

2KW Opto FET Drive PCB WG41Rev1 Issue 040624

Designator	Comment	Description	Footprint	Quantity	From	Cost	Comments
C1 ,2	1n5	Monolithic or Film	2.54mm (0.2")	2			
C3-C7, 9	1u	Monolithic or Film	2.54mm (0.2")	6			
C8	22u 10V	Capacitor	0.2" or 0.1"	1			
D1	12V	Zener Diode	DO-41,3.8mmV	1			
D2	5V1	Zener Diode	DO-41,3.8mmV	1			
J1	8 Way Pin Strip	Header strip	8 x 2.54mm/0.1"	1			
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 - Q4	FZT1049ATA	NPN Transistor	TO-251AA/SOT223	4	LCSC	0.33c	
Q5 - Q8	ZX5T951GQTC	PNP Transistor	TO-251AA/SOT223	4	LCSC	0.29c	
Ra - Rh	1R2 For Q1-Q8 Gates	Resistor 0.6W	Axial PCB to Gate	8			
R1, 3, 5, 7	1K	Res. 0.25-0.6W Axial	AX/150X3.8mmV	4			
R2, 4, 6 ,8	470R	Res. 0.25-0.6W Axial	AX/150X3.8mmV	4			
R9	100R	Res. 0.25-0.6W Axial	AX/150X3.8mmV	1			
R11 - R14	120R	Res. 0.25-0.6W Axial	AX/150X3.8mmV	4			
R15	1K	Res. 0.25-0.6W Axial	10mm (0.4" pitch)	1			
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	2 or 3 or 0	Digikey		or 2S7BE_1212S3U
U3A (15V) (with -3V Bias)	DC-DC 2W	S12HIS15-2WH2	SPU02V	1 or 0	Digikey		or 2S7BE_1215S3U

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L1-L8 bead on Q1-8 Drain	4mm OD, 1.3mm ID	FX1115 or equiv.	Ferrite Bead 5mmL		Farnell	9.4c	1633138
Q1 - Q4 Long Source Leg	HY5608W N Channel	Power MOSFET	TO-247HLSNG	4	LCSC	\$1.55	
(Q1 - Q4)	Insulator	TO220 Bush	3.56mm dia.	4	Digikey		12SWS0218 or 12SWS0428
Q5 - Q8 Long Drain Leg	HY5608W N Channel	Power MOSFET	TO-247HLDNG	4	LCSC	\$1.55	
Q1-Q8	Thermal Insulator	Insulator Pad or Sheet		2 to 8	Digi		2 for sheet. 8 for pads
R4, 8, 12, 16	10K	Res. 0.25-0.6W Axial	10mm (0.4" pitch)	4			
T1 - T8	Screw Terminal 33A	PCB-7 M4	Terminal M4 33A	8	Ali		

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 50+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.

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

2 x lengths Aluminium bar 6mm x 20mm section, ~140mm Long, with 8 x M3 CSK FET holes & 2 x M4 Mount holes.

T1-T8 link <https://www.aliexpress.com/item/32811408567.html>