

Inverter Controller Assembly BOM WG39Rev7 Issue 030624							
Designator	Comment	Description	Footprint	Quantity	From	Price ea	Comments
Blank PCB		WG39Rev7		1			
C1, 2	22n	Film capacitor	2.54mm (0.2")	2			50/63V
C3	22n	Ceramic	2.54mm (0.2")	1			50/63V
C4	1u	Monolithic or Film	2.54mm (0.2")	1			50/63V
C5, 6	220n	Monolithic	2.54mm (0.2")	2			50/63V
C7, 9, C10 - C13, 15, C19, 21, 22, 26, 28	100n	Monolithic	2.54mm (0.2")	12			50/63V
C8, 16, 20	4u7	Tantalum	0.2" or 0.1"	3			From 6 - 35V ok
C14, 23	10n	Ceramic	2.54mm (0.2")	2			50/63V
C17, 18	1u	Monolithic	2.54mm (0.2")	2			50/63V 220/330/470n/1u ok
C24	220u 63V	Electrolytic	RBV/10_0/5_0	1			Any value from 100u up is OK
C25, 27	100u 16V	Electrolytic	RBV/6_3/2_5	2			Any value from 47u up is OK
D1, 2, 3, 5, 6, 12, 13	1N4148	Diode	DO-35	7			
D8	16V 1W	Zener Diode	DO-41	1			
D9	5V6 1W	Zener Diode	DO-41	1			
D10, 11, 14, 15	1N4004	Diode	DO-41	4			
J1	4 Pin Vert. PCB	PCB Header 4 Way	5.08mm Pitch	1	Digikey	88c/1	4176384
(J1)	4 Pin Pluggable	Terminal block	5.08mm Pitch	1	Digikey	1.44/1	249364401
J2, 4	2 Way Vert. PCB	PCB Header 2 Way	5.08mm Pitch	2	Digikey	2.86/10	3770486
(J2, 4)	2 Way Pluggable	Terminal Block	5.08mm Pitch	2	Digikey	7.35/10	102-6390-ND
J5, 6	8 Way Pin Strip	Header strip	2.54mm/0.1"	2			
J7	6 Pin Vert. PCB	PCB Header 6 Way	5.08mm Pitch	1	Element14	\$7.60/10	3810266
(J7)	6 Pin Pluggable	Terminal block	5.08mm Pitch	1	Element14	\$8.49	4352909
(J7) Alternate	6 Pin Pluggable	Terminal block	5.08mm Pitch	1	Digikey	\$2.39	102-6394-ND
J8 - J11	3 Way Pin Strip	Header strip	2.54mm/0.1"	4			
LD1	GRN LED	5mm	LED/5V	1			
LD2	RED LED	5mm	LED/5V	1			
PS1	12V Regulator	K78U12-500	75Vin to 12V 0.5A	1	Element14	\$7.99	Omit and use external 12V supply?
PS1 Alternative	12V Regulator	LMW78_12-0.5R	75Vin to 12V 0.5A	1	Digikey	\$5.97	
PS2	5V Regulator	LMO78_05-0.5	LMO78_05-0.5	1	Digikey	\$2.77	Switching regulator. The Mini360 from Ali could also be used here
Q1	2N3906 or equiv.	PNP Transistor	TO92/100/CBE	1			any PNP but Check pinout
Q2	2N3904 or equiv.	NPN Transistor	TO92/100/CBE	1			any NPN but Check pinout
Q3, 4, 6, 10	BS170 or equiv.	NCH	TO92/100/DGS	4	Digi/E14		Substitute fets ok Check pinout
Q5, 7, 8, 9	WGP30N10V	NCH 100V 30A	TO-220FETV	4	LCSC	90c/5	Any min60V Fet @ min5A is ok
Q5, 7, 8, 9 Alternate	NCE6020AI	NCH 60V 20A	TO-220FETV	4	LCSC	68c/5	Any min60V Fet @ min5A is ok
R1, 2	100K	0.6 - 1W Axial	10mm (0.4" pitch)	2			
R3	270R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R4, 5, R48 - R51	10K	0.25-0.4W Axial	10mm (0.4" pitch)	6			
R6	15K	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R7	150K	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R8, 57	56K	0.25-0.4W Axial	10mm (0.4" pitch)	2			
R9	9K1	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R10, 12, 22, 23, 36, R44, 53	100K	0.25-0.4W Axial	10mm (0.4" pitch)	7			
R11	47K	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R13, R39 - R42	33R DNL	0.25-0.4W Axial	10mm (0.4" pitch)	5			R39-42 DNL if U6 is a 74HC86
R14	180R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
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R15, 30, 32, 43, 46, 47	1K	0.25-0.4W Axial	10mm (0.4" pitch)	6			
R16	100R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R17	470R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R18 - R21, 24, 25, 28, R33, 37, 38	4K7	0.25-0.4W Axial	10mm (0.4" pitch)	10			
R26, 29, 35, 45, 52, 56	2K2	0.25-0.4W Axial	10mm (0.4" pitch)	5			DNL R52 No Sync code yet
R27	27K	0.25-0.4W Axial	10mm (0.4" pitch)	1			
R34, 54, 55, 58, 59	220R	0.25-0.4W Axial	10mm (0.4" pitch)	5			
R60	220K	0.25-0.4W Axial	10mm (0.4" pitch)	1			
RV1	10K (top adjust)	Trimpot Multi turn	3296Y	1			Or single turn trimmer 3306P
RV2	5K (top adjust)	Trimpot Multi turn	3296Y	1	Digikey !	\$3.87	Get 10 at Ali for less!
RV3, 4	20K	Trimpot Single turn	3306P	2			
T1	ZMPT107-1	2mA - 2mA 1KV	TV31D	1	LCSC	56c	
U1, 2, 5	MCP6002	Dual Op Amp	8 Pin DIP	3	Digikey	90c	or MCP602 or MCP617
U3	NANO PCB	Nano Module	DIP30/600	1	Ali		
U6	SN74AC86N	Quad 2-Input XOR	DIP14/300	1	Digikey	95c	
U7	FOD817D	4-Pin Optocoupler	DIP4/300	0	Digikey	65c	DNL U7 No Sync code yet
U8, 9	TC4424	Dual Gate Drive	DIP4/300	2	LCSC	\$5.80/10	Can also Use UCC27424 ex Digikey
U8, 9 Alternate	HX4424/HX4427	Dual Gate Drive	DIP4/300	2	LCSC	31c	LCSC HX4424P or HX4427P or eq.
Suggest all ICs use machined pin iC sockets from digikey or Element 14 no Asian cheapies!! They fail!							
LCD Assembly							
Blank PCB		WG44Rev2					
LCD	2004	Green ?	~ 98 x 60mm	1	Ali	~\$4 +Del.	20 Character 4 line LCD
U1	NANO PCB KIT		30Pin Nano Module	1	Ali		
R1	10 - 100K	single turn trimpot	3306P or similar	1	Digikey	~78c	
C1	100n		2.54mm (0.2")				Optional, fit if display not stable
3P - 3P	2 x 3 pin females	wired connector	F - F, 3 x 0.1"		Ali		L=300mm, 10 for \$4.25
The 2 x 15 pin strip connectors supplied with the Nano kit will all be used for the assembly 6 + 6 + 3 & 6 + 4 + 3 + 2 = 30 pins							
Note J1 can be soldered vertically or horizontally							