



Onstate
Technologies

Bill Of Material

Document: BOM CIR-BMBP-24V-1
Revision: 0
Revision Date: June 4, 2010

Name: CIR-BMBP-24V-1 Version: 1 Battery Protector, 24VDC 7A N-MOSFET, basic, over voltage model

Line #	Part Destination	Qty.	Digi-key Part #	Description	Notes
1	R1	1	27KEBK-ND	Resistor, 27k Ohms, 1/8W 5% carbon film	
2	R2	1	1.8MEBK-ND	Resistor, 1.8M Ohms, 1/8W 5% carbon film	
3	R3, R5, R10	4	100KEBK-ND	Resistor, 100k Ohms, 1/8W 5% carbon film	
4	R4, R11, R12	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	1.2MEBK-ND	Resistor, 1.2M Ohms, 1/8W 5% carbon film	
8	R9	1	10KEBK-ND	Resistor, 10k Ohms, 1/8W 5% carbon film	
9	R13	1	2.2KEBK-ND	Resistor, 2.2k Ohms, 1/8W 5% carbon film	
10	C1, C3	1	P5164-ND	Capacitor, 35V 47uF, electrolytic, 0.1" spacing	wire
11	C2	1	P5148-ND	Capacitor, 25V 10uF, electrolytic, 0.1" spacing	C1-Vsense delay, Alt: P5165-ND (35V, 100uF)
12	C4, C5	1	478-2476-ND	Capacitor, 50V 0.1uF (104), ceramic 20%, 0.1"	Alt: P5161-ND (35V, 10uF)
13	D1, D7	2	1N5234BDO35MSCT-ND	Diode, 1N5234, 6.2V zener, 500mW	
14	D2, D3, D6	3	1N4148MSCT-ND	Diode, 1N4148, signal diode, 500mW	
15	IC1	3	LM258NOS-ND	IC, LM258 dual op-amp	
16	VR1	1	3362U-504LF-ND	Resistor, 500k variable, 3362U, top adjust, inline	
17	VR2	1	3362U-104LF-ND	Resistor, 100k variable, 3362U, top adjust, inline	
18	Q1	1	IRFZ44VPBF-ND	Discrete, IRFZ44N, N-MOSFET, TO-220	
19	LED1	1	67-1327-ND	Display, LED, red/green 3mm, 30mcd white diffused	
20	PCB	1		PCB, Battery Protector, V1, PCB-BMBP-1	Onstate BP PCB, 1.71" square
21	R15, R16, R19, R23	1	100KEBK-ND	Resistor, 100k Ohms, 1/8W 5% carbon film	
22	R22	1	330KEBK-ND	Resistor, 330k Ohms, 1/8W 5% carbon film	
23	R21	1	4.7KEBK-ND	Resistor, 4.7k Ohms, 1/8W 5% carbon film	
24	D8, D10	1	1N4002G1CT-ND	Diode, 1N4002, Si, 100V 1A, DO-41	
25	D9	1	1.2MEBK-ND	Resistor, 1.2M Ohms, 1/8W 5% carbon film	
26	C6	1	478-2476-ND	Capacitor, 50V 0.1uF (104), ceramic 20%, 0.1"	
27	R18	1	P5174-ND	Capacitor, 50V 1uF, electrolytic, 0.1" spacing	
28	C8	1	P5164-ND	Capacitor, 35V 47uF, electrolytic, 0.1" spacing	
29	Q2	1	2N3904RLRA0SCT-ND	Discrete, 2N3904 NPN transistor, TO-92	generic NPN transistor
30	C9	1	220KEBK-ND	Resistor, 220k Ohms, 1/8W 5% carbon film	
31	VR4	1	3362U-104LF-ND	Resistor, 100k variable, 3362U, top adjust, inline	pin 1 @C7-; pin 2 @C7+; pin 3 @ R of C9
32	IC2	1	LM258NOS-ND	IC, LM258 dual op-amp	
33	wires	4		wires red/black/blue wires	power wires
34	HTSNK1	1	HS107-ND	Heatsink, TO-220, 0.75" (H)	Alt: HS106-ND (3/8"H)
35	SCRW1	1		Hardware, screw, #4 x 1/4"	
36	NUT1	1		Hardware, nut, #4	
37	LW1	1		Hardware, lockwasher, #4	
1	D	1	1N4002G1CT-ND	Diode, 1N4002, Si, 100V 1A, DO-41	optional relay output
2	C	1	478-2476-ND	Capacitor, 50V 0.1uF (104), ceramic 20%, 0.1" spacing	optional relay output
3	REL1	1		Relay, SPDT, 24V 10A, 1600 Ohms, T7NS5D1-24	optional relay output

Notes: for 24V in version, apply power to the 24VDC in diode (D10).

for 12V in version, apply power to the 12VDC in diode (D4).

Make sure all the diodes are inserted the correct way. There is a delay in VR adjustment due to filter capacitor (C1). It may take a few seconds to stabilize adjustments.

See BMBP battery protector technical information sheet for more information.