



User Guide for
FEBFAN6754AMR_CP450v1
Evaluation Board

**Low-Cost, Green-Mode, PWM Controller
for Flyback Converter 65W (19V / 3.42A)
NB Adapter**

**Featured Fairchild Products:
FAN6754AMR, FAN6204MY**

*Direct questions or comments
about this Evaluation Board to:
“Worldwide Direct Support”*

Fairchild Semiconductor.com



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1. General Introduction

This document describes a 65W power supply using FAN6754AMR and FAN6204MY synchronous rectification IC. This power supply is targeted towards power adapters and open-frame consumer products.

With the internal high-voltage startup circuitry, the power loss due to bleeding resistors is eliminated. To further reduce power consumption, FAN6754AMR is manufactured using the BiCMOS process. This allows an operating current of only 1.5mA and low startup current of 30μA. Built-in synchronized slope compensation ensures the stability of peak-current-mode control. In addition, FAN6204MY improves conduction losses in heavy load, and the SR controller stops all SR switching operation to reduce the operating current in light load.

1.1. General Specification

Specification	Min.	Max.	Units
Input Voltage	90	264	V _{AC}
Frequency	47	63	Hz
Output Voltage		19	V
Output Current		3.42	A
Total Output Power		65	W

2. Functional Test Report

Test Model	FEBFAN6754AMR_CP450v1
Test Date	2011-02-15–2011-02-21
Test Temperature	Ambient
Test Equipment	AC Source: 6220 AC POWER SOURCE Electronic Load: Chroma 63030 Power Meter: WT210 Oscilloscope: LeCroy 434 Differential Probe: LDP-6002
Test Items	1. Input current 2. Input wattage at no load condition 3. Turn-on time 4. DC output rising time 5. Line and load regulation 6. Efficiency 7. Output ripple and noise 8. Step response 9. Over-current protection 10. Hold-up time 11. Short-circuit protection 12. Brownout test 13. V_{DD} voltage level 14. Voltage stress on MOSFET and rectifier

2.1. Input Current

2.1.1. Test Condition

Measure the AC input current at maximum load.

2.1.2. Test Result

Input Voltage	Input Current	Specification
90V / 60Hz	1.61A	< 2A
264V / 50Hz	0.63A	

2.2. Input Wattage at No-Load Condition

2.2.1. Test Condition

Measure the input wattage and output voltage at no load.

2.2.2. Test Result

FAN6754AMR + FAN6204MY				
Input Voltage	Input Wattage	Frequency	Output Voltage	Spec.
90V / 60Hz	0.068W	47.16Hz	19.05V	< 0.3W
264V / 50Hz	0.127W	46.87Hz	19.05V	

FAN6754AMR				
Input Voltage	Input Wattage	Frequency	Output Voltage	Spec.
90V / 60Hz	0.045W	32.63Hz	19.07V	< 0.3W
264V / 50Hz	0.098W	30.19Hz	19.07V	

2.2.3. Measured Waveform

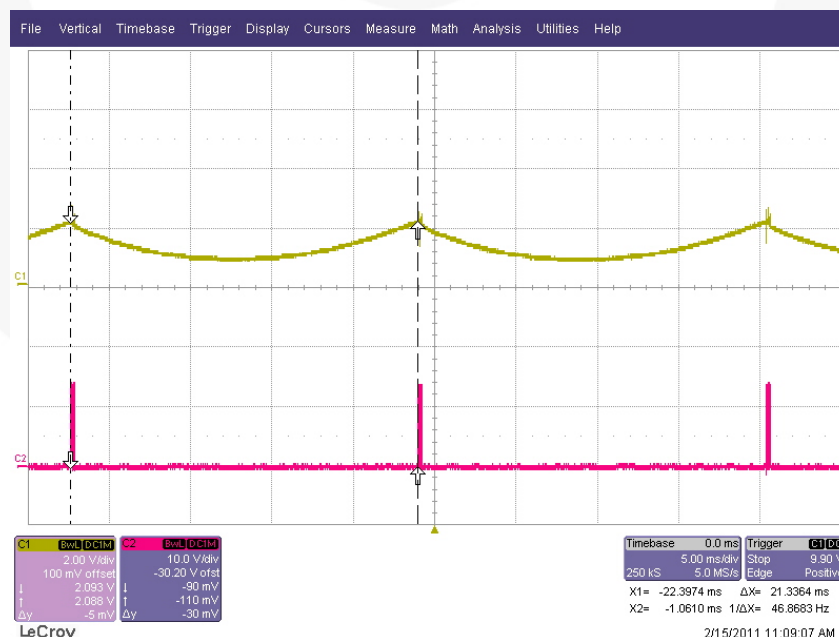


Figure 1. 264V / 60Hz at No Load

2.3. Turn-On Time

2.3.1. Test Condition

Set output at maximum load. Measure the interval between AC plug-in and stable output.

2.3.2. Test Result

Input Voltage	Turn-On Time	Specification
90V / 60Hz	1.87s	< 3s
264V / 50Hz	0.68s	

2.4. DC Output Rising Time

2.4.1. Test Condition

Set output at maximum loading. Measure the time interval between 10% to 90% output during startup.

2.4.2. Test Result

Input Voltage	Maximum Load	Specification
90V / 60Hz	12.39ms	< 20ms
264V / 50Hz	7.80ms	

2.5. Line and Load Regulation

2.5.1. Test Condition

Measure line and load regulation according to the table below.

2.5.2. Test Result

Input Voltage	Output Voltage at 0% Load	Output Voltage at 100% Load	Load Regulation	Specification
90V / 60Hz	19.04V	18.70V	1.80%	< 5%
115V / 60Hz	19.04V	18.94V	0.53%	
230V / 50Hz	19.04V	19.01V	0.16%	
264V / 50Hz	19.04V	19.01V	0.16%	
Line regulation	0%	1.64%		

2.6. Efficiency

2.6.1. Test Condition

Output at maximum load.

2.6.2. Test Result

FAN6754AMR + FAN6204MY (6.8KΩ at PC817 with Remote Sense)						
Input Voltage	25% (0.855A)	50% (1.71A)	75% (2.565A)	100% (3.42A)	Avg.	Spec.
90V / 60Hz	91.27%	91.43%	90.30%	88.83%	90.46%	> 85%
115V / 60Hz	90.96%	91.35%	91.26%	90.70%	91.07%	
230V / 50Hz	89.27%	91.06%	91.64%	91.95%	90.98%	
264V / 50Hz	88.45%	90.01%	91.69%	92.14%	90.57%	
FAN6754AMR (6.8KΩ at PC817 with Remote Sense)						
Input Voltage	25% (0.855A)	50% (1.71A)	75% (2.565A)	100% (3.42A)	Avg.	Spec.
90V / 60Hz	88.76%	88.53%	87.73%	85.31%	87.58%	> 85%
115V / 60Hz	88.85%	89.08%	88.57%	87.58%	88.52%	
230V / 50Hz	87.31%	88.55%	89.21%	89.13%	88.55%	
264V / 50Hz	86.58%	88.19%	88.67%	89.16%	88.15%	

2.7. Output Ripple and Noise

2.7.1. Test Condition

Ripple and noise are measured using a 20MHz bandwidth-limited oscilloscope with a 10μF capacitor paralleled with a high-frequency 0.1μF capacitor across each output.

2.7.2. Test Result

Input Voltage	Max. Load	Min. Load	No Load	Spec.
90V / 60Hz	69.4mV	63.6mV	27.2mV	< 200mV
115V / 60Hz	46.6mV	28.5mV	29.0mV	
230V / 50Hz	31.8mV	26.5mV	40.9mV	
264V / 50Hz	30.9mV	26.5mV	41.9mV	

2.7.3. Measured Waveforms

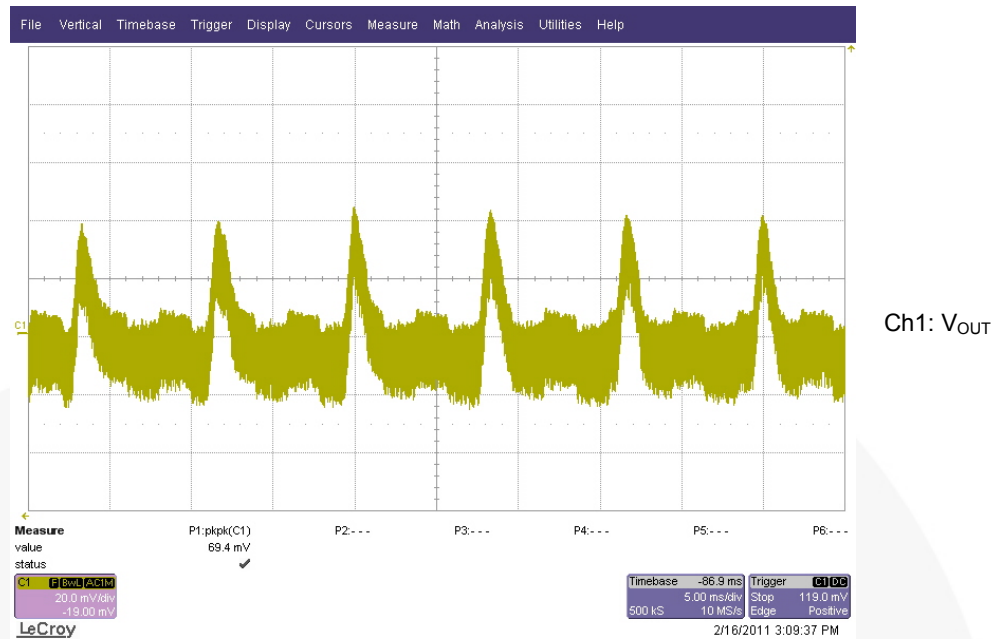


Figure 2. 90V / 60Hz at Maximum Load

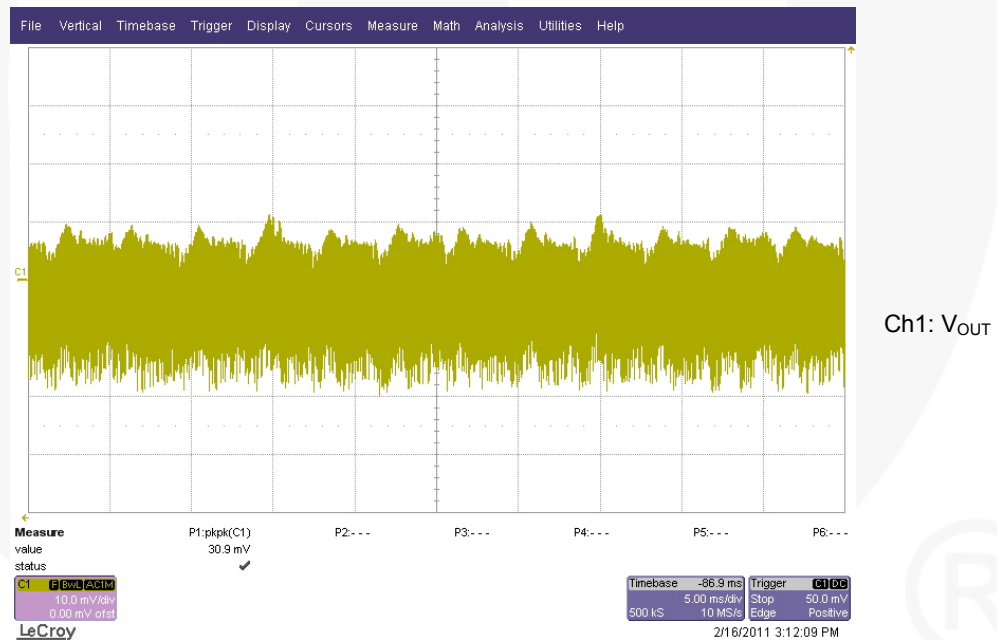


Figure 3. 264V / 50Hz at Maximum Load

2.8. Step Response

2.8.1. Test Condition

Dynamic loading (20%–80% of the full load, 5ms duty cycle, 2.5A/ μ s rise/fall time).

2.8.2. Test Result

FAN6754AMR + FAN6204MY			
Input Voltage	Overshoot	Undershoot	Specification
115V / 60Hz	157mV	206mV	< 250mV
230V / 50Hz	146mV	163mV	

FAN6754AMR			
Input Voltage	Overshoot	Undershoot	Specification
115V / 60Hz	166mV	219mV	< 250mV
230V / 50Hz	163mV	197mV	

2.8.3. Measured Waveforms

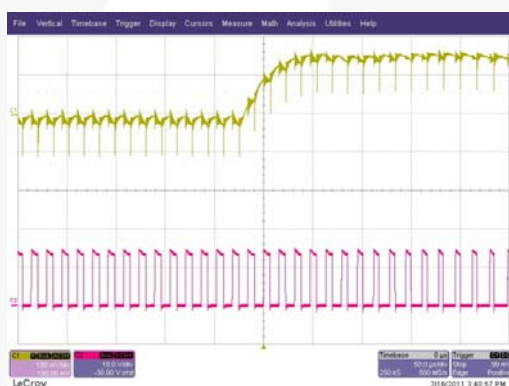


Figure 4. FAN6754AMR+FAN6204MY
115V/60Hz, Overshoot
(Ch1: V_{OUT}, Ch2: Gate)

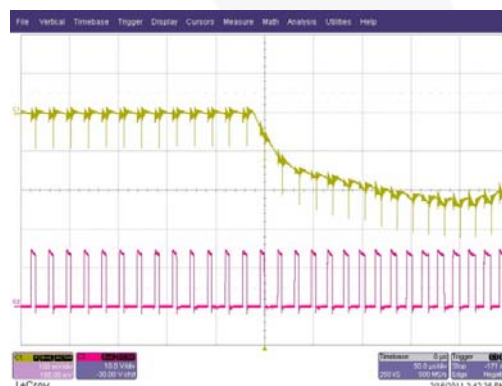


Figure 5. FAN6754AMR+FAN6204MY,
115V/60Hz, Undershoot
(Ch1: V_{OUT}, Ch2: Gate)

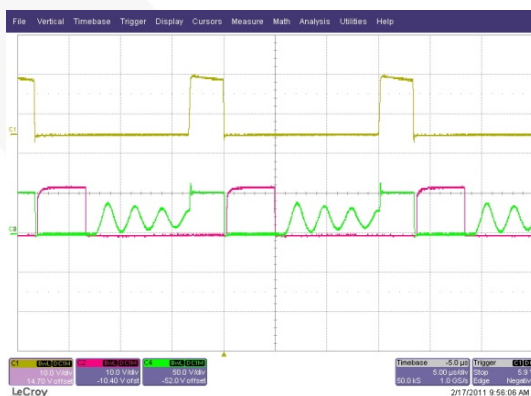
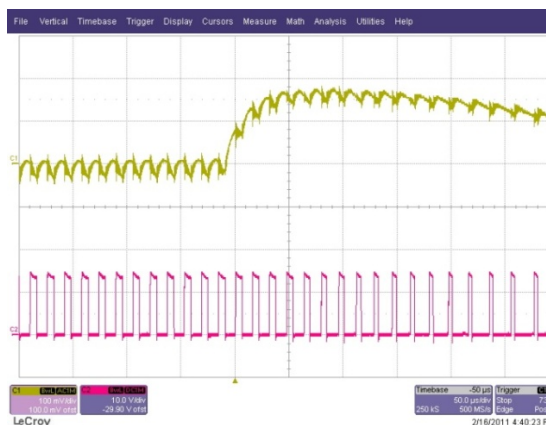


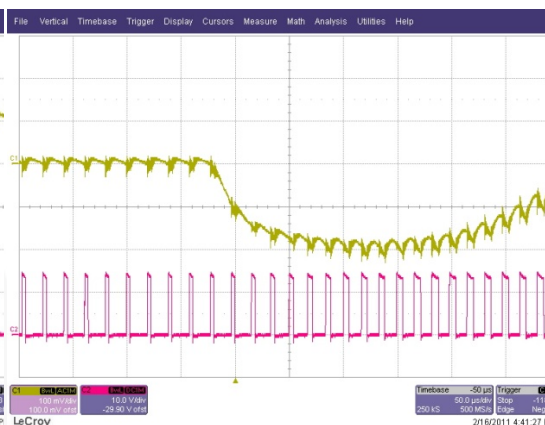
Figure 6. FAN6754AMR+FAN6204MY
115V/60Hz, 20% Load
(Ch1: Gate, Ch2: Gate_SR, Ch4: V_{dS})



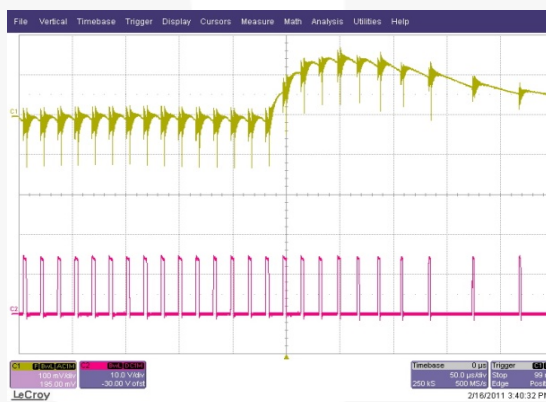
Figure 7. FAN6754AMR+FAN6204MY,
115V/60Hz, 80% Load
(Ch1: Gate, Ch2: Gate_SR, Ch4: V_{dS})



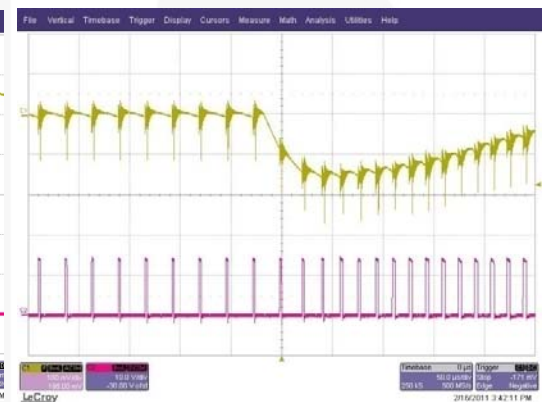
**Figure 8. FAN6754AMR
115V / 60Hz, Overshoot
(Ch1: V_{OUT}, Ch2: Gate)**



**Figure 9. FAN6754AMR
115V / 60Hz, Undershoot
(Ch1: V_{OUT}, Ch2: Gate)**



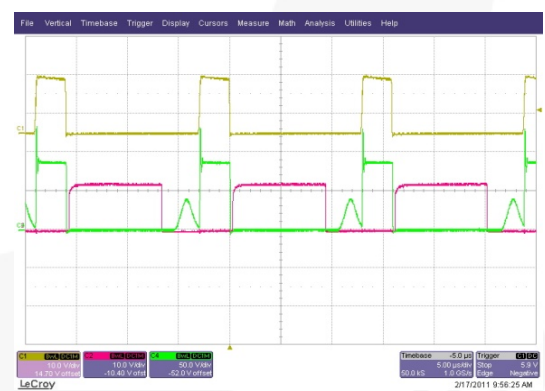
**Figure 10. FAN6754AMR+FAN6204MY
230V/50Hz, Overshoot
(Ch1: V_{OUT}, Ch2: Gate)**



**Figure 11. FAN6754AMR+FAN6204MY
230V/50Hz, Undershoot
(Ch1: V_{OUT}, Ch2: Gate)**



**Figure 12. FAN6754AMR+FAN6204MY
230V/50Hz, 20% Load
(Ch1: Gate, Ch2: Gate_{SR}, Ch4: V_{dS})**



**Figure 13. FAN6754AMR+FAN6204MY
230V/50Hz, 80% Load
(Ch1: Gate, Ch2: Gate_{SR}, Ch4: V_{dS})**

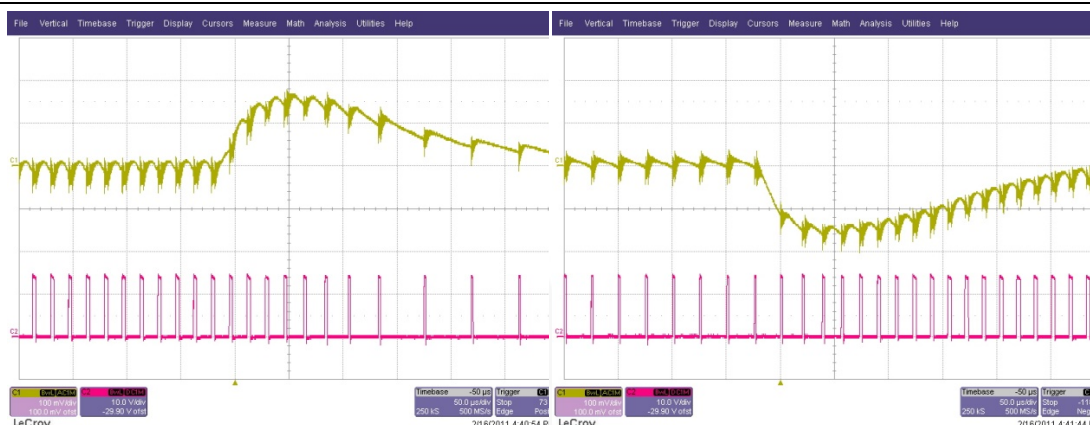


Figure 14. FAN6754AMR
 230V / 50Hz, Overshoot
 (Ch1: V_{OUT}, Ch2: Gate)

Figure 15. FAN6754AMR
 230V / 50Hz, Undershoot
 (Ch1: V_{OUT}, Ch2: Gate)

2.9. Over-Current Protection

2.9.1. Test Condition

Increase output load gradually.

2.9.2. Test Result

Input Voltage	Output Current	Specification
90V / 60Hz	4.381A	< 5.13A
115V / 60Hz	4.800A	
230V / 50Hz	4.846A	
264V / 50Hz	4.741A	

2.10. Hold-Up Time

2.10.1. Test Condition

Set output at maximum load. Measure the time interval between AC off and output voltage falling to the lower limit of the rated value. The AC waveform should be off at zero degrees.

2.10.2. Test Result

Input Voltage	Hold-Up Time	Specification
90V / 60Hz	12.08ms	
115V / 60Hz	15.24ms	
230V / 50Hz	84.79ms	
264V / 50Hz	116.90ms	

2.10.3. Measured Waveforms

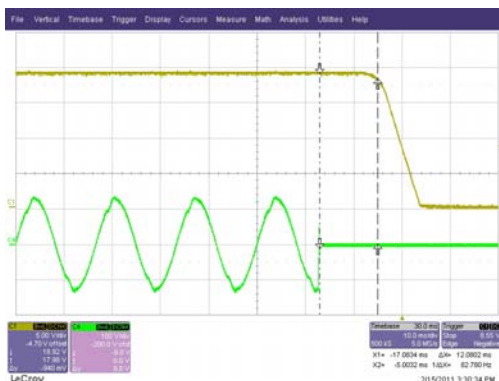


Figure 16. 90V / 60Hz at Maximum Load
(Ch1: V_{OUT}; Ch4: V_{AC})

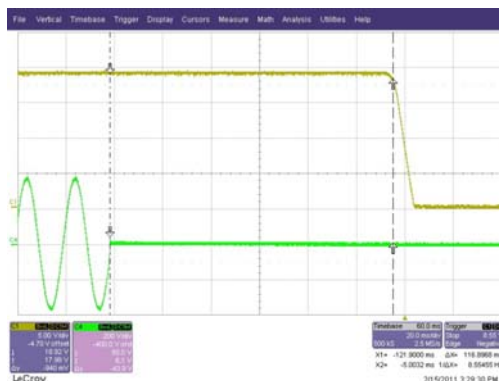


Figure 17. 264V / 50Hz at Maximum Load
(Ch1: V_{OUT}; Ch4: V_{AC})

2.11. Short-Circuit Protection

2.11.1. Test Condition

Short the output of the power supply. The power supply should enter “Hiccup” Mode protection with less than 5W input wattage.

2.11.2. Test Result

Input Voltage	Input Wattage at Maximum Loading	Specification
90V / 60Hz	0.390W	< 2W
264V / 50Hz	0.722W	

2.12. Brown-in/Brownout Test

2.12.1. Test Condition

Set the output at maximum load and change the R_{HV} resistor to record the brown-in (BR_In) / brownout (BR_Out) points.

2.12.2. Test Result

R _{HV}	BR_In	BR_Out	ΔV = BR_In - BR_Out
150kΩ	66V	59V	7V
200kΩ	84V	77V	7V

2.13. V_{DD} Voltage Level

2.13.1. Test Result

	Min. Load	Max. Load	Near OPP	Output SC (Max. Value)	Spec.
90V / 60Hz	16.60V	21.10V	22.75V	17.15V	
264V / 50Hz	16.60V	18.05V	19.35V	17.15V	

2.14. Voltage Stress on MOSFET and Rectifiers

2.14.1. Test Condition

Measure the voltage stress on the MOSFET and secondary rectifiers under conditions specified in the table below.

2.14.2. Test Result

	Stress on MOSFET	Rating	Stress on Output Rectifier	Rating
264V / 50Hz, Maximum Load	583V	650V	144V	150V
264V / 50Hz, Maximum Load, (Output Short)	580V		150V	
264V / 50Hz, Maximum Load, (Pre-Short)	571V		147V	

2.15. EMI Test

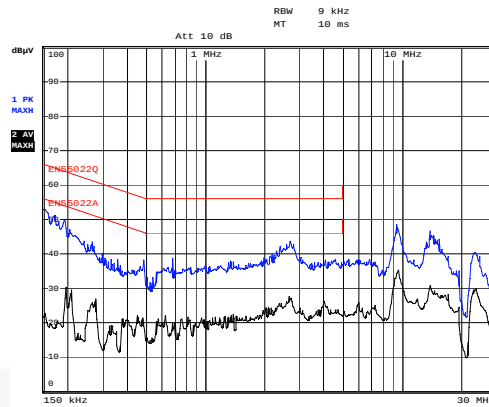


Figure 18. Conduction-Line at 115V_{AC}

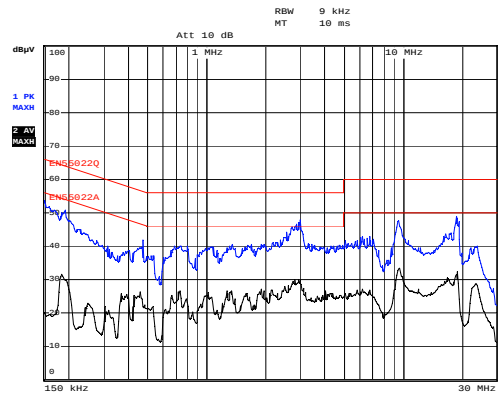


Figure 19. Conduction-Line at 230V_{AC}

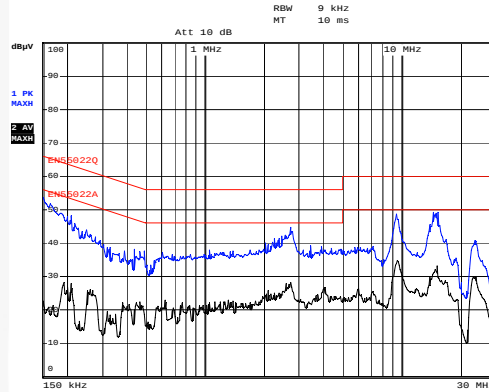


Figure 20. Conduction-Neutral at 115V_{AC}

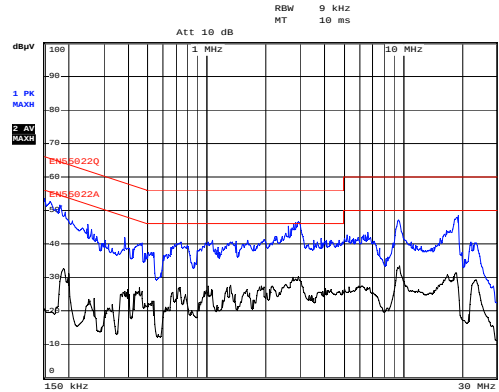


Figure 21. Conduction-Neutral at 230V_{AC}

2.16. Surge Test

Mode	Polarity	Phase	Voltage	Condition
L-N	+/-	0°	1KV	Pass
	+/-	90°		Pass
	+/-	180°		Pass
	+/-	270°		Pass
L-PE	+/-	0°	6KV	Pass
	+/-	90°		Pass
	+/-	180°		Pass
	+/-	270°		Pass
N-PE	+/-	0°	6KV	Pass
	+/-	90°		Pass
	+/-	180°		Pass
	+/-	270°		Pass

2.17. ESD Test

Air Discharge (16.5KV)		Contact Discharge (8.8KV)	
Pass	Pass	Pass	Pass

3. Photographs



Figure 22. Top View

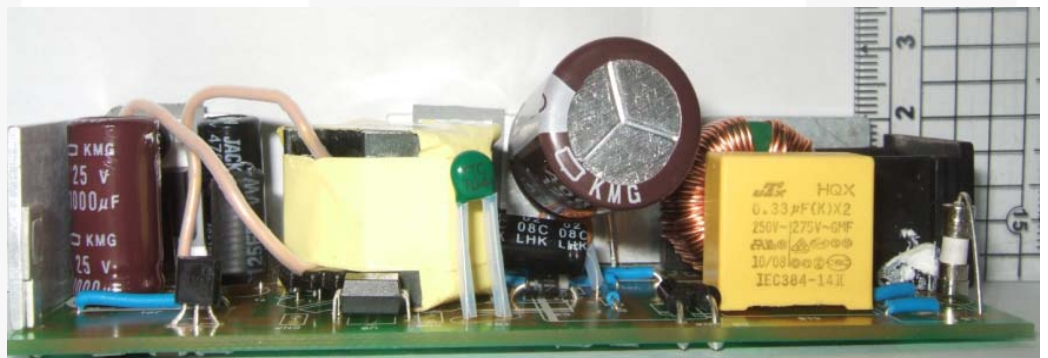


Figure 23. Side View

4. Circuit Schematic

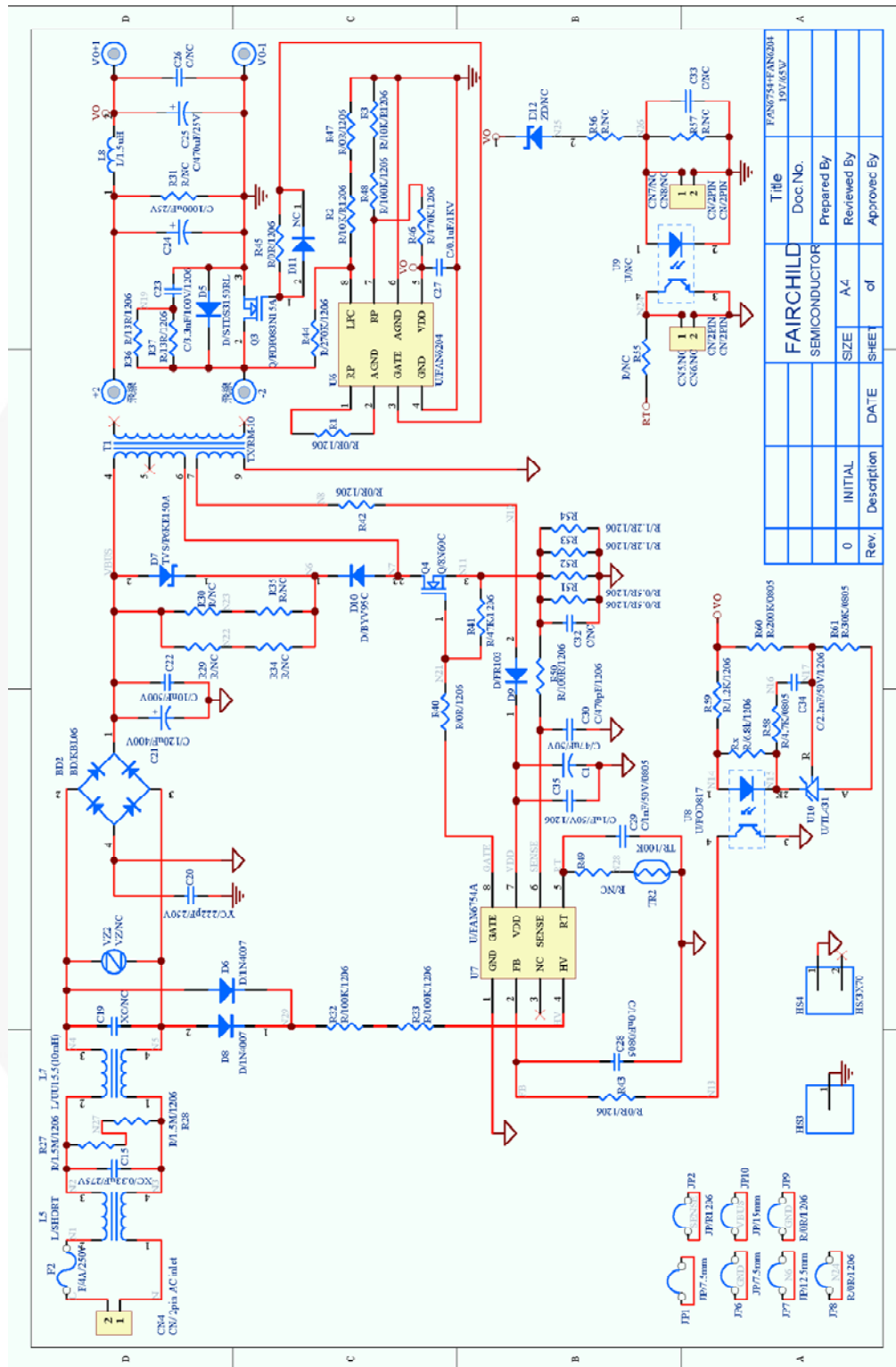


Figure 24. Circuit Schematic

5. PCB Layout

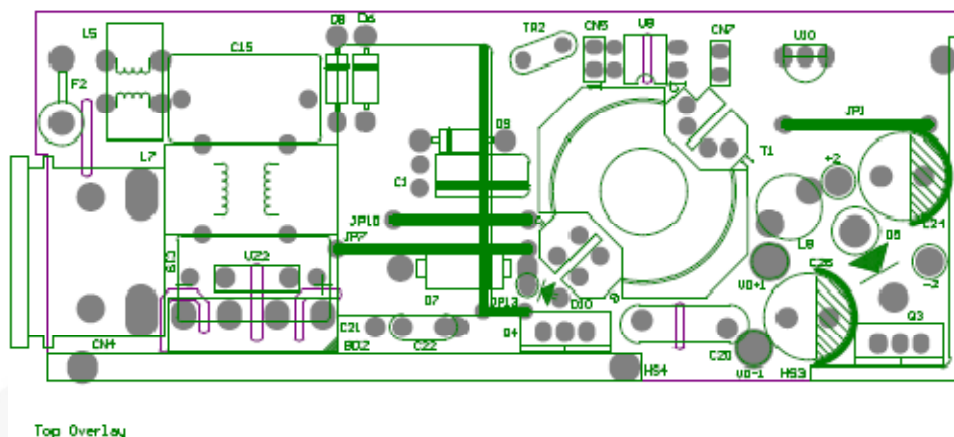


Figure 25. Top Overlay

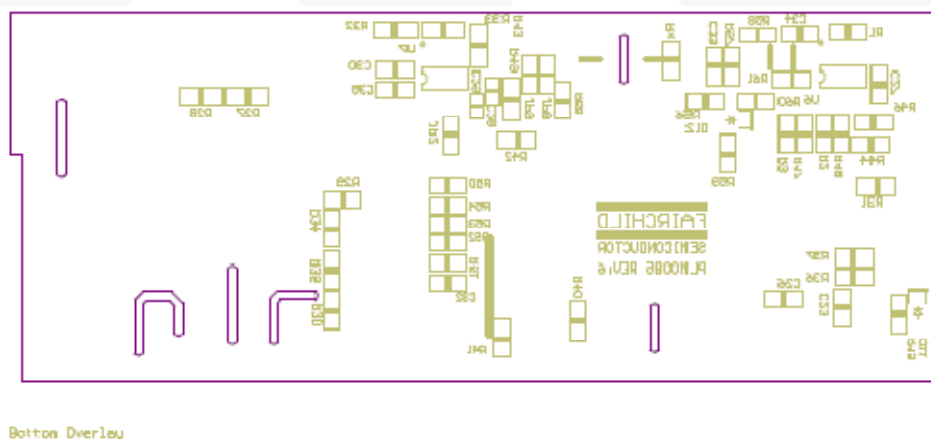


Figure 26. Bottom Overlay

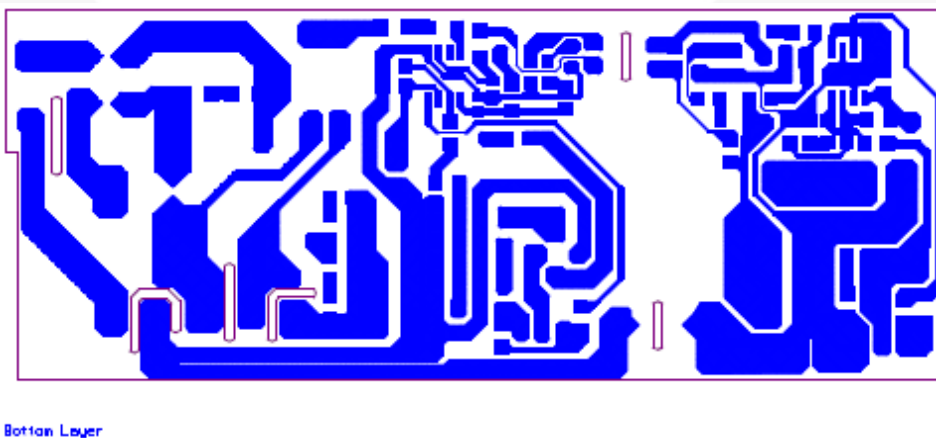


Figure 27. Bottom Layer

6. Bill of Materials

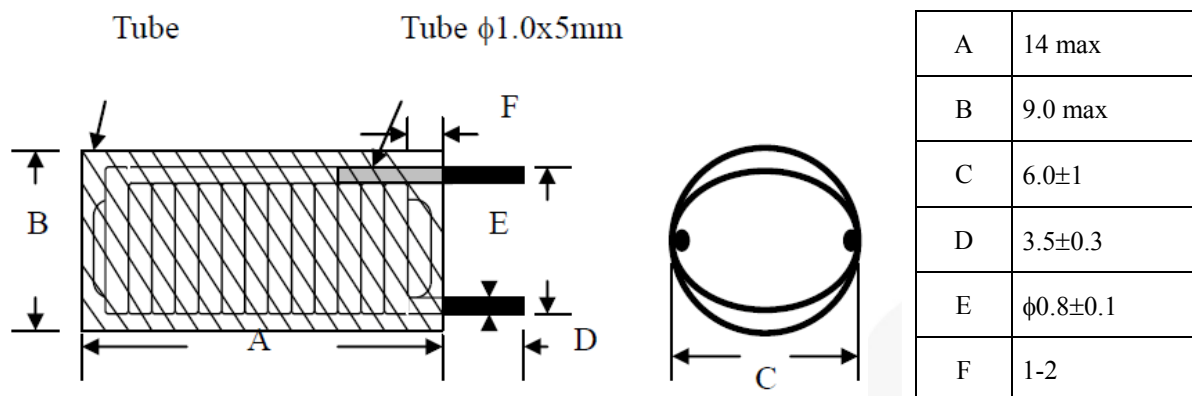
Component	Qty	Part No.	Manufacturer	Reference
JUMPER WIRE 0.8ψ(mm)	6			L5, JP1, JP7, JP10, JP13
Chip Resistor 0805 6K8Ω ±5%	1			Rx
Chip Resistor 1206 0Ω ±5%	6			JP2, JP9, R1, R43, R45, R47
Chip Resistor 1206 0Ω5 ±5%	2			R51, R52
Chip Resistor 1206 1Ω2 ±5%	2			R53, R54
Chip Resistor 1206 2Ω2 ±5%	1			R42
Chip Resistor 1206 13Ω ±5%	2			R36, R37
Chip Resistor 1206 43Ω ±5%	1			R40
Chip Resistor 1206 100Ω ±5%	1			R50
Chip Resistor 1206 1K2Ω ±5%	1			R59
Chip Resistor 1206 4K7Ω ±1%	1			R58
Chip Resistor 1206 10KΩ ±1%	2			R2, R3
Chip Resistor 1206 30KΩ ±5%	1			R61
Chip Resistor 1206 47KΩ ±5%	1			R41
Chip Resistor 1206 100KΩ ±5%	3			R32, R33, R48
Chip Resistor 1206 200KΩ ±5%	1			R60
Chip Resistor 1206 270KΩ ±5%	1			R44
Chip Resistor 1206 470KΩ ±5%	1			R46
Chip Resistor 1206 1M5Ω ±5%	2			R27, R28
NTC 5ψ 100000Ω	1			TR2
Ceramic Capacitor 103P 500V +80/-20%	1			C22
0805 MLCC X7R ±10% 102P 50V	1			C29
Chip Resistor 1206 30KΩ ±5%	1			R61
Chip Resistor 1206 47KΩ ±5%	1			R41
Chip Resistor 1206 100KΩ ±5%	3			R32, R33, R48
Chip Resistor 1206 200KΩ ±5%	1			R60
Chip Resistor 1206 270KΩ ±5%	1			R44
Chip Resistor 1206 470KΩ ±5%	1			R46
Chip Resistor 1206 1M5Ω ±5%	2			R27, R28
NTC 5ψ 100000Ω	1			TR2
Ceramic Capacitor 103P 500V +80/-20%	1			C22
0805 MLCC X7R ±10% 102P 50V	1			C29
0805 MLCC X7R ±10% 103P 50V	1			C28
1206 MLCC X7R ±10% 104P 50V	2			C27, C35
1206 MLCC X7R ±10% 222P 50V	1			C34

Component	Qty	Part No.	Manufacturer	Reference
1206 MLCC X7R $\pm 10\%$ 332P 100V	1			C23
1206 MLCC X7R $\pm 10\%$ 471P 50V	1			C30
Electrolytic Capacitor 47 μ 50V 105°C	1	LHK	JACKCON	C1
Electrolytic Capacitor 120 μ 400V 105°C	1	KMG	NCC	C21
Electrolytic Capacitor 470 μ 25V 105°C	1	KMG	NCC	C25
Electrolytic Capacitor 1000 μ 25V 105°C	1	KMG	NCC	C24
X2 Capacitor 0.33 μ 275V $\pm 20\%$	1			C15
Y2 Capacitor 222P 250V $\pm 20\%$	1			C20
Inductor DR4x12 1.6 μ H	1	TRN0083	SEN HUEI	L8
Common Choke 9mH (RT181007)	1	TRN0211	SEN HUEI	L7
Bead Core C8B 3.5*3.2*1.0	1	MCH0040		D10
Transformer RM-10 510 μ H	1	TRN0237	SEN HUEI	T1
Fast Diode 1A/200V DO-41	1	FR103	CP	D9
Fast Diode 1A/1000V DO-41	1	FR107	CP	D10
Diode 1A/1000V DO-41	2	1N4007	FAIRCHILD	D6, D8
Bridge 4A/600V KBL	1	KBL06	FAIRCHILD	BD2
Schottky Diode 3A/150V DO-201AD	1	STPS3150	ST	D5
Adjustable/2.5V, 1% Tolerance Shunt Regulator	1	TL431ACZ-AP	FAIRCHILD	U10
MOSFET 105A/150V TO-220	1	FDP083N15A_F102	FAIRCHILD	Q3
MOSFET 8A/600V TO-220	1	FQP8N60C	FAIRCHILD	Q4
4-Pin DIP Phototransistor Output Opto-Coupler	1	FOD817A	FAIRCHILD	U8
SR Controller IC SOIC 8	1	FAN6204MY	FAIRCHILD	U6
PWM Controller IC SOIC 8	1	FAN6754AMRM	FAIRCHILD	U7
FUSE GLASS 250V4A QUICK	1			F2
TVS P6KE150A	1			D7
INLET 2P 90°	1			CN4
HS MCH0534	1			HS4
HS MCH0555	1			HS3
PCB PLM0085 REV6	1			

7. Transformer / Output Inductor / Heat Sink

1.DIMENSION :

UNIT : mm



2. ELECTRICAL SPECIFICATON : at 1KHz,0.3V

 2.1 INDUCTANCE : 1.6 μ H min.

 2.2 DC RESISTANCE : 11 m Ω max.

 2.3 TURN & WIRE : ϕ 0.8x12.5TS(ref)

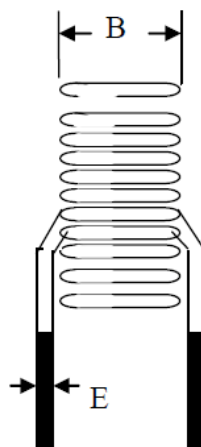
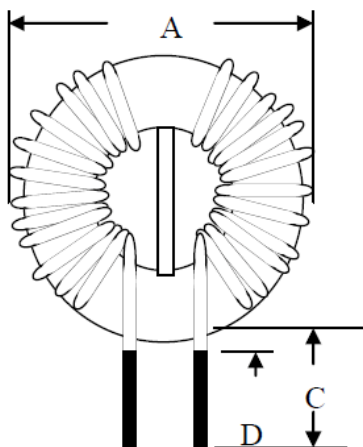
MATERIALS LIST :

COMPONENT	MATERIAL	MANUFACTURER	UL FILE NO.
1. CORE	S6,SGB or equivalent	Ferrite core R4x12 Jaw Shianq.	
2. WIRE	THFN-216 130°C	Ta Ya Electronic Wire & Cable Co., Ltd.	E197768
	UEWN/U 130°C	Pacific Electronic Wire & Cable Co., Ltd.	E201757
	UEY 130°C	Chuen Yih Wire Co., Ltd.	E174837
3. TUBE	UL TUBE	Shengzhen Changyuan Co., Ltd.	E180908
4. TERMINALS	Tin-coated Copper wire	Will Fore Special Wire Corp.	
5. SOLDER	96.5% Su 3% Ag 0.5% Cu	Xin Yuan Co., Ltd.	

UNIT	m/m	DRAWN	CHECK	TITLE	
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT N O.	TRN-083
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO.,LTD.		D W G N O.	I0026
No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)					

1. DIMENSION :

UNIT : mm



A	25 max
B	15 max
C	5 ± 1
D	1 max
E	φ0.65±0.1

2. ELECTRICAL SPECIFICATION : at 1KHz, 1V

2.1 INDUCTANCE : L1=L2 : 9.0 mH min.

2.2 DC RESISTANCE : L1=L2 : 0.78Ω max.

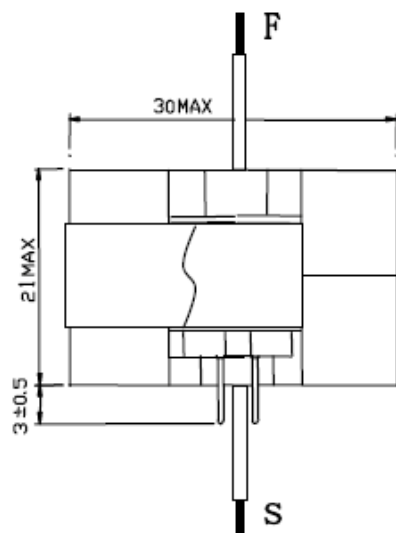
2.3 TURN & WIRE : L1=L2 : φ 0.65 x 37.5TS

MATERIALS LIST :

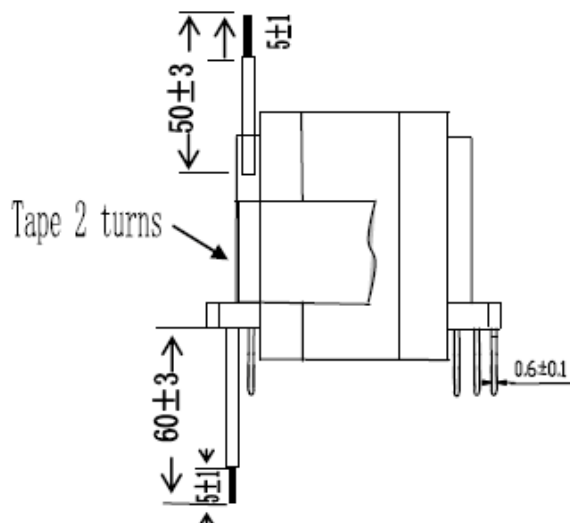
COMPONENT	MATERIAL	MANUFACTURER	UL FILE NO.
1. CORE	T18x10x7	Core T18x10x7 TOMITA.	
2. WIRE	THFN-216	Ta Ya Electronic Wire & Cable Co., Ltd.	E197768
	UEWN/U	Pacific Wire & Cable Co., Ltd.	E201757
	UEWE	Tai-l Electronic Wire & Cable Co., Ltd.	E85640
	UWY	Jang Shing Wire Co., Ltd.	E174837
3. SOLDER	96.5% Sn 3% Ag 0.5% Cu	Xin Yuan Co., Ltd.	

UNIT	m/m	DRAWN	CHECK	TITLE	
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT N O.	RT181007
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO.,LTD.		D W G N O.	I0060
No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)					

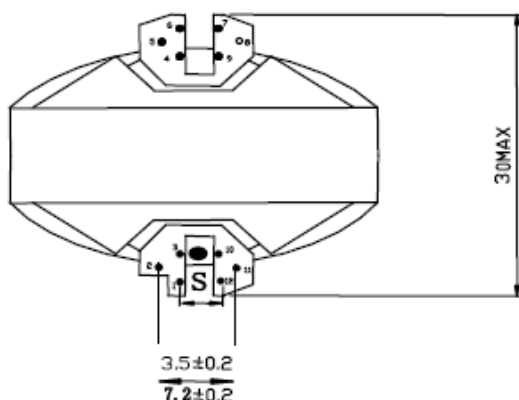
1.DIMENSION : Unit : mm



ELEVATION VIEW



SIDE VIEW



BOTTOM VIEW

TRN-0237

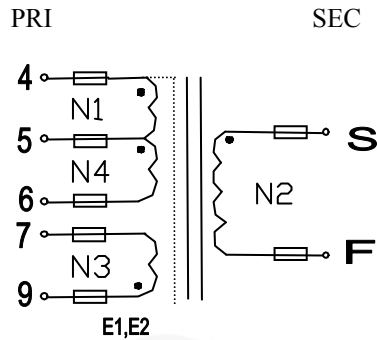
Paste label on the top of transformer,
and the wording peak faces pin 1 & pin 12

NOTE:

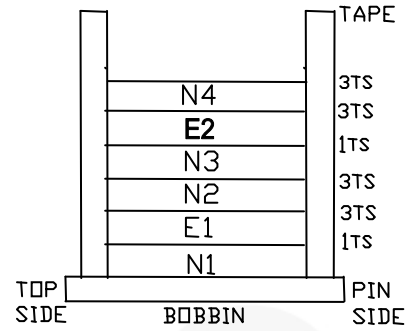
- 1) Pin 8 No.
- 2) Pin 5 cut off 2/3.
- 3) Add insulation tape *2 turns to fix core and bobbin.

UNIT	m/m	DRAWN	CHECK	TITLE	TRANS
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT N O.	TN-0237
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO.,LTD.		D W G N O.	19903 KB773-9192
No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)					

2. SCHEMATIC :



2.1 SCHEMATIC :



Note: All wire shields weld 0.2 ϕ lead. Teflon pipe connects to pin4.

2.3 WINDING:

SET	WINDING	MATERIAL	START-FINISH	TURN	TAPE	REMARK
1	N1	2UEW- ϕ 0.50 $\times$ 1P	4-5	19 ^{TS}	1 ^{TS}	
2	E1	T0.025 $\times$ 7mm	-4	1.2 ^{TS}	3 ^{TS}	Adhesive tape of copper foil
3	N2	TEX-E - ϕ 0.90 $\times$ 1P	S-F	8 ^{TS}	3 ^{TS}	
4	N3	2UEW- ϕ 0.40 $\times$ 1P	9-7	7 ^{TS}	1 ^{TS}	Middle densely circles
5	E2	T0.025 $\times$ 7mm	-4	1.2 ^{TS}	3 ^{TS}	Adhesive tape of copper foil
6	N4	2UEW- ϕ 0.50 $\times$ 1P	5-6	19 ^{TS}	3 ^{TS}	

UNIT	m/m	DRAWN	CHECK	TITLE	TRANS
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT N O.	TRN-0237
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO., LTD.		D W G N O.	19903 KB773-9192
No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)					

3. ELECTRICAL SPECIFICATION:

3.1 Inductance test : at 1KHz, 1V

$$L_{4-6} = 510\mu\text{H} \pm 5\%$$

3.2 Leakage inductance : at 1KHz, 1V

P(4-6) : 20 μ H max. (shorted A,B)

3.3 DC Resistance test at 255°C

P(4-6) : 23m Ω max.

3.4 Hi-pot test :

AC 3.0KV / 60Hz/0.5mA hi-pot for one minute between primary and secondary.

AC 1.5KV / 60Hz/0.5mA hi-pot for one minute between primary and core.

AC 1.5KV / 60Hz/0.5mA hi-pot for one minute between secondary and core.

3.5 Insulation test :

The insulation resistance is between primary and secondary and windings to core measured by DC 500V, must be over 100 M Ω .

3.6 Terminal strength :

1.0 Kg on terminals for 30 seconds, test the breakdown.

UNIT	m/m	DRAWN	CHECK	TITLE	TRANS
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT NO.	TRN-0237
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO., LTD.		DWG NO.	I9903 KB773-9192
No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)					

MATERIALS LIST :

COMPONENT	MATERIAL	MANUFACTURER	FILE NO.
1. Bobbin	Phenolic 94v-0,T375J,150 °C	RM-10 Chang Chun Plastics Co., Ltd.	E59481(S)
2. Core	FERRITE RM10 R2K (GAP)	Ferrite Core RM-10 Yang Guang Da Co., Ltd.	
3. Wire	UEY 130°C	Hoi Luen Electrical MFR Co., Ltd.	E164409
	TEX-E 130°C	Shenzhen Changyuan Electronic Material Co., Ltd.	E249037
4. Varnish	48562/C 155°C	Hang Cheung Petrochemical Ltd.	E200154
5. Tape	MYLAR TAPE (PZ-YELLOW)	Jingjiang Ya Hua Pressure Sensitive Glue Co., Ltd.	E165111(N)
6. Tube	TEFLON 200°C 150V	Shenzhen Woer Heat Shrinkable Material Co., Ltd.	E203950
7. Terminals	Tin coated- Copper wire	Will Fore Special Wire Corp.	
8. Shield	Copper foil	Bo Tong Co., Ltd. (copper foil : T0.025mm×7mm +TAPE)	
9. Solder	96.5% Su 3% Ag 0.5% Cu	Xin Yuan Co., Ltd.	

UNIT	m/m	DRAWN	CHECK	TITLE	TRA NS
TEL	(02)29450588	Ci wun Chen	Guo long Huang	IDENT NO.	TRN- 0237
FAX	(02)29447647	SEN HUEI INDUSTRIAL CO., LTD. No.26-1, Lane 128, Sec. 2, Singnan Rd., Jhonghe City, Taipei County 235, Taiwan (R.O.C.)		DWG NO.	I9903 KB77 3- 9192

8. Revision History

Rev.	Date	Description
1.0.0	November, 2011	Initial Release
1.0.1	December, 2011	Clarify Measured Waveform in Figure 4-15.

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