

DESCRIPTION

This circuit is designed specifically for $\beta 3$ IC evaluation. After several modifications, the inner circuit design can reach high completion of security design and receiving efficiency. It can help developers to evaluate and develop products of wireless power supply system in a short time. Components allocation on PCB is designed precisely, and the circuit layout fits the excellent heat dissipation and low noise performance. Designers can take it for references.

FEATURES

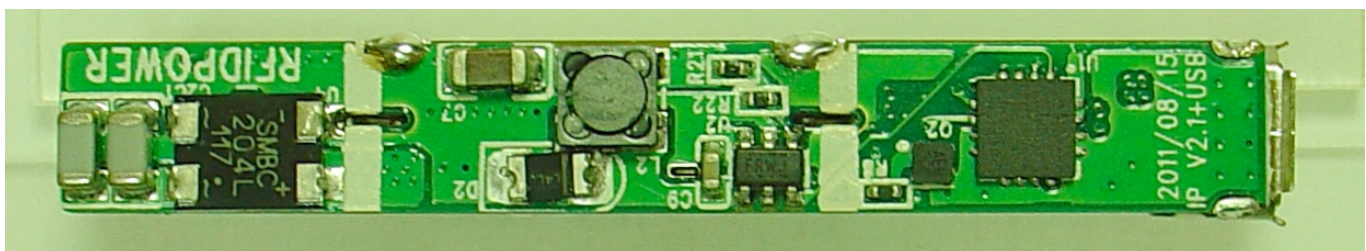
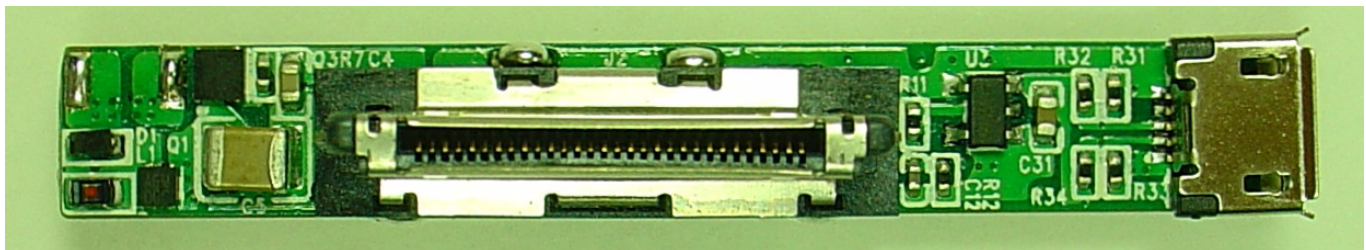
- Signal receiving IC of wireless power supply system.
- Operation power subject to the transmission signal from $\alpha 3$ Tx.
- Signal feedback when system is activated.
- Power overload prevention by multi-detective points.
- Provided the code mechanism by advanced technology and several patent protections.
- Function along with $\alpha 3$ Tx Evaluation Board.

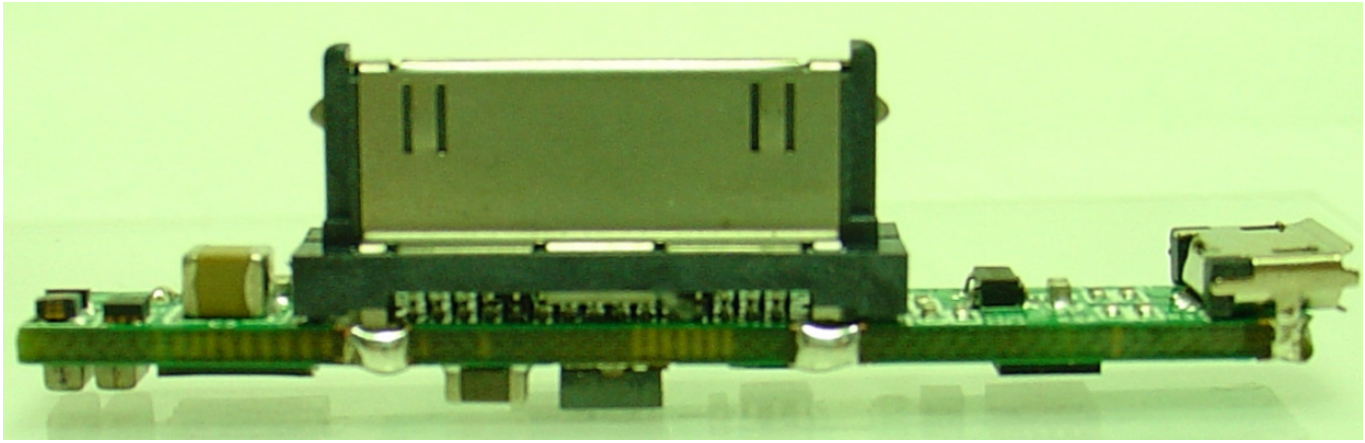
APPLICATIONS

- For electronics product that power is under 5W.
- Effective sensing distances less than 20mm.

5W Tx Evaluation Board

Board Number	FDT IC Number
IP Rx	$\beta 3$





ELECTRICAL CHARACTERISTICS

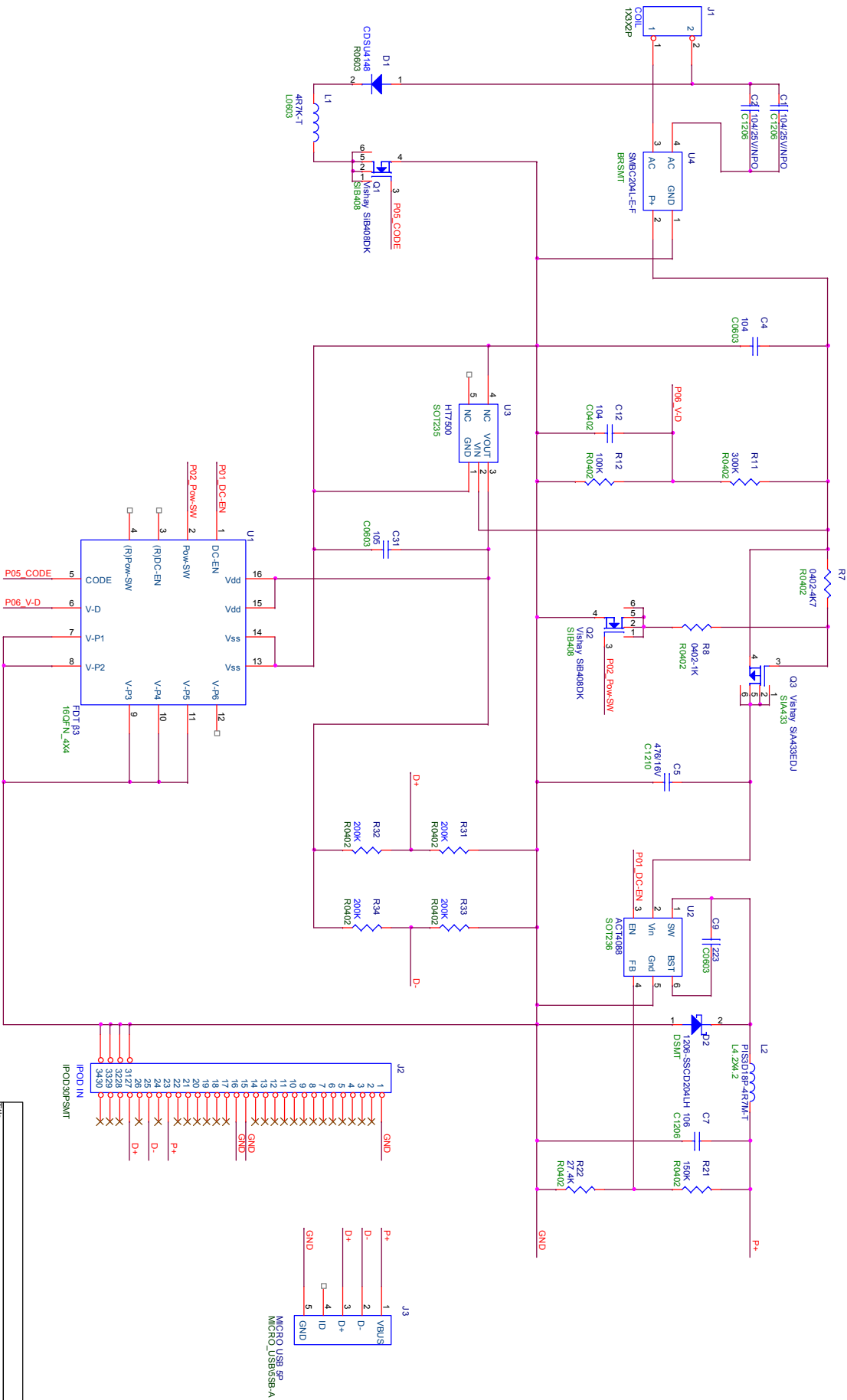
Parameters	Symbol	Condition	Min	Typ	Max	Units
Maximum Voltage Output	Vout	Max		5		V
Maximum Current Output	Iout	Max			1	A
Maximum Power Output	Pow-Rx	Max			5	W

QUICK START GUIDE

Warning! After the circuit starts to sense and operate, there will be high-voltage alternating current at both ends of J1 receiving coil. Please do not touch the contacts in case of an electric shock.

1. First of all, connecting the coil to circuit. The resonant capacitor on circuit (C1, C2) needs to be modified along with coil inductance. The cross-reference table can be referred to $\beta 3$ IC datasheet. $0.1\mu\text{F} \times 2$ capacitor of this evaluation board works best with $10\sim 25\mu\text{H}$ coil inductance. Correct capacitor and inductance will meet the expected transmission efficiency.
2. Connecting the Vout and GND on circuit to the current receiver. Output voltage can be changed by modifying the voltage proportion of R21 and R22. For detailed modification, please refer to the original datasheet of U2 ACT 4088.
3. When sensing the transmission coil with $\alpha 3$ Rx getting close to the circuit receiving coil, it will initiate the power supply automatically. The LED light will shine which means the circuit is in charging mode.
4. There is a sophisticated inspection mechanism built in this circuit. Any disturbances or dangers will lead the circuit to stop working. Before delivery, every circuit must pass security check and work properly. If the circuit can not work during your test, please contact Fu Da Tong Technology for further information.

EVALUATION BOARD SCHEMATIC



Title	Size	Date
IPHONE CHARGER +USB V2.1	B	
Document Number		
Rev		
Sheet	1	of 1

EVALUATION BOARD BILL OF MATERIALS

Position	Parts	Description	Package	Q'ty	Manufacturer	Part Number
C1,C2	Ceramic Cap	104/25V	1206	2	Any	NPO/COG
C9	Ceramic Cap	223/50V	0603	1	Any	
C4	Ceramic Cap	104 /50V	0603	2	Any	
C12	Ceramic Cap	104/25V	0402	2	Any	
C31	Ceramic Cap	1uF/16V	0603	1	Any	
C7	Ceramic Cap	10uF/10V	1206	1	Any	
C5	Ceramic Cap	47uF/16V	1210	1	Any	
D1	Diodes	100V/0.1A	0603	1	COMCHIP	CDSU4148
D2	Schottky Diodes	40V / 2A	1206	1	ZOWIE	SSCD204LH
L1	Inductance	4.7UH	0603	1	EMTEK	LCF0603-4R7K
L2	Inductance	4.7UH	SMD	1	EMTEK	PIS3D18P-4R7
Q1,Q2	MOSFET	N-MOS	SC-75-6L	2	Vishay	SiB408DK
Q3	MOSFET	P-MOS	SC-70-6L	1	Vishay	SiA433EDJ
R8	Film Res	1K	0402	1	Any	
R7	Film Res	4K7	0402	1	Any	
R22	Film Res	28K	0402	1	Any	
R12	Film Res	100K	0402	1	Any	
R21	Film Res	150K	0402	1	Any	
R31,R32,R33,R34	Film Res	200K	0402	4	Any	
R11	Film Res	300K	0402	1	Any	
U1	IC	β3 V1.1	QFN16	1	FDT	β3 1101
U2	IC	DC/DC STEP-DOWN	SOT23-6	1	Active-Semi	ACT4088-F
U3	IC	LDO 5V	SOT23-6	1	Hotek	HT7550
U4	Rectifier	Schottky Bridge	SMBC	1	ZOWIE	SMBC204L-E-F
J2	Connector	Apple 30Pin	SMT	1	Sheing Yih	AM3021000000
J3	Connector	Micro USB	0	1	Sheing Yih	AIC059000000
J1 - A	Coil	qi RX	DIP	1	Vishay	IWAS-4832FF-50
J1 - B	Coil	qi RX	DIP	1	Mingstar	IC483201N-06
J1 - C	Coil	Round RX 14uH	DIP	1	E&E	Y31-70015F

PRINTED CIRCUIT BOARD LAYOUT

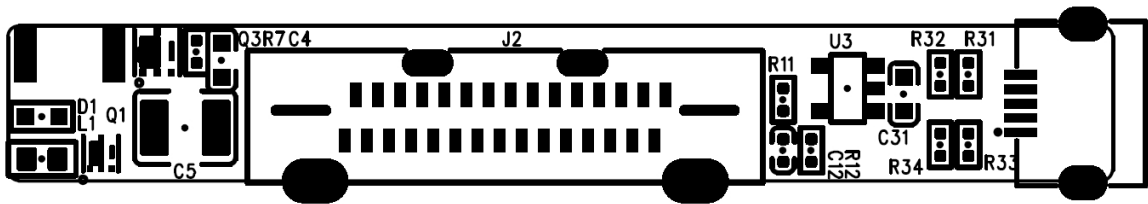
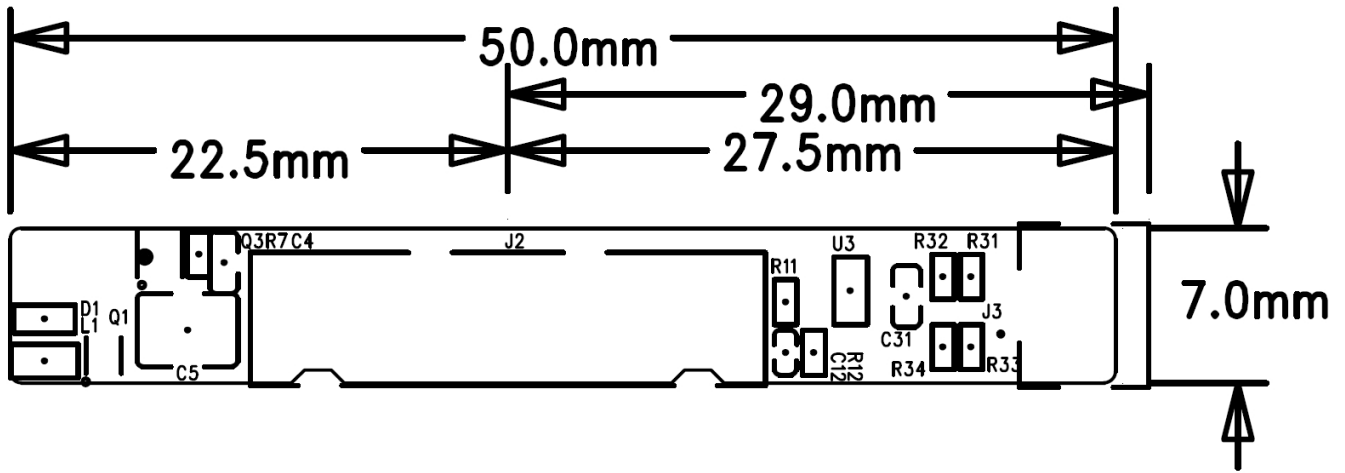


Figure 1 — Top Silk Layer

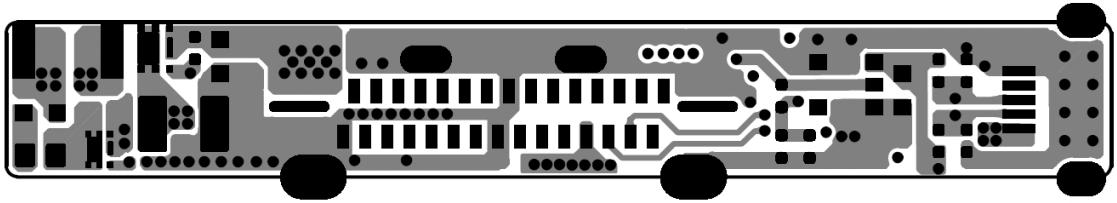


Figure 2 — Top Layer

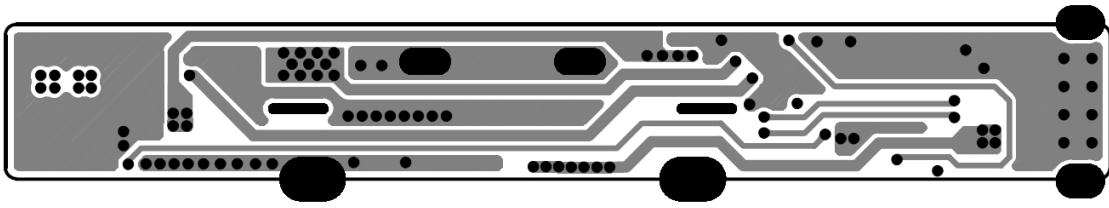


Figure 3 — Inner Layer 1



Figure 4 — Inner Layer 2

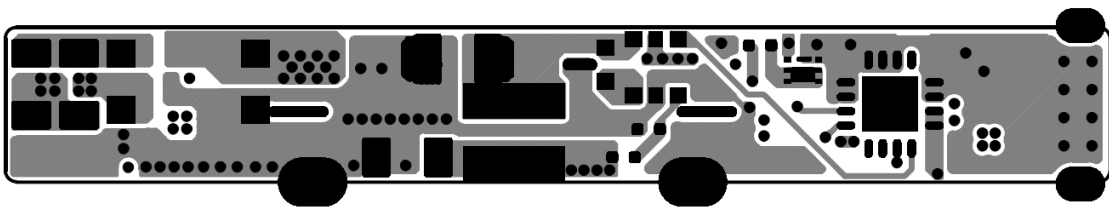


Figure 5— Bottom Layer

COIL APPEARANCE PHOTOS



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