

Inverter Controller Assembly BOM WG39Rev7B Issue 020724							
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 (0.3" pitch)	7			
D4 (5V Reg. Mod.)	8V2 0.5W	Zener Diode	DO-35 (0.4" pitch)	1			Fit on spare pads with KR78U05
D8	16V 1W	Zener Diode	DO-41 (0.4" pitch)	1			Optional 12V Rail protect
D9	5V6 1W	Zener Diode	DO-41 (0.4" pitch)	1			Optional 5V Rail protect
D10, 11, 14, 15	1N4004	Diode	DO-41 (0.4" pitch)	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
J3	6 Way Pin Strip	Header strip	2.54mm/0.1"	1			Front Panel LEDs & O/C Reset SW.
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 ** (J10)	3 Way Pin Strip	Header strip	2.54mm/0.1"	3			** DNL J10 No Sync code yet
LD1	GRN LED	5mm	LED/5V	1			Clear lens 3 or 5 mm
LD2	RED LED	5mm	LED/5V	1			Clear lens 3 or 5 mm
PS1	12V Regulator	K78U12-500	75Vin to 12V 0.5A	1	Element14	\$7.99	Omit if using external 12V supply?
PS1 Alternative	12V Regulator	LMW78_12-0.5R	75Vin to 12V 0.5A	1	Digikey	\$5.97	Omit if using external 12V supply?
PS2 (+ mini heatsink)	KA78R05 5V Reg	Linear With Enable	3/4 Pin (0.1" pitch)	1			7805 or Linear Reg KA78R05 best
Q1	2N3906 or equiv.	PNP Transistor	TO92/100/CBE	1			Gen. Purp. PNP but Check pinout
Q2	2N3904 or equiv.	NPN Transistor	TO92/100/CBE	1			Gen. Purp. NPN but Check pinout
Q3, 4, 6, 10, 11	BS170 or equiv.	NCH	TO92/100/DGS	5	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 Vertical	0.4 - 1W Axial	5.08mm (0.2" pitch)	2			Lead size>0.68mm
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	33R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
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R14	180R	0.25-0.4W Axial	10mm (0.4" pitch)	1			
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			
R31 (5V Reg. Mod.)	1K	0.25-0.4W Axial	10mm (0.4" pitch)	1			Fit on spare pads with KR78U05
R34, 54, 55, 58, 59	220R	0.25-0.4W Axial	10mm (0.4" pitch)	5			
R39 - R42	DNL? ***	0.25-0.4W Axial	10mm (0.4" pitch)	4			Only Fit if U7,U8 not used AND if U6 = 74ACS86
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 OK
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			Multiturn pot is best for RV3 setting
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	15P Sip Sockets	Nano Module	2 x SIP15 (0.1" Pitch)	1	Ali		
(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.
U4	+5V Rail Monitor	S-80838CNY-B2-U	TO92	1	Digikey	\$1.19 or 0.59c ea	or = SMD Part, cheaper & more fiddly to fit. APX803L20-42SA-7
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		
U2	+5V Rail Monitor	S-80838CNY-B2-U	TO92	1	Digikey	\$1.19 or 0.59c ea	or = SMD Part, cheaper & more fiddly to fit. APX803L20-42SA-7
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							