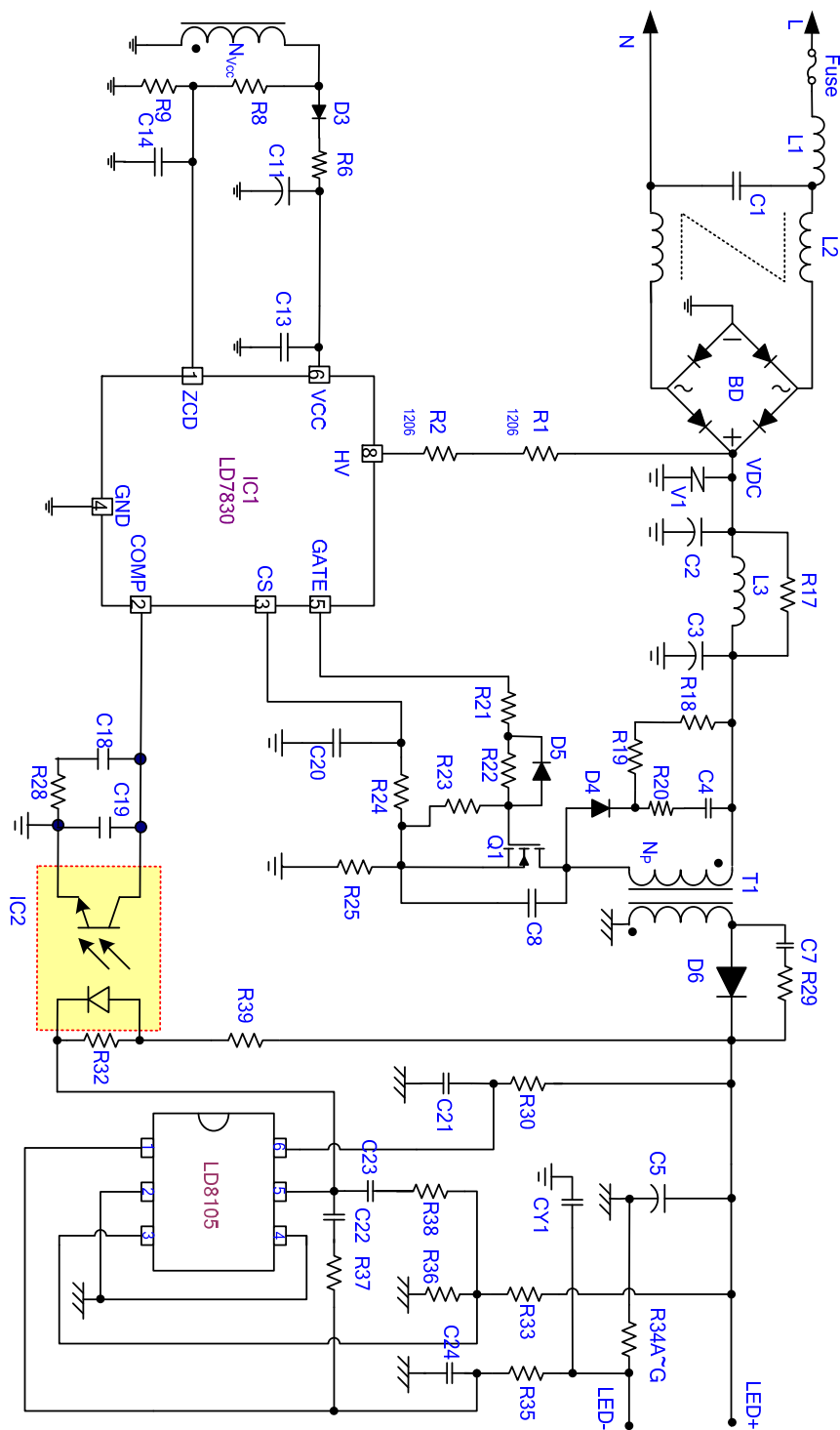
--- 16.8W (24V, 0.7A) LED Lighting Power

Tested by	Reviewed by	Approved by
Yichuan Tsai		

Total pages	Revision	Date
16	0	2011/11/28

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I. Schematic


II. BOM

P/N	Component Value	Note
Fuse	2A/250V	
V1	Varistor	471
R1	4.7k/ 1206	
R2	4.7k/1206	
R6	0/0805	
R8	200k/ 0805	
R9	36k/ 0805	
R17	20k/ 1206	
R18, R19	33k/ 1206	
R20	10/ 1206	
R21	4.7/ 1206	
R22	47/ 1206	
R23	100k/ 0805	
R24	220/ 0805	
R25	0.36/ 1W	
R28	220/ 0805	
R29	51/ 1206	
R30	0/ 0805	
R32	NC	
R33	180K/0805	
R34A~R34G	1/ 1210	
R35	4.7k/ 0805	
R36	8.2k/0805	
R37	0/ 0805	
R38	100k/ 0805	
R39	4.7k/ 0805	
C1	0.1uF	X-cap
C2	0.047uF/400V	塑膠電容
C3	0.1uF/400V	塑膠電容
C4	3.3nF/1206/500V	
C5	1000uF/ 35V	電解電容
C7	470pF/ 500V	
C8	NC	
C11	22uF/ 50V	
C13	0.1uF/ 0805	
C14	NC	
C18	3.3uF/ 0805	
C19	0.33uF/ 0805	
C20	270pF/0805	

P/N	Component Value	Note
C21	0.1uF/50V	
C22	0.1uF/0805	
C23	0.1uF/0805	
C24	4.7uF/0805	
D3	RS1006FL	
D4	RS1006FL	
D5	1N4148	
D6	10A/ 150V	PANJIT
BD	600V/1A	
T1	Leadtrend Design	
L1	220uH/ MCD-0608-221k	美磊
L2	Leadtrend Design	
L3	1mH/ MCD-0912-102k	美磊
Q1	650V / 7A	Nikos
IC1	LD7830	SOP-7
IC2	EL817	
IC3	LD8105	SOT-26
CY1	470pF/3kV	Y 電容

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III. EXECUTIVE SUMMARY

Office	HC
Model Name	LD7830+LD8105 DemoBoard#01
Version	0
IC	LD7830+LD8105

TEST	Result	Comments
5. Green Mode Power Consumption	PASS	
6. Turn On Delay Time	PASS	
7. Output Short Protection	PASS	
8. Efficiency , PF Test	PASS	
9. Stress Voltage Test	PASS	
10. Thermal Test	PASS	

1. Input Voltage & Frequency

The unit shall be capable of operating as a universal AC input power supply accepting AC inputs. The power supply shall operate between the following voltages (from 90V to 264V). The supply will be designed to operate for a Table 1.

	Minimum	Normal	Maximum
Input Voltage	90Vac	110Vac	264Vac
Frequency	60HZ	60HZ	60HZ

Table 1.

2. Output Loads

Parameter	Output Voltage			Output Constant Current (at CV:24V, or CR: 34.188Ω)		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
		24V		706.9mA	707mA	707.3mA

Table 2.

3. Line Regulation

Test Conditions:

Input: 90Vac/115Vac/230Vac/264Vac(60Hz)

Output: CV mode (24V)&CR mode(34.188Ω)&NoLoad

Ambient Temperature : 25°C

Input Voltage(Vac)	90Vac	115Vac	230Vac	264Vac
Output Curren(mA)	707.1	706.9	707.2	707.1

Table 4-1. CV mode (24V)

Input Voltage(Vac)	90Vac	115Vac	230Vac	264Vac
Output Curren(mA)	706.9	707.1	707.3	707.2

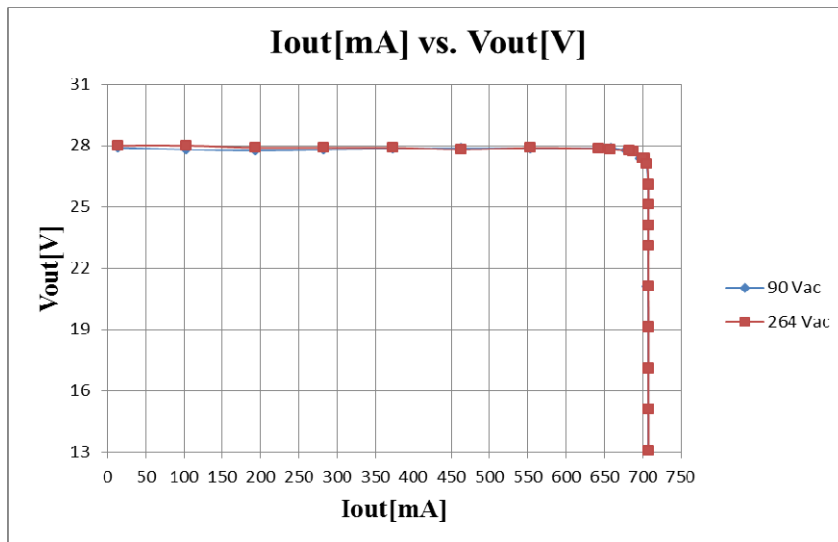
Table 4-2. CR mode (34.188Ω)

Input Voltage(Vac)	90Vac	115Vac	230Vac	264Vac
Output Voltage (V)	27.8	27.8	27.9	27.9

Table 4-3. No Load

4. CV-CC Curve
Test Condition:
Input: 90Vac/115Vac/230Vac/264Vac (60Hz)

Output: CC mode(15mA–700mA) and CV mode(15V-27.8V)

Ambient Temperature: 25°C

5. Green Mode Power Consumption

 The input power of power supply shall remain **less than 500mW** under output at no load condition.

Test Condition:
Input: 90Vac/115Vac/230Vac/264Vac (60Hz)

Output: No Load

Ambient Temperature: 25°C

Test Result: PASS

V _{in} (Vac)	P _{out} (W)	P _{in} (mW)
90	No Load	165.7
115	No Load	176.2
230	No Load	269.4
264	No Load	293.4

Table 3

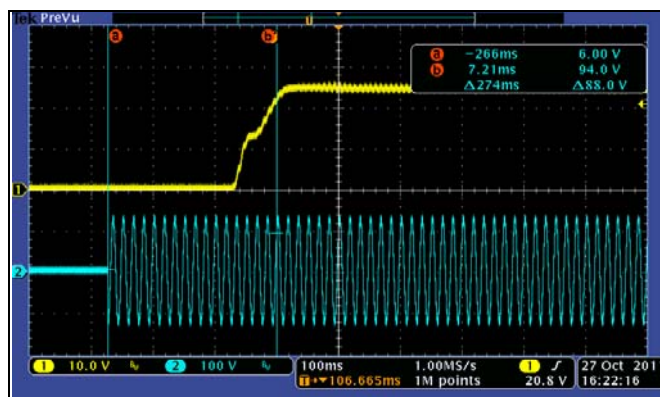
6. Turn On Delay Time

Turn on delay time will be less than 3 seconds at full load. Turn on delay time is measured as the delay between input voltage being applied at 0° phase angle and when the outputs arrive within 10% of their operating value. Turn on delay time is measured using an input voltage of 90VAC(rms) and input frequency of 60Hz.

Test Conditions:
Input: 90Vac(60Hz)
Output: CV mode (24V)
Ambient Temperature : 25°C
Test Result: PASS

Input	T _{turn on delay}
90Vac	274ms

Table 5.

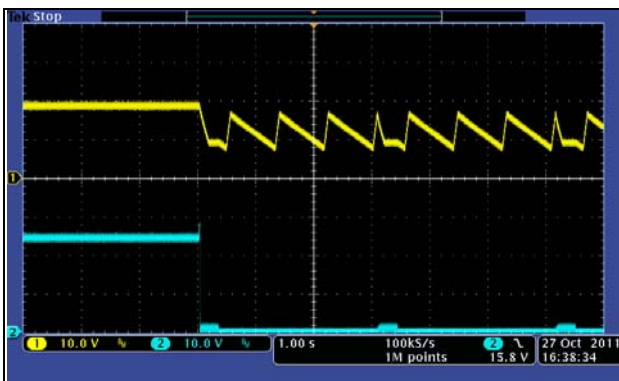


Turn on Time Test
 Vin: 90Vac/60Hz
 O/P: 24V/0.7A
 CH1: V_{O_+24V}
 CH2: AC Input Voltage
 Reading: **274ms**

Fig.1

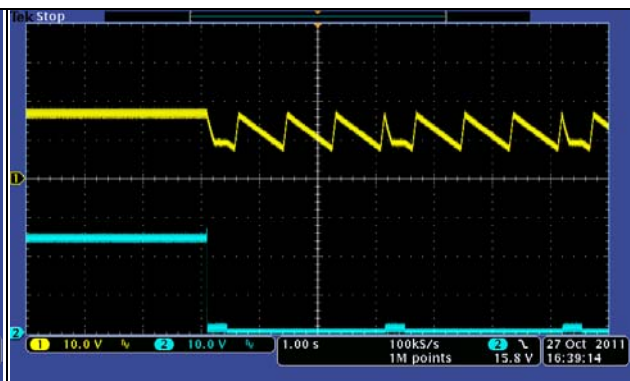
7. Output Short Protection

The supply shall be designed with appropriate output short circuit protection. This protection shall be activated in the event of a short or long-term condition happened. The primary shall limit the total power without inflicting any damage to any internal supply components and shall be reversible pending removal of the cause of the condition and without any user intervention.

Test Condition:
Input: 90Vac/264Vac (60Hz)
Ambient Temperature: 25°C
Test Result: PASS


Output Short Protection
 Vin: 90Vac
 O/P : +24V=0A → Short
 CH1: Vcc CH2: V_O +24V

Fig.2



Output Short Protection
 Vin: 264Vac
 O/P : +24V=0A → Short
 CH1: Vcc CH2: V_O +24V

Fig.3

8. Efficiency and PF Test

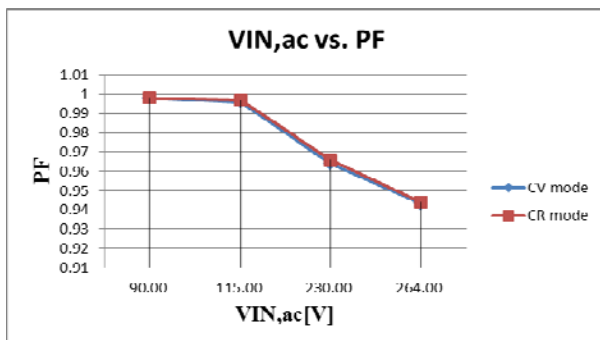
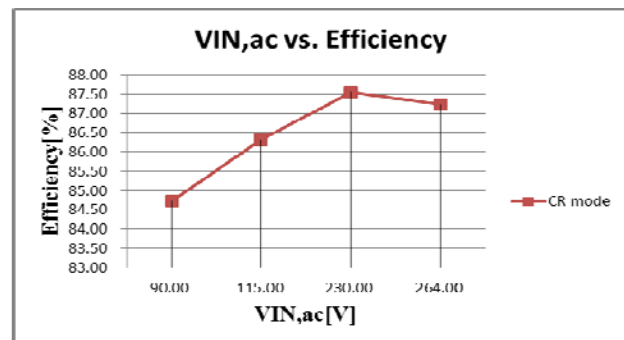
The efficiency of power supply shall be measured throughout its specified operating input range and at output maximum load conditions. It should remain **80% minimum**. PF > 0.9 .

Test Condition:
Input: 90Vac/115Vac/230Vac/264Vac(60Hz)
Output: CV mode (24V)&CR mode(34.188Ω)
Ambient Temperature: 25°C

 Test Result: **PASS**

VIN,ac	90V	115V	230V	264V
PF(CV mode) Electronic Load:24V	0.998	0.996	0.964	0.943
PF(CR mode) Electronic Load:34.188Ω	0.998	0.997	0.966	0.944
Efficiency (CR mode) Electronic Load: 34.188Ω	84.72%	86.33%	87.55%	87.23%

Table 6 Efficiency, PF TEST.


Fig.4 VIN,ac vs. PF curve

Fig.5 VIN,ac vs. Efficiency curve

9. Power Component Stress Voltage
Test Condition:

- Set the output loads at full load and ambient 25 °C.
- The PSU test on everyone voltage and frequency.

Check:

- Under Steady state the derating shall be below **100%**.
- Under Transient state the derating shall be below **100%**.

Result:
Input Voltage: 90Vac/264Vac (60Hz)

Output Power: CR mode (34.188Ω)

No.	Location	Max. Rating(V)	Steady State(90V / 60HZ)	
			Measurement	Derating(%)
			V	V
1	Q1	650	416	64.00%
2	D6	150	52.6	35.07%

Table 7-1.

No.	Location	Max. Rating(V)	Transient State(90V / 60HZ)	
			Measurement	Derating(%)
			V	V
1	Q1	650	420	64.62%
2	D6	150	53	35.33%

Table 7-2.

No.	Location	Max. Rating(V)	Steady State(264V / 60HZ)	
			Measurement	Derating(%)
				V
1	Q1	650	636	97.85%
2	D6	150	114	76.00%

Table 7-3.

No.	Location	Max. Rating(V)	Transient State(264V / 60HZ)	
			Measurement	Derating(%)
				V
1	Q1	650	640	98.46%
2	D6	150	116	77.33%

Table 7-4.

10. Thermal Test
Test Condition:

- Set the output loads at full load and ambient 25°C.
- The PSU test on everyone voltage and frequency.
- Burn-In 2 hours

Check:

- All of component and magnetic device (transformer, Filter choke) shall NOT exceed 100°C.

Result:

No.	Location	Max. Rating(°C.)	90V/60Hz(°C.)	264/60Hz(°C.)	Derating(%)	
					90V/60Hz	264/60Hz
1	BD	150	44.5	33.1	29.67%	22.07%
2	D4	150	68.3	55.4	45.53%	36.93%
3	T1	150	63.9	59.3	42.60%	39.53%
4	D6	130	52.1	52.9	40.08%	40.69%
5	R34	150	33.2	37.6	22.13%	25.07%
6	Q1 Body	150	55.3	53.8	36.87%	35.87%
7	IC1	150	43.7	44.1	29.13%	29.40%
8	R18	150	48.2	44.5	32.13%	29.67%
Ambient					--	--

Table 8. Key Parts for Thermal Test

IV. Transformer Specification:

客戶名稱：通嘉科技股份有限公司
CUSTOMER LEADTREND TECHNOLOGY

Doc No.:111212

承 認 書**APPROVAL SHEET**

產品品名/Product Model No. : TTRN-1309-000

發行日期/ Issue Date : 2011/12/13

承認日期/ Approved Date :

Approved by customer: (signing or stamping here)

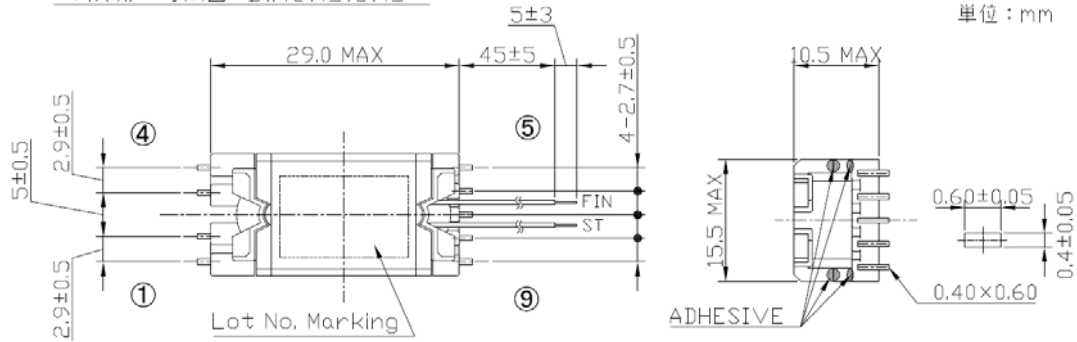
駿泰科技有限公司
Online Technologies Limited

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905, Metropole Square, 2 On Yiu
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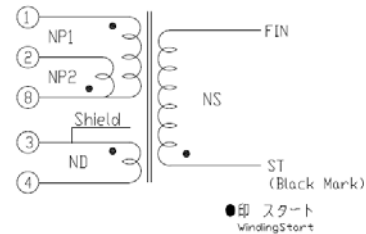
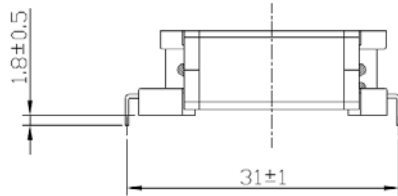
□ 桃園縣中壢市環北路398號22樓之三
Rm. 3, 22F., No.398, Huanbei Rd., Zhongli City,
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製品仕様書 SPECIFICATION	製品番号	TTRN-1309-000 (T-23-182A)
	製品名	Transformer

1.外形・寸法図 Dimensions



2.接続図 Schematic



3.巻線仕様 Winding Specification

コイル Coil	巻順 Order of Winding	線種 Dimension and kind of wire	巻数 Number of Turns
NP1	1	2UEW φ0.20	35.5T
		Insulation Tape #25	1T
COPPER	2	COPPER 3.0mm	0.9T
		Insulation Tape #25	1T
ND	3	2UEW φ0.12	7T
		Insulation Tape #25	2T
NS	4	Triple Insulation φ0.37	11T
		Insulation Tape #25	2T
COPPER	5	COPPER 3.0mm	0.9T
		Insulation Tape #25	1T
NP2	6	2UEW φ0.20	34.5T
		Insulation Tape #25	2.5T

4.電気的特性 Electrical Characteristics

- インダクタンス Inductance (at 1kHz 1V)
1-2 1mH ±15%
- リーケージインダクタンス
Leakage Inductance (at 100kHz 1V)
1-2 50uH MAX (Ns Short)
- 絶縁耐圧 Withstanding Voltage
1次-2次間 Between PRI and SEC Winding
AC 3000V 1min/5mA
or AC 3600V 1sec/5mA

5.その他 Others

- 外径寸法は半田だれを含みません。
Dimensions don't include solder
- 本製品はリフロー非対応となります。
No Reflow
- ワニスによる含浸処理を行います。 仮図
Dip in the Varnish

11/11/30
TCE技術部

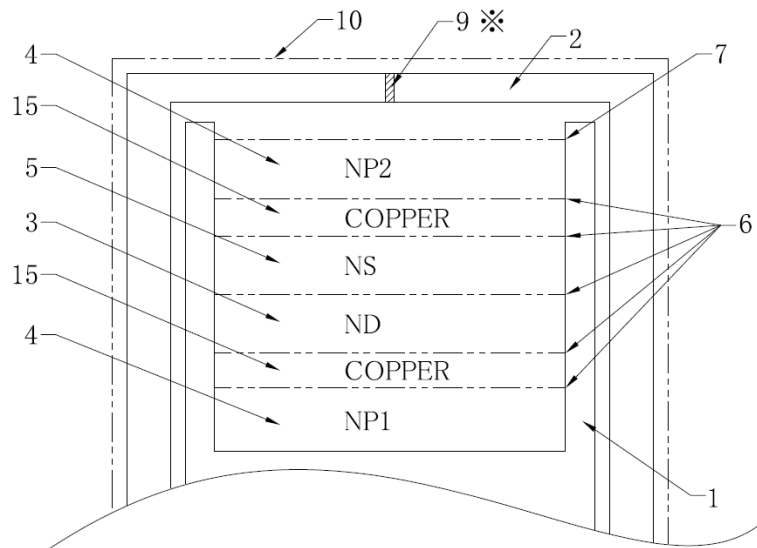
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			MATERIAL					
			SCALE					
DATE	REVISIONS	BY	DWGDATE	2011/11/30	APPROVAL	DESIGNER	DESIGNER	DRAWER
DRAWING No.					TCE	TCE	TCE	TCE
東京コイルエンジニアリング株式会社					11/11/30	11/11/30	11/11/30	11/11/30
TOKYO COIL ENGINEERING CO.,LTD.					田村	沖田	岡山	岡山

製品仕様書 SPECIFICATION	製品番号	TTRN-1309-000(T-23-182A)
	製品名	Transformer

使用材料表 Material List

Components 構成部品	Materials/Specifications 材質・規格	Components 構成部品	Materials/Specifications 材質・規格
1 ボビン Bobbin	IN-1309-TH	9 ギャップ Gap	Polyimide #12 #25 #50
2 コア Core	EEL1309		※ TapeGap又は相当の中足研磨とする or Equivalent Center Gap
3 電線 Wire	2UEW φ0.12	10 コア外周テープ Core tape	Polyester #25 16.5mm
	2UEW φ0.20	11 接着剤 Adhesive	EPOXY
5 3層絶縁線 Triple Insulation Wire	TRIPLE INSULATION φ0.37	12 含浸 DIP	Varnish
6 層間テープ Inner tape	Polyester #25 4.5mm	13 インク Ink	BLACK
7 外装テープ Outer tape	Polyester #25 4.5mm	14 端子 PIN	0.40×0.60
8 半田 Solder	SN-4CU	15 シールドテープ Shield tape	COPPER 3.0mm

構造図 Structure Diagram



仮図
 11/11/30
 TCE技術部

			MARGIN	±				
			MATERIAL					
			SCALE					
DATE	REVISIONS	BY	DWG DATE	2011/11/30	APPROVAL	DESIGNER	DESIGNER	DRAWER
DRAWING No.				東京コイルエンジニアリング株式会社 TOKYO COIL ENGINEERING CO.,LTD.	TCE 11/11/30 田村	TCE 11/11/30 沖田	TCE 11/11/30 岡山	TCE 11/11/30 岡山