



Bill Of Material

Document:	
Revision:	0
Revision Date:	September 15, 2008

Name:	CIR-BMBP-12V-3	Version: 1	Battery Protector, full model, 12VDC, overvoltage, charge, MOSFET
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Line #	PCB Part Label	Qty.	Digi-key Part #	Description	Notes
1	R1	1	27KEBK-ND	Resistor, 27k Ohms, 1/8W 5% carbon film	
2	R2	1	750KEBK-ND	Resistor, 750k Ohms, 1/8W 5% carbon film	
3	R3,R5,R9,R10,R15,R19,R23	7	100KEBK-ND	Resistor, 100k Ohms, 1/8W 5% carbon film	
4	R4, R11, R12, R22	3	330KEBK-ND	Resistor, 330k Ohms, 1/8W 5% carbon film	
5	R6, R14	2	47KEBK-ND	Resistor, 47k Ohms, 1/8W 5% carbon film	
6	R7	1	10KEBK-ND	Resistor, 10k Ohms, 1/8W 5% carbon film	
7	R8	1	1.0MEBK-ND	Resistor, 1.0M Ohms, 1/8W 5% carbon film	
8	R13, R21	1	2.2KEBK-ND	Resistor, 2.2k Ohms, 1/8W 5% carbon film	
9	R15	1	1N4148MST-ND	Diode, 1N4148, signal diode, 500mW	D+ @R15(pin 2) : D- @R7(pin 1), require insulation
10	R16	1	47KEBK-ND	Resistor, 470k Ohms, 1/8W 5% carbon film	R16 @ C8+ : R16 @R16(pin 2)
11	R17	1		Resistor, bare jumper wire	
12	R24	1	2.2KEBK-ND	Resistor, 2.2k Ohms, 1/8W 5% carbon film	R @R16(pin 1) : R @Q1(output), insulated, bottom PCB
13	C1, C3	2	P5164-ND	Capacitor, 35V 47uF, electrolytic, 0.1" spacing	
14	C2	1	P5134-ND	Capacitor, 25V 10uF, electrolytic, 0.1" spacing	
15	C4, C5	2	478-2476-ND	Capacitor, 50V 0.1uF (104), ceramic 20%, 0.1" spacing	
16	D1, D5, D7	3	1N5234BDO35MST-ND	Diode, 1N5234, 6.2V zener, 500mW	
17	D2	1	1N4148MST-ND	Diode, 1N4148, signal diode, 500mW	D2(+) direct solder to VR3 (pin 1)
18	D3, D6	2	1N4148MST-ND	Diode, 1N4148, signal diode, 500mW	
19	D4	1	1N4002GICT-ND	Diode, 1N4002, general Si diode, 100V 1A	
20	D8	3	1N4148MST-ND	Diode, 1N4148, signal diode, 500mW	D(+ @R15(pin 2) : D(- @R7(pin 1)
21	IC1, IC2	2	LM258NOS-ND	IC, LM258 dual op-amp	
22	VR1	1	306HC504B-ND	Resistor, 500k variable, 306H, top adjust, inline	
23	VR2	1	306HC104B-ND	Resistor, 100k variable, 306H, top adjust, inline	
24	VR3	1		Resistor, 1.0M variable, 306H, top adjust, inline	pin 1 @D2(+) : pin 2 @ hole D2 (+) : pin 3 @ R2 (pin 1)
25	VR4	1	306HC104B-ND	Resistor, 100k variable, 306H, top adjust, inline	pin 1 @C7- : pin 2 @C7+ : pin 3 @ R of C9
25	Q1	1		Discrete, IRFZ44V, N HEXFET, 60V 0.0165 Ohm, TO-220AB	
26	Q2	1		Discrete, 2N3904 NPN transistor, TO-92	
26	LED1	1	160-1057-ND	Display, red/green LED, 5mm, 29mcd diffused	
27	LED2	1	160-1057-ND	Display, LED, yellow 5mm 19mcd diffused	LED+ @D8+ : LED- @D10+
27	PCB	1		PCB, Battery Protector, VI, PCB-BMBP-001	
28	JPM2	1		Resistor, red jumper wire	D8(-) : D10(-)
29	D9	1	1.0MEBK-ND	Resistor, 1.0M Ohms, 1/8W 5% carbon film	
30	C9	1	100KEBK-ND	Resistor, 100k Ohms, 1/8W 5% carbon film	C9 (+) : VR4 (pin 3)
31	C6	1	P5164-ND	Capacitor, 35V 10uF, electrolytic, 0.1" spacing	C+ @D9- : C- @R20(pin 1)
32	C10	1	P5134-ND	Capacitor, 50V 1uF, electrolytic, 0.1" spacing	
33	WIRE1	0.3		Wire, 22AWG, red	30cm, +12V IN
34	WIRE2	0.3		Wire, 18AWG, black	30cm, pwr negative
35	WIRE3	0.3		Wire, 18AWG, blue	30cm, output negative
36	HTSNK1	1		Heatsink, TO-220	
37	SCRW1	1		Hardware, screw, #4 x 1/4"	
38	NUT1	1		Hardware, nut, #4	
39	LW1	1		Hardware, lockwasher, #4	