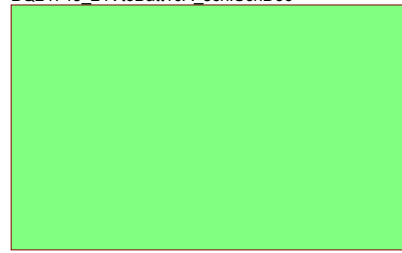
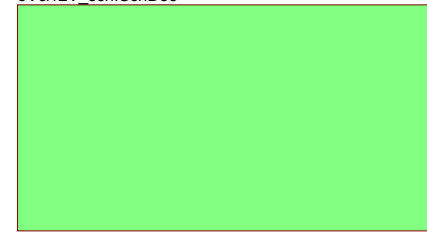


Revision History	
Revision	Notes

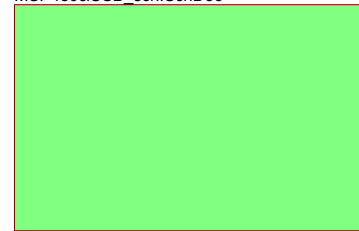
Designator  
BQ24745\_24VtoBatt10A\_sch.SchDoc



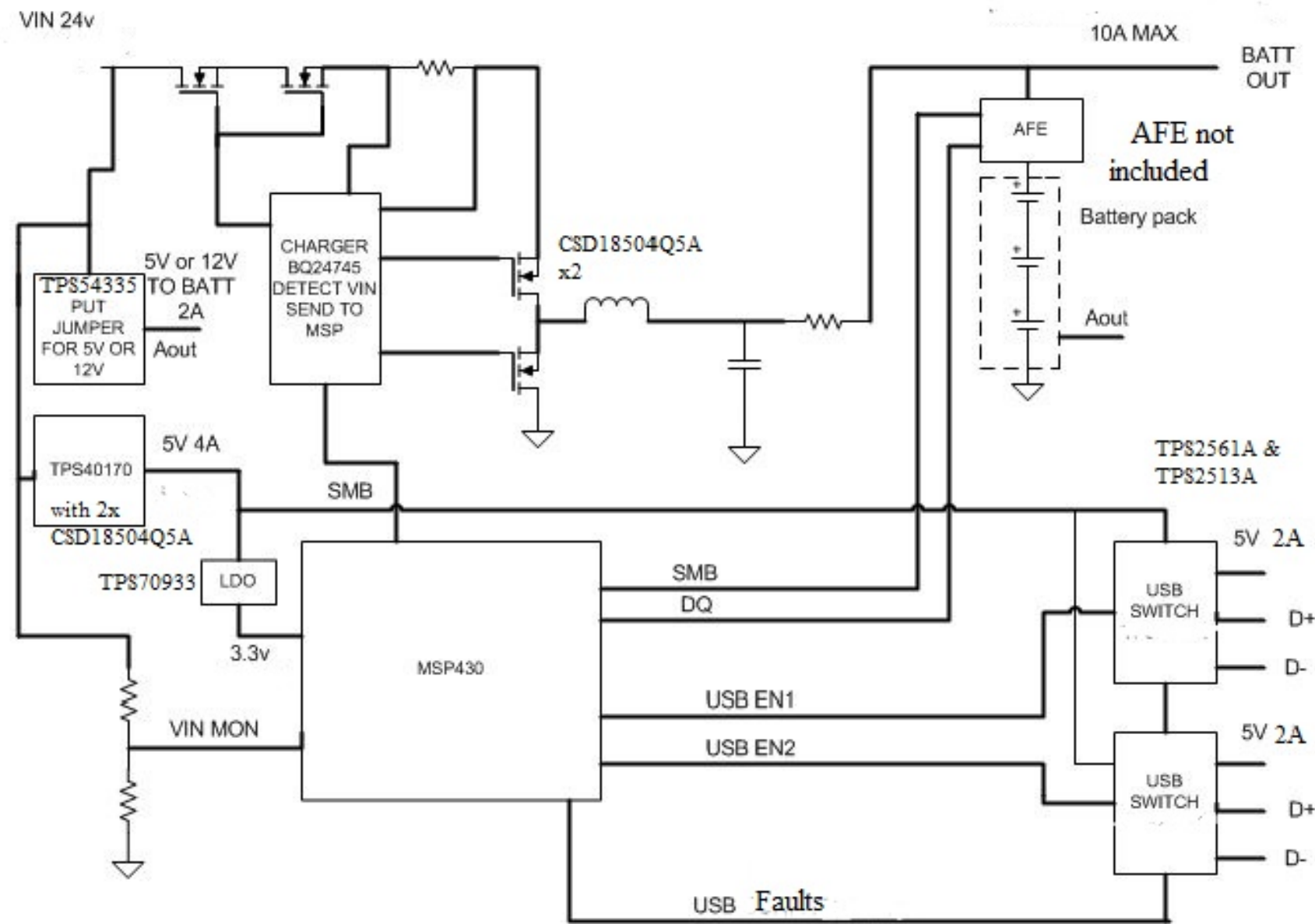
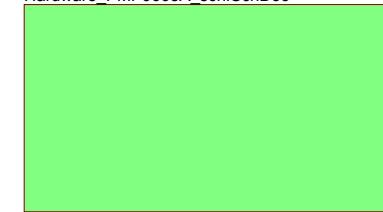
Designator  
5V&12V\_sch.SchDoc



Designator  
MSP430&USB\_sch.SchDoc

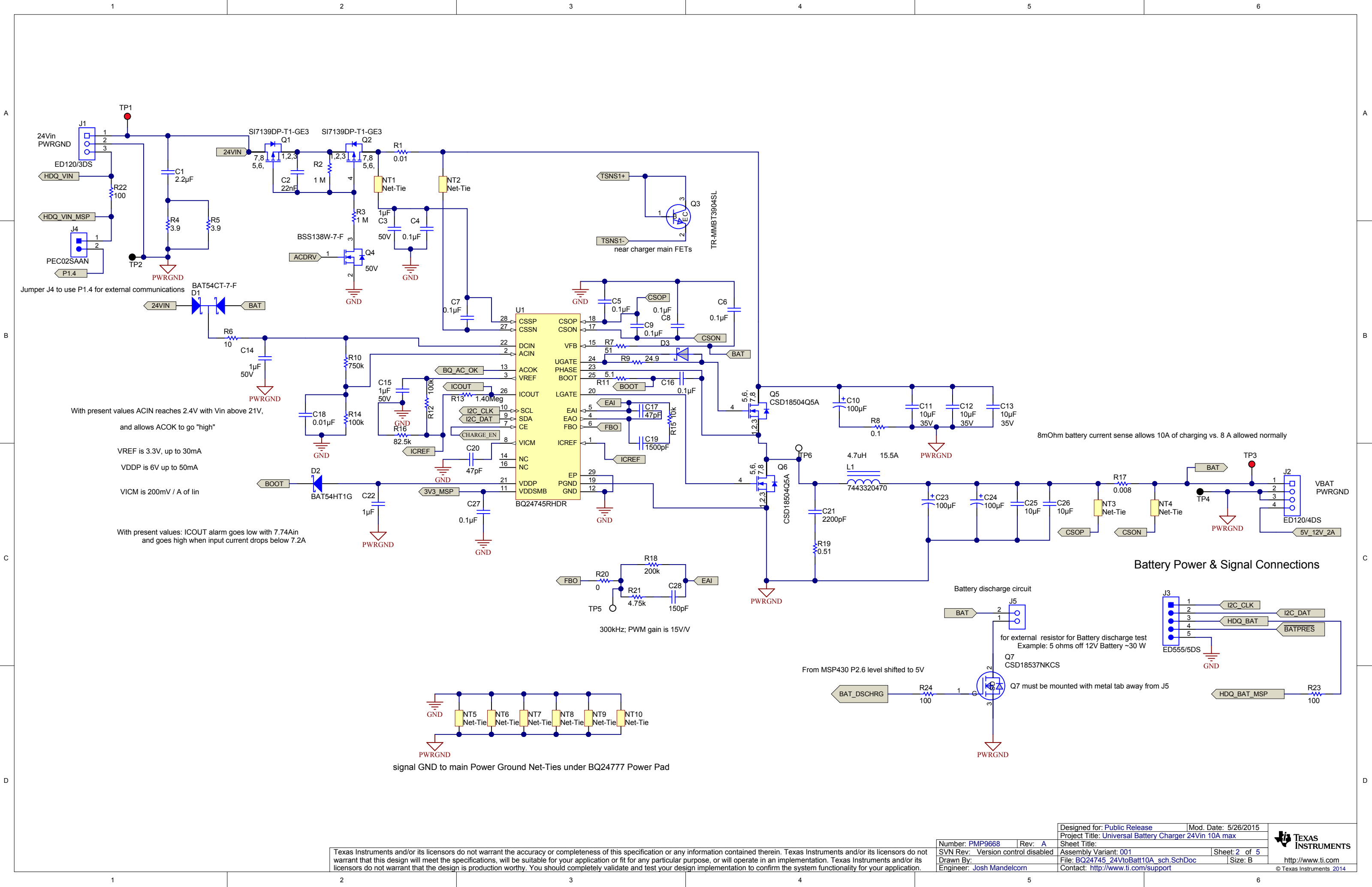


Designator  
Hardware\_PMP9668A\_sch.SchDoc



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Designed for: Public Release	Mod. Date: 5/20/2015	TEXAS INSTRUMENTS
Project Title: Universal Battery Charger 24Vin 10A max	Sheet: 1 of 5	
Number: PMP9668	Rev: A	http://www.ti.com
SVN Rev: Version control disabled	Assembly Variant: 001	
Drawn By:	File: Cover Sheet_PMP9668A_sch.SchDoc	
Engineer: Josh Mandelcom	Contact: http://www.ti.com/support	© Texas Instruments 2014



With present values ACIN reaches 2.4V with Vin above 21V,  
and allows ACOK to go "high"

VREF is 3.3V, up to 30mA  
VDDP is 6V up to 50mA  
VICM is 200mV / A of lin

With present values: ICOUT alarm goes low with 7.74Ain  
and goes high when input current drops below 7.2A

8mOhm battery current sense allows 10A of charging vs. 8 A allowed normally

### Battery Power & Signal Connections

#### Battery discharge circuit

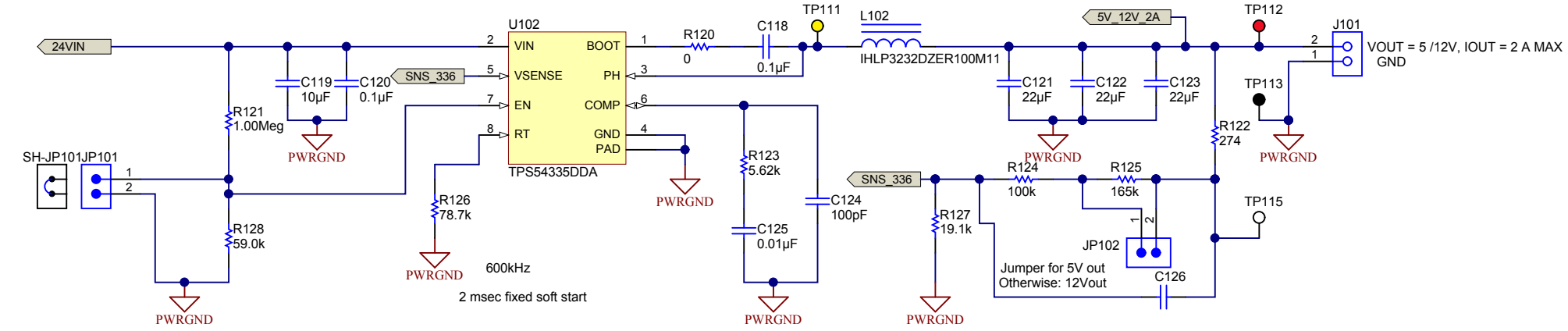
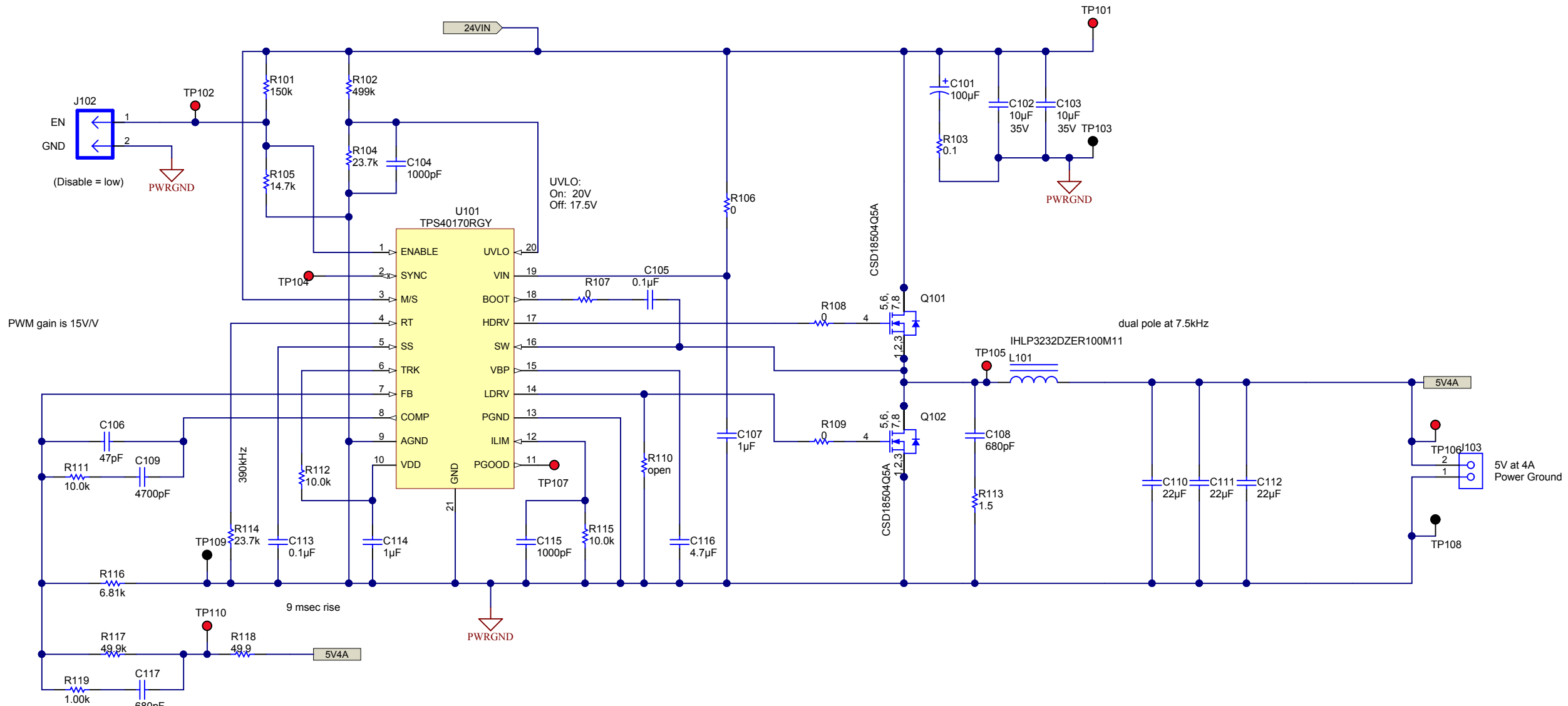
From MSP430 P2.6 level shifted to 5V

for external resistor for Battery discharge test  
Example: 5 ohms off 12V Battery ~30 W

Q7 must be mounted with metal tab away from J5

signal GND to main Power Ground Net-Ties under BQ24777 Power Pad

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EN rising at 1.21V falling at 1.17V  
 EN source current: 1.15uA below threshold; 4.45uA above threshold  
 typical rising at 20.5Vin and falling at 16.5Vin

Error amp  $G_m = 0.0013$   
 Comp to  $I_{switch}$  gain 8A/V  
 800mV ref, 2.3uA in  $C_{ss}$  3.5msec rise for 10nF

Target 34kHz loop crossover for 5Vout and 44uF effective cap  
 If effective cap at 12Vout is 18uF; loop crossover will be same 34kHz

Designed for: Public Release	Mod. Date: 4/9/2014
Project Title: Universal Battery Charger 24Vin 10A max	
Number: PMP9668	Rev: A
SVN Rev: Version control disabled	Sheet: 3 of 5
Drawn By:	File: 5V&12V_sch.SchDoc
Engineer: Josh Mandelcom	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>



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H1 NY PMS 440 0025 PH H2 NY PMS 440 0025 PH H3 NY PMS 440 0025 PH H4 NY PMS 440 0025 PH

H5 1902C H6 1902C H7 1902C H8 1902C

DNP FID1 DNP FID2 DNP FID3

PCB Number: PMP9668  
PCB Rev: A

PCB LOGO  
Texas Instruments

Label Table	
Variant	Label Text
001	ChangeMe!
002	ChangeMe!

LBL1  
PCB Label  
Size: 0.65" x 0.20 "


ZZ1  
Label Assembly Note  
This Assembly Note is for PCB labels only

ZZ2  
Assembly Note  
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3  
Assembly Note  
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4  
Assembly Note  
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

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Number: PMP9668	Rev: A	Designed for: Public Release	Mod. Date: 5/26/2015
SVN Rev: Version control disabled	Assembly Variant: 001	Project Title: Universal Battery Charger 24Vin 10A max	
Drawn By: Josh Mandelcom	File: Hardware_PMP9668A_sch.SchDoc	Sheet: 5 of 5	Size: B
Engineer: Josh Mandelcom	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	 <a href="http://www.ti.com">http://www.ti.com</a> © Texas Instruments 2014	

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