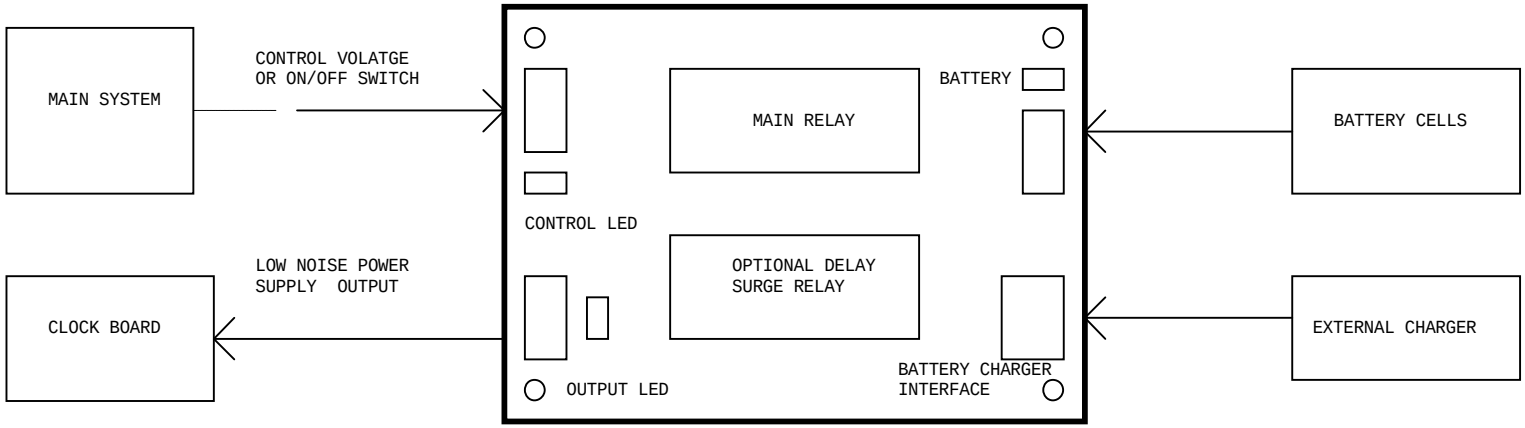
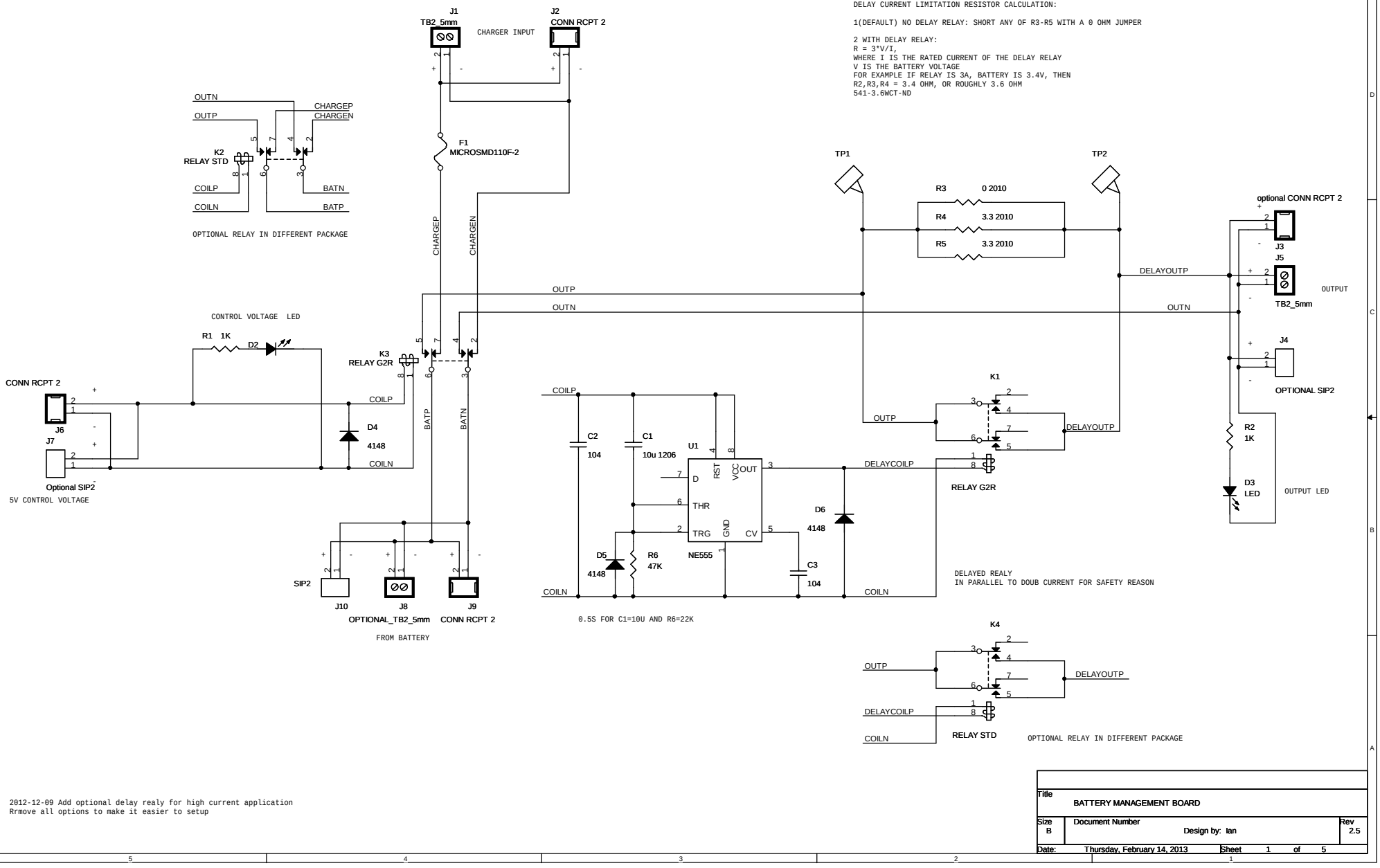


Title	BATTERY MANAGEMENT BOARD BLOCK DIAGRAM	
Size A	Document Number DESIGN BY IAN	Rev 2.5
Date: Thursday, February 14, 2013	Sheet 2 of 5	


DELAY CURRENT LIMITATION RESISTOR CALCULATION:
1(DEFAULT) NO DELAY RELAY: SHORT ANY OF R3-R5 WITH A 0 OHM JUMPER
2 WITH DELAY RELAY:
R = 3*V/I,
WHERE I IS THE RATED CURRENT OF THE DELAY RELAY
V IS THE BATTERY VOLTAGE
FOR EXAMPLE IF RELAY IS 3A, BATTERY IS 3.4V, THEN
R2,R3,R4 = 3.4 OHM, OR ROUGHLY 3.6 OHM
541-3.6WCT-ND
J1
TB2_5mm
CHARGER INPUT
J2
CONN RCPT 2
F1
MICROSMD110F-2
OUTN
OUTP
CHARGEP
CHARGEN
K2
RELAY STD
COILP
COILN
BATN
BATP
OPTIONAL RELAY IN DIFFERENT PACKAGE
CONTROL VOLTAGE LED
R1 1K
D2
K3
RELAY G2R
CONN RCPT 2
J6
J7
Optional SIP2
5V CONTROL VOLTAGE
D4
4148
SIP2
J10
J8
J9
OPTIONAL_TB2_5mm
CONN RCPT 2
FROM BATTERY
TP1
TP2
R3 0 2010
R4 3.3 2010
R5 3.3 2010
DELAYOUTP
optional CONN RCPT 2
J3
J5
TB2_5mm
OUTPUT
J4
OPTIONAL SIP2
R2
1K
D3
LED
OUTPUT LED
K1
RELAY G2R
DELAYCOILP
C2
104
C1
10u 1206
U1
NE555
RST
VCC
OUT
GND
CV
THR
TRG
D
D5
4148
R6
47K
C3
104
D6
4148
0.5S FOR C1=10U AND R6=22K
DELAYED REALY
IN PARALLEL TO DOUB CURRENT FOR SAFETY REASON
K4
RELAY STD
OPTIONAL RELAY IN DIFFERENT PACKAGE
2012-12-09 Add optional delay realy for high current application
Rrmove all options to make it easier to setup
Title
BATTERY MANAGEMENT BOARD
Size
B
Document Number
Design by: Ian
Rev
2.5
Date:
Thursday, February 14, 2013
Sheet
1
of
5

Standard configuration

J6 or J7 : Control voltage input
J1 or J2: Charger input
J8 or J9: Battery input
J3 and J5 or J4: Output
J4 optional output monitoring
J10 potional battery monitoring
K2 or K3: Relay
D4: IN4148
F1: MICROSMD110F-2 or just short
R4: 0 ohm 2010 or just short
R1 and R2: 1K 0603
D2 and D3: LED 0603

Current limiting configuration

J6 or J7 : Control voltage input
J1 or J2: Charger input
J8 or J9: Battery input
J3 and J5 or J4: Output
J4 optional output monitoring
J10 potional battery monitoring
K2 or K3 and K1 or K4: Relay
D4,D5, D6: IN4148
F1: MICROSMD110F-2 or just short
R3,R4,R5: 3.6 ohm 2010
R1 and R2: 1K 0603
D2,D3: LED 0603
C1,C2 100n 0603
C1 10u 1206
R6 47K 0603 (adjust to change the delay time)
U1 555 SOIC8 296-14635-1-ND

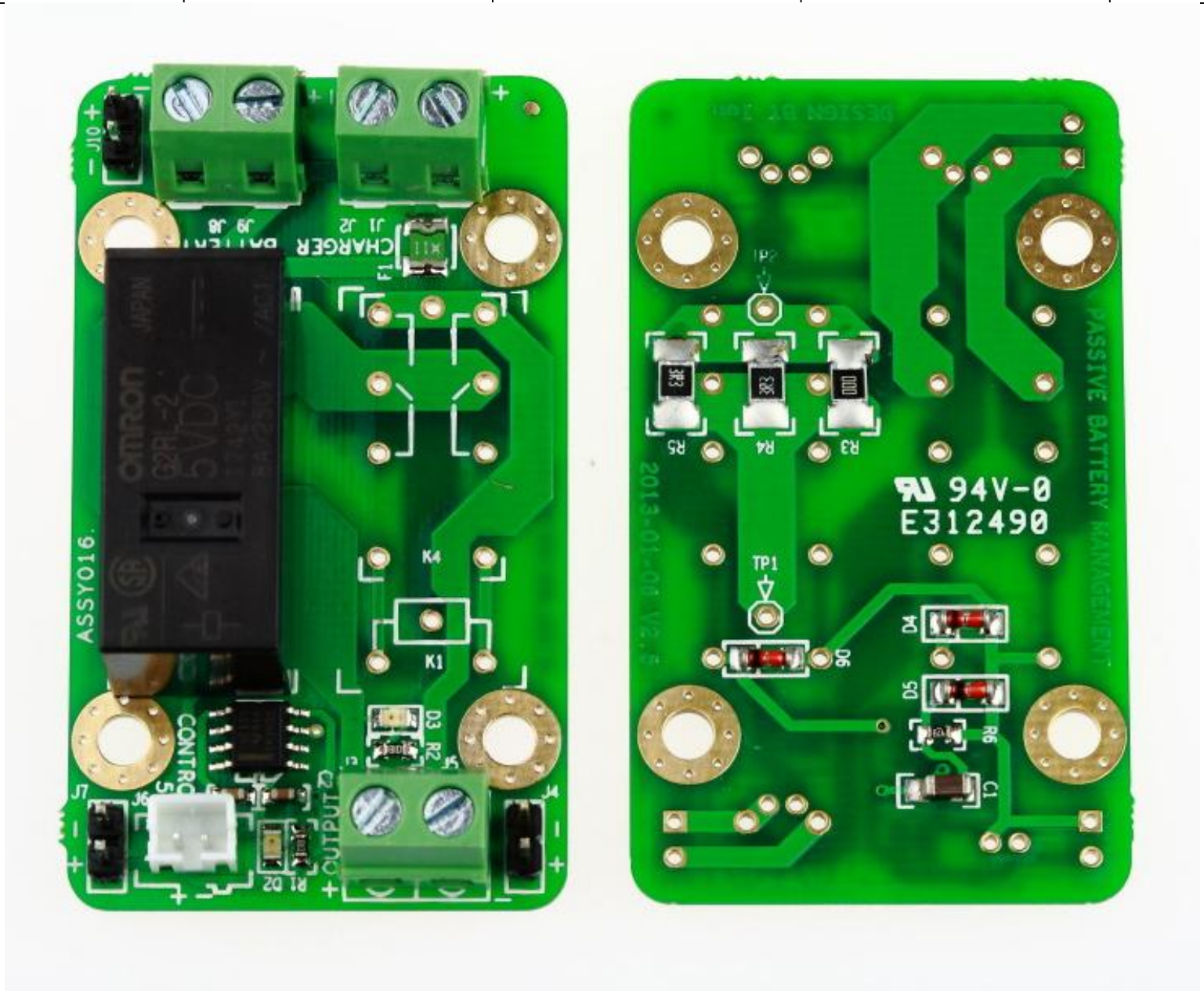
Possible Part Numbers

Relays:
G2RL-2 DC5, Z3087-ND
G2R-2-DC5, G2R-2-DC5-ND
8-1393792-5, PB383-ND
Or function and pin to pin compatible

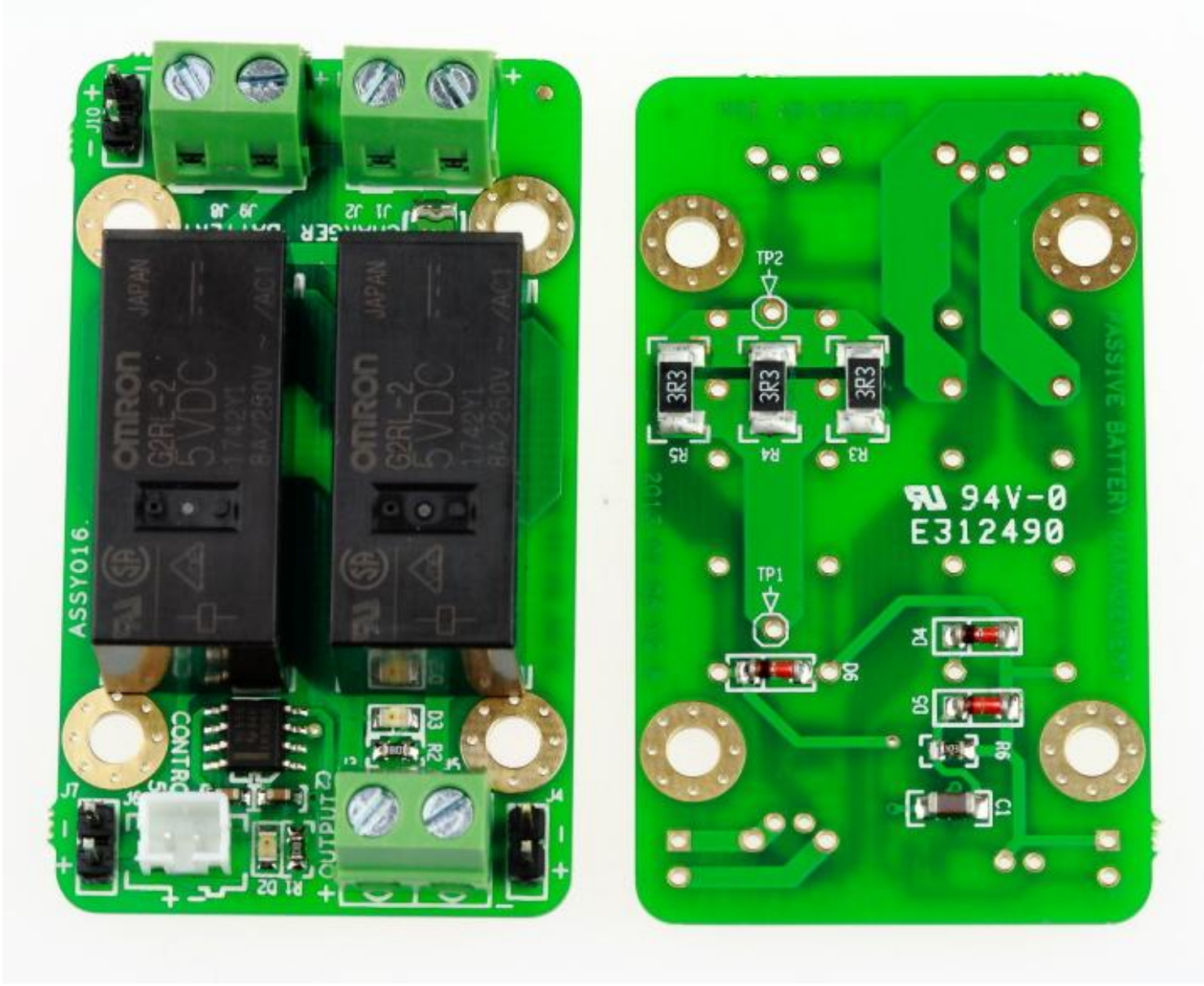
Connectors:
PH2.0mm 2P DIP, 455-1704-ND
1935161 TERM BLOCK PCB 2POS 5.0MM, 277-1667-ND
BERGSTIK II .100" SR STRAIGHT , 609-3500-ND

Other components:
FUSE: MICROSMD110F-2
RES 3.3ohm 2010 RHM3.3BGCT-ND
LED CHIPLED 587NM YLW 0603 SMD, 475-2558-1-ND
RES 1.0K OHM 1/10W 5% 0603 SMD, 311-1.0KGRCT-ND
555 296-14635-1-ND

Title: BATTERY MANAGEMENT BOARD APPLICATION NOTE		
Size: A	Document Number Design by: Ian	Rev: 2.5
Date: Thursday, February 14, 2013	Sheet 3 of 5	



Title	STANDARD CONFIGURATION		
Size A	Document Number	Design by: Ian	Rev 2.5
Date: Thursday, February 14, 2013	Sheet 4 of 5		



Title	DUAL REALY SURGE PROTECTION CONFIGURATION	
Size A	Document Number Design by: Ian	Rev 2.5
Date: Thursday, February 14, 2013	Sheet 5 of 5	