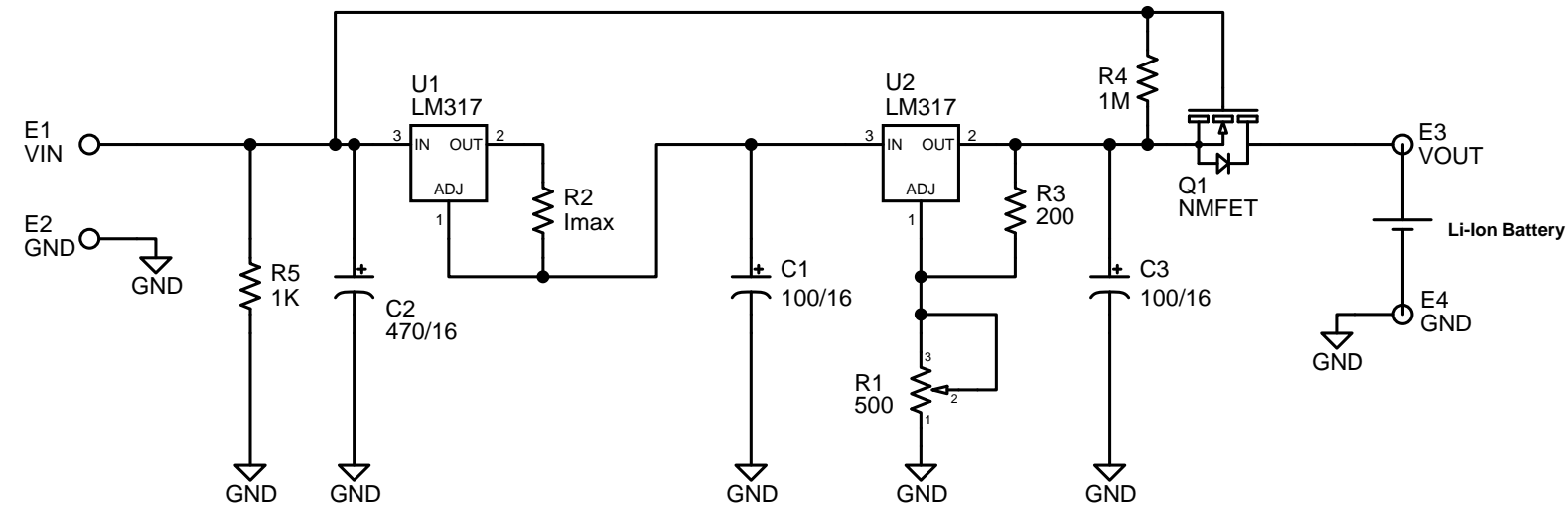


REVISION HISTORY			
REV	DESCRIPTION	APPROVED	DATE



Vin (Min)	$V_{out} + 5 + (I_{max} \times R2) + (I_{max} \times R_{dson})$	Volts	Full load at set voltage
Vin (Max)	Vgsbr	Volts	Q1 gate breakdown voltage
Iout (Min)	0.0	Amps	Output open
Iout (Max)	$1.24 / R2$	Amps	
Iout (Max)	1.5	Amps	Current limit of LM317s
P-R2 (Max)	$1.5376 / R2$	Watts	At limit Iset
Vout (Min)	1.24	Volts	R1 minimum = 0 ohms
Vout (Max)	4.40	Volts	R1 maximum = 500 ohms
Vout error	$I_{out} \times R_{dson}$	Volts	Voltage drop of backflow diode
P-U2 (Max)	$(V_{in} - V_{U1} - V_{R2} - V_{outmin}) \times I_{out}$	Watts	At lowest battery charging voltage

1. Q1 prevents the battery from discharging when the input supply is removed
2. Q1 Vgsth must be less than 5V to ensure enhancement at minimal input voltage.
3. R5 ensures input goes to zero when supply is removed.
4. Heatsink the LM317 regulators (Not Q1).
5. +12V is a good starting point for Vin; minimum for 1A @ 4.2V = 10.5V.
 $V_{U1} + V_{R2} + V_{U2} + V_{out} = 2.5V + 2.5V + 1.24V + 4.2V$ (2.5V is LM317 dropout at 1.5A)

APPROVALS		DATE	TITLE		
DRAWN	J TAYLOR	12/01/09	CCCV Li-Ion battery charger		
CHECKED					
ENGINEER					
PROJ ENGINEER			SIZE	FSCM NO.	DRAWING NO.
APPROVED			B		0120.DSN
QA			SCALE	NONE	REV: -
			© 2009 TES	MODIFIED: 12/01/09 4:16:50 PM	SHEET 1 OF 1