



Figure 17. Bottom Assembly

8.1.2 Bill of Materials

The bill of materials for the circuit module is shown in [Table 10](#). Substitute parts may be used in the manufacturing of the assembly.

Table 10. bq77908A Circuit Module Bill of Materials

Count	Reference Design	Value	Description	Size	Part Number	Manufacturer
17	C1, C4, C18, C19, C20, C23, C24, C25, C27, C28, C29, C31, C32, C34, C35, C36, C37	0.1 µF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std	Std
1	C12	0.1 µF	Capacitor, Ceramic, 50V, X7R, 10%	1210	Std	Std
1	C15	10 nF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std	Std
1	C17	4.7 µF	Capacitor, Ceramic, 50V, X7R, 10%	1210	Std	Std
1	C2	10 µF	Capacitor, Ceramic, 50V, Y5V, 20%	1210	Std	Std
2	C21, C26	1 µF	Capacitor, Ceramic, 25V, X5R, 10%	1206	Std	Std
0	C22		Capacitor, 0603, Not installed	0603		
0	C3, C5		Capacitor, Ceramic, 10V, X7R, 10%	0603		
0	C30		Capacitor, 1206, Not installed	1206		
0	C33		Capacitor, Ceramic, 50V, X7R, 10%	0603		
9	C6, C7, C8, C9, C10, C11, C13, C14, C16	1 µF	Capacitor, Ceramic, 10V, X7R, 10%	0603	Std	Std
2	D1, D14 **	36V TVS	Diode, TVS, Unidirectional, 600-W	SMB	P6SMB36AT3G	ON Semiconductor
2	D10, D11	MURD620CT	Diode, Fast rectifier, 200V, 5A	D-PAK	MURD620CTG or UF5A400D1-13 or RF505B6STL	ON Semiconductor or Diodes or Rohm
0	D12, D13, D15, D16, D17		Diode, TVS, Pattern only, 600-W	SMB		
1	D18 **	17V TVS	Diode, TVS, Unidirectional, 600-W	SMB	1SMB17AT3G	ON Semiconductor
4	D2, D4, D5, D6	1N4148W	Diode, Signal, 300-mA, 75-V, 350-mW	SOD-123	1N4148W-7-F	Diodes
1	D3	5.6V	Diode, Dual, Zener, 5.6V, 300mW	SOT23	AZ23C5V6-V-G	Vishay-Telefunken
0	D7		Diode, Signal, 300-mA, 75-V, 350-mW	SOD-123		
1	D9 **	36V TVS	Diode, Unidirectional TVS, 1500W	SMC	1.5SMC36A	Littelfuse
1	HS1	581102B02500G	Heatsink, TO-220/218 vertical	0.640 x 0.640 inch	581102B02500G	Aavid Thermalloy
0	HS2		Heatsink, Pattern only, TO-220/218 vertical	0.640 x 0.640 inch		
2	J1, J2	PEC02SAAN	Header, Male 2-pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins

Table 10. bq77908A Circuit Module Bill of Materials (continued)

Count	Reference Design	Value	Description	Size	Part Number	Manufacturer
0	J8		Header, Male 2-pin, 100mil spacing			
4	J10, J12, J15, J16	1714955	Header, 32A, 500V, 2-pin, 250 mil spacing	0.492 x 0.500 inch	1714955	Phoenix Contact
4	J11, J13, J14, J17	3267	Connector, Banana Jack, Uninsulated	0.500 dia. inch	3267	Pomona
0	J18		Header, 11-pin, 100mil spacing,	0.100 inch x 11		
1	J3	5103308-1	Header, 2x5-pin, 100mil spacing	0.330 x 0.800 inch	5103308-1	Tyco
1	J4 **	1803455	Header, 8A 300V, 5-pin Vert. Entry	0.280 x 0.700 inch	1803455	Phoenix Contact
1	J5 **	1803468	Header, 8A 300V, 6-pin Vert. Entry	0.2800 x 0.750 inch	1803468	Phoenix Contact
1	J6	PEC03SAAN	Header, Male 3-pin, 100mil spacing,	0.100 inch x 3	PEC03SAAN	Sullins
1	J7	ED555/2DS	Terminal Block, 2-pin, 6-A, 3.5mm	0.27 x 0.25 inch	ED555/2DS	OST
1	J9	ED555/3DS	Terminal Block, 3-pin, 6-A, 3.5mm	0.41 x 0.25 inch	ED555/3DS	OST
1	Q1	BSS84	MOSFET, Pch, -50 V, -0.13A, 10 Ω	SOT23	BSS84	Fairchild
1	Q2	BSS138	MOSFET, Nch, 50V, 0.22A, 3.5 Ω	SOT23	BSS138	Fairchild
1	Q3	IRFB3207ZPBF	MOSFET, Nchan, 75V, 170A, 4.1 mΩ	TO-220AB	IRFB3207ZPBF	IR
0	Q4, Q5, Q6		MOSFET, Nchan, Pattern only	TO-220AB		
1	Q7	IRFB3607PBF	MOSFET, Nchan, 75V, 80A, 9 mΩ	TO-220AB	IRFB3607PBF	IR
3	R1, R16, R17	1M	Resistor, Chip, 1/16W, 5%	0603	Std	Std
2	R10, R37	100k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
9	R18, R19, R20, R21, R22, R25, R26, R29, R31	47	Resistor, Metal Film, 1/4 watt, ± 5%	1206	Std	Std
3	R2, R6, R46	47k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
9	R23, R33, R35, R36, R38, R41, R43, R44, R47	1k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
4	R24, R27, R34, R39	10k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
1	R28	47	Resistor, Chip, 1/16W, 5%	0603	Std	Std
3	R3, R42, R57	0	Resistor, Chip, 1/16W, 5%	0603	Std	Std
0	R30, R51, R53, R54, R55, R56, R58, R59, R60, R61, R62, R63, R65		Resistor, Chip, 1/16W, 5%	0603		
1	R4	200	Resistor, Metal Film, 1/4 watt, ± 5%	1206	Std	Std
2	R48, R49	5.1M	Resistor, Chip, 1/16W, 5%	0603	Std	Std
10	R5, R8, R9, R12, R13, R14, R15, R32, R40, R45	100	Resistor, Chip, 1/16W, 1%	0603	Std	Std
2	R50, R52	0.002	Resistor, 2 mΩ, 1W, 1%	2512	WSL25122L000FEA	Vishay
0	R64		Resistor, Chip, 1/16W, 1%	0603		
0	R7, R11		Resistor, Metal Film, 1/4 watt, ± 5%	1206	Std	Std
1	RT1	10k	Thermistor, TH, ±1%	0.095 X 0.150 inch	103AT-2	Semitec
0	SPK1, SPK2, SPK3, SPK4, SPK5, SPK6		Spark Gap, 0.010 inch space	0.050 x 0.070 inch		
0	TP37, TP49, TP51, TP52		Plated Through Hole, Dia. 0.094	0.150 x 0.150 inch		
4	TP34, TP35, TP39, TP40	5020	Test Point, loop	0.100 x 0.100 inch	5020	Keystone
8	TP13, TP18, TP3, TP30, TP38, TP41, TP47, TP48	5002	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5002	Keystone
0	TP1, TP10, TP11, TP12, TP14, TP17, TP2, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP31, TP32, TP33, TP36, TP4, TP42, TP43, TP45, TP46, TP5, TP6, TP7, TP8, TP9		Test Point, 0.020 Hole			
0	TP15, TP16, TP19, TP20, TP44, TP50, TP53		Test Point, 0.032 Hole			
1	U1	bq77908ADBT	IC, Multicell Lithium-Ion/Lithium Polymer Pack Protection	TSSOP-38 (DBT)	bq77908ADBT	TI
1	—		PCB, 4.7 In x 3.25 In x 0.062 In		HPA731	Any
1	—		Shunt, 100-mil, Black	0.100	929950-00	3M
1	—		Thermal pad		SP900S-0.009-00-54	Bergquist
1	—		Screw, 6-32 x 0.375", pan head, Nylon		Std	Std
1	P4 (##) **		TERMBLOCK PLUG 5POS 3.81MM		1827156	Phoenix Contact
1	P5 (##) **		TERMBLOCK PLUG 6POS 3.81MM		1827169	Phoenix Contact
4	—		Standoff, M-F threaded 6-32, 0.5", Nylon		4816	Keystone
4	—		Nut, Hex, 6-32, Nylon		Std	Std

Table 10. bq77908A Circuit Module Bill of Materials (continued)

Count	Reference Design	Value	Description	Size	Part Number	Manufacturer
1	—		Resistive Cell Simulator		HPA582	TI
Notes: 1. These assemblies are ESD sensitive; ESD precautions shall be observed. 2. These assemblies must be clean and free from flux and all contaminants. Using unclean flux is unacceptable. 3. These assemblies must comply with workmanship standards IPC-A-610 Class 2. 4. Reference designators marked with an asterisk (***) cannot be substituted. All other components can be substituted with equivalent MFG's components. 5. Install thermal pad between heatsink & Q3 and secure with screw. If heatsink is substituted, use appropriate screw thread 6. Provide connectors (##) with assembly, install on J4 and J5 after test 7. Install shunt on J1 during test 8. Install standoffs at board corners, nut on top						

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