5KW FET Power PCB WG30Rev2 Issue 040624

Designator	Comment	Description	Footprint	Quantity	From	Cost	Comments
C1 - C6, 9, 11	1u	Monolithic or Film	2.54mm (0.2")	8			
C7, 8	1n5	Monolithic or Film	2.54mm (0.2")	2			
C10	22u 10V	Capacitor	0.2" or 0.1"	1			
D5	12V	Zener Diode	DO-41,3.8mmV	1			
D6	5V1	Zener Diode	DO-41,3.8mmV	1			
J1, J1A (J1A optional)	8 Way Pin Strip	Header strip	8 x 2.54mm/0.1"	1			
L1 - L16	4mm OD, 1.3mm ID	FX1115 or equiv.	Ferrite Bead 5mmL		Farnell	9.4c	1633138
OC1 - OC4	8 PIN DIP Socket	Machined Pins	DIP8/300	4	Digikey		
(OC1 - OC4)	FOD3182	Opto/Gate Driver	DIP8/300	4	Digikey	$2.28	
Q1 - Q8 Long Source Leg	HY5608W N Channel	Power MOSFET	TO-247HLSNG	8	LCSC	$1.55	
(Q1 - Q8)	Insulator	TO220 Bush	3.56mm dia.	8	Digikey		12SWS0218 or 12SWS0428
Q9 - Q16 Long Drain Leg	HY5608W N Channel	Power MOSFET	TO-247HLDNG	8	LCSC	$1.55	
Q17, 19, 21, 23	FZT1049ATA	NPN Transistor	TO-251AA/SOT223	4	LCSC	0.33c	
Q18, 20, 22, 24	ZX5T951GQTC	PNP Transistor	TO-251AA/SOT223	4	LCSC	0.29c	
Ra - Rp	1R2 For Q1-Q16 Gates	0.6W resistor	Axial PCB to Gate	16			
R2, 3, 6, 7, 10, 11, 14, 15	1K	0.25-0.6W Axial	AX/150X3.8mmV	8			
R4	100R	0.25-0.6W Axial	AX/150X3.8mmV	1			
R17 - R20	120R	0.25-0.6W Axial	10mm (0.4" pitch)	4			
R24	1K	0.25-0.6W Axial	10mm (0.4" pitch)	1			
R26	10K	0.25-0.6W Axial	AX/150X3.8mmV	1			
R27 - R29	10K	0.25-0.6W Axial	AX/150X3.8mmV	3			
T1 - T4	Screw Terminal 120A	PCB-5 M6	Terminal M5 120A	4	Ali		See note below
T5, 7, 8, 10, 11, 13, 14, 16	Screw Terminal 33A	PCB-7 M4	Terminal M4 33A	12	Ali		
U1, 2, 3 (12V) (no bias)	DC-DC 2W	B1212M-2WR3	SPU01V	2 or 3	Digikey		or 2S4E_1212S1U
U3 (15V) with -3V bias	DC-DC 2W	2S4E_1215S1U	SPU01V	1 or 0	Digikey		or RI-1215S
U1A-3A (12V) (no bias)	DC-DC 2W	S12HIS12-2WH2	SPU02V	1 or 0	Digikey		or 2S7BE_1212S3U
U3A (15V) with -3V Bias	DC-DC 2W	S12HIS15-2WH2	SPU02V	1 or 0	Digikey		or 2S7BE_1215S3U
WG06 Rev 1 PCB (x2)							
C1-C4	4,700u - 10,000u 63V	Snap In Electrolytic		2 to 8	Digi		

Associated Parts Comments

8 Way Ribbon Cable suggest ~ 200mm long, 2.54mm sockets each end to connect controller PCB to Power PCB

Choke ~ 30uH At least 200+A peak before saturation, best material Sendust, Hi Flux or similar.

I use only quality (not Asian cheapies - they fail!) Machined Pin IC sockets for Ics and Optos, 8 x 8pin DIP, 1 x 14 pin DIP required per inverter.

Insulating washers or insulating strip sheet for the 16 MOSFets (16 x HY5608) self adhesive type helps.

8 x TO220 insulating Bushes for Q1 - Q8 outer bush diameter 3.56mm (suits PCB Hole) 7721-10PPSG or equivalent

2 x lengths Aluminium bar 10mm x 25mm section, ~300mm Long, with 8 x M3 CSK FET holes & 3 x M4 Mount holes.

T1-T4 link https://www.aliexpress.com/item/33042908984.html?spm=a2g0o.order_list.order_list_main.4.78081802Q7SARY