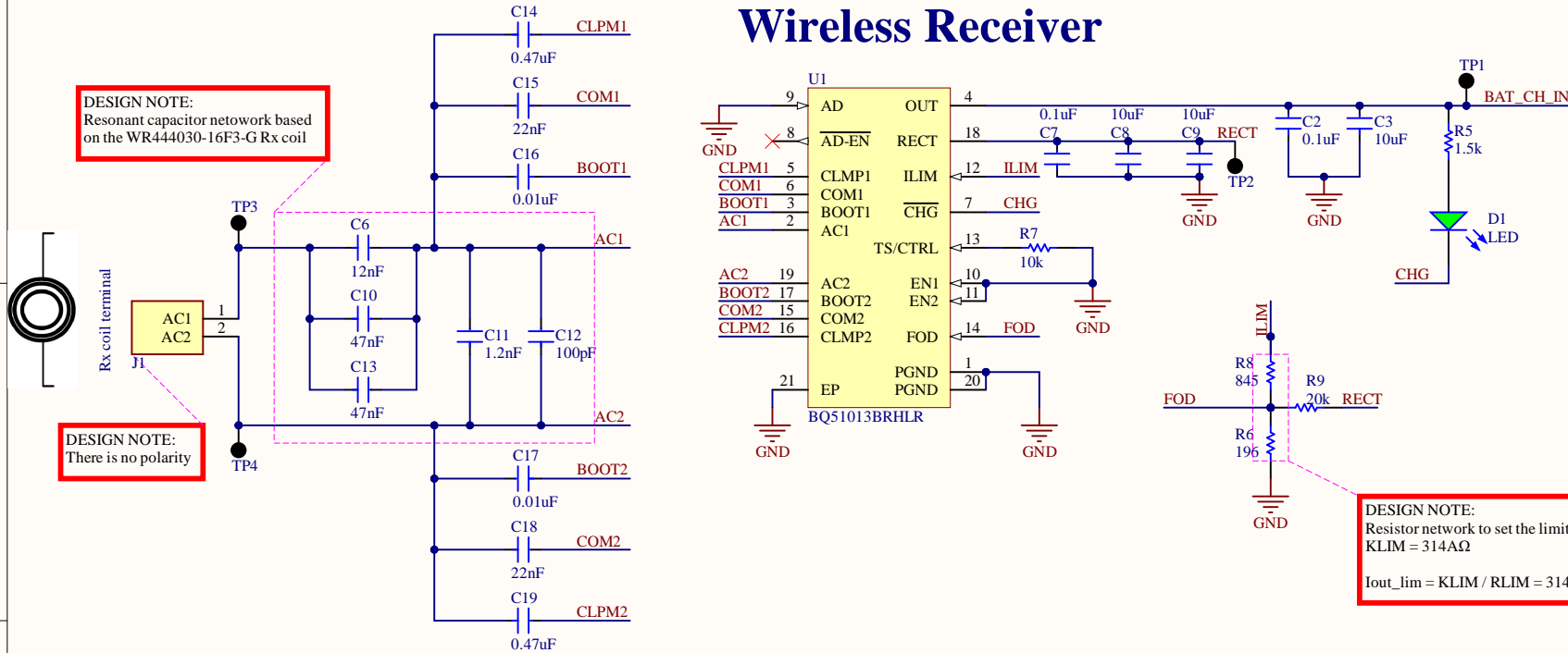


NOTES

TS Functionality: N/A  
 Wired Power: N/A  
 Power transfer indication: LED  
 Current limit: 300mA  
 Mode: Normal (EN1=0 , EN2=0) -> Wireless charging enabled

# Wireless Receiver



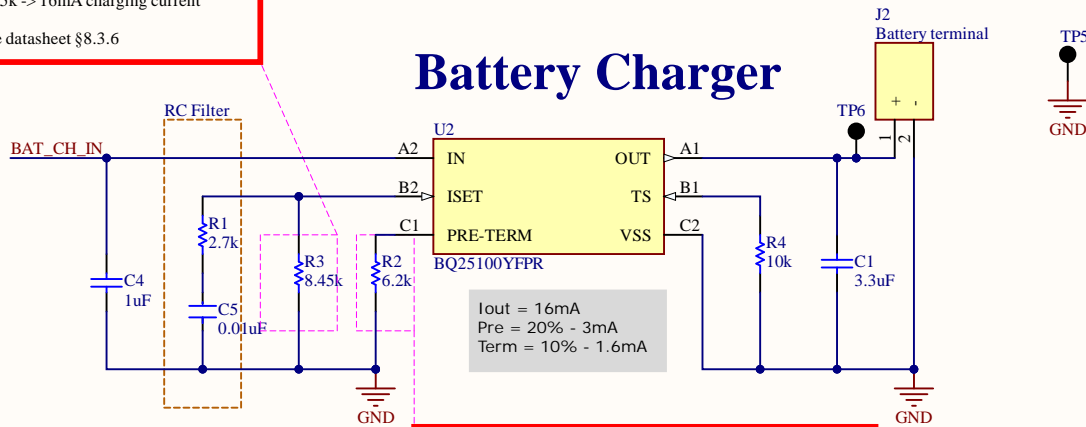
DESIGN NOTE:  
Resonant capacitor network based on the WR444030-16F3-G Rx coil

DESIGN NOTE:  
There is no polarity

DESIGN NOTE:  
Resistor network to set the limit output current to 300mA  
 $KLIM = 314\Omega$   
 $I_{out\_lim} = KLIM / RLIM = 314 / (845+196) = 300mA$

DESIGN NOTE:  
Resistor to set the output current  
 8.45k -> 16mA charging current  
 See datasheet §8.3.6

# Battery Charger



$I_{out} = 16mA$   
 Pre = 20% - 3mA  
 Term = 10% - 1.6mA

DESIGN NOTE:  
Resistor to set the termination and pre-charge current threshold  
 6.2k -> Term. current = 1.6mA , Precharge current = 3mA  
 See datasheet §8.3.7

NOTES

Charging Current = 16mA  
 Term. Current = 1.6mA  
 Preterm Current = 3mA

Project: Wireless Charging Receiver and Battery Charger		CyRIC 72, 28th Octovriou Ave Off.301 Engomi, 2414 Nicosia, Cyprus		
Size: A4	Sheet: Wireless charging	Sheet: 1 of 1	Engineer: Nikos Antoniou	
Date: 13/06/2021		Revision: v1.0		
Page Contents: Wireless charging_SchDoc				

Comment	Description	Designator	Footprint	LibRef	Quantity
3.3uF		C1	CAPC1608X90X35ML15T15	CMP-1035-02770-2	1
0.1uF	0402 0.1 uF 50 V ±10 % Tolerance X5R SMT Multilayer Ceramic Capacitor	C2, C7	Murata - GRM SERIES 1005mm	Capacitor	2
10uF	Ceramic capacitor SMD 0805 10 µF 16 V 10 %	C3, C8, C9	SAMSUNG - SMD Comm X5R 2012mm	Capacitor	3
1uF		C4	CAPC1608X90X35ML15T15	CMP-2006-02279-1	1
0.01uF	CAPACITOR CERAMIC 0.01UF 50V X7R 5%, 0402, FULL REEL	C5, C16, C17	KEMET - SMD Comm X7R 1005mm	Capacitor	3
12nF	Cap Auto-grade 0.012UF 25VDC X7R 10% SMD 0402	C6	Murata - GRM SERIES 1005mm	Capacitor	1
47nF	Cap Ceramic 0.047uF 25V X7R 10% SMD 0402 125C Paper T/R	C10, C13	Murata - GRM SERIES 1005mm	Capacitor	2
1.2nF	Capacitor,Ceramic,1.2 nF,25VDC,10-% Tol,10+% Tol,X7R-TC Code,-15,15%-TC ,RoHS Compliant: Yes	C11	KEMET - SMD Comm X7R 1005mm	Capacitor	1
100pF	Cap Ceramic 100pF 25V COG 10% SMD 0402 125°C Paper T/R	C12	KEMET - SMD Comm X7R 1005mm	Capacitor	1
0.47uF	TDK C1005X5R1E474K050 BB CERAMIC CAPACITOR, 0.47UF, 25V, X5R, 0402	C14, C19	TDK - C series 1005mm	Capacitor	2
22nF	Multilayer Ceramic Capacitors MLCC - SMD/SMT 0402 0.022uF 25volt X7R +/- 5%	C15, C18	Murata - GRM SERIES 1005mm	Capacitor	2
LED		D1	LED_STEC-1112H_V	LED_SMD	1
TB002-500-02BE	Connector	J1, J2	TB00250002BE	TB002-500-02BE	2
2.7k	RES 2.7K OHM 1% 1/16W 0402	R1	Vishay - Thick Film 1005mm	Resistor	1
6.2k	VISHAY DRALORIC CRCW04026K20FKED RESISTOR, 0402, 6K2, 1%	R2	Vishay - Thick Film 1005mm	Resistor	1
8.45k	VISHAY - CRCW04028K45FKED - SMD Chip Resistor, 0402 [1005 Metric], 8.45 kohm, CRCW e3 Series, 50 V, Thick Film, 63 mW	R3	Vishay - Thick Film 1005mm	Resistor	1
10k	D10/CRCW0402-C 100 10K 1% ET7	R4, R7	Vishay - Thick Film 1005mm	Resistor	2
1.5k	RES SMD 1.5K OHM 1% 1/16W 0402	R5	Vishay - Thick Film 1005mm	Resistor	1
196	VISHAY CRCW0402196RFKED. SMD Chip Resistor, Thick Film, 196 ohm, 50 V, 0402 [1005 Metric], 63 mW, 1%, CRCW Series	R6	Vishay - Thick Film 1005mm	Resistor	1
845	Res Thick Film 0402 845 Ohm 1% 1/16W 100ppm/C Molded SMD SMD Paper T/R	R8	Vishay - Thick Film 1005mm	Resistor	1
20k	RES 20K OHM 1% 1/16W 0402	R9	Vishay - Thick Film 1005mm	Resistor	1
5001	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP1, TP2, TP3, TP4, TP5, TP6	KSTN-5001	CMP-2000-05181-1	6
BO51013BRHLR	WPC 1.1 Compatible Fully Integrated Wireless Power Receiver IC, 4 V Min Input, 20-pin VQFN (RHL), Green (RoHS & no Sb/Br)	U1	RHL0020A_V	CMP-0393-00005-2	1
BQ25100YFPR	LiPo/LiOn Battery charger IC	U2	BQ25100YFPR - Battery charger	BQ25100YFPR	1