

F3 Amp and Cap Board BOM

V2.4L and V2.4R PCB 8-28-2021

Item	Value	Size	Hole Spacing	Part Number	Description	Manufacturer	Notes
R1	9.09K	10mm x 3.6mm	0.60 in	RN60D9091FB14	Metal Film Resistors - Through Hole 1/4watt 9.09Kohms 1% 100ppm		
R2	47.5K	10mm x 3.6mm	0.60 in	RN60D4752FB14	Metal Film Resistors - Through Hole 1/4watt 47.5Kohms 1% 100ppm		
R3	2R 3W	18mm x 5mm	1.00 in	ERX-3S12R0	Metal Film Resistors - Through Hole 2 OHM 5% 300PPM 3W		
R4	2R 3W	18mm x 5mm	1.00 in	ERX-3S12R0	Metal Film Resistors - Through Hole 2 OHM 5% 300PPM 3W		
R5	X.XR 3W	18mm x 5mm	1.00 in	-			MATCH TO Q1, I used a 5W 10 ohm potentiometer to determine the desired value with the amp up to temperature, and then soldered a series set of resistors with the desired value when testing was complete. Potentiometer P/N 026TB32R100B1A1.
R6	1R 3W	18mm x 5mm	1.00 in	ERX-3S1R0V	Metal Film Resistors - Through Hole 1ohm 3W 5%		
R7	1R 3W	18mm x 5mm	1.00 in	ERX-3S1R0V	Metal Film Resistors - Through Hole 1ohm 3W 5%		
R8	2R 3W	18mm x 5mm	1.00 in	ERX-3S12R0	Metal Film Resistors - Through Hole 2 OHM 5% 300PPM 3W		
R9	R.47 3W	18mm x 5mm	1.00 in	ERX-3S1R47V	Metal Film Resistors - Through Hole 07/16/2019, 0.47ohm, 5% Tolerance		
R10	100R 3W	18mm x 5mm	1.00 in	CPF3100R00FKE14	Metal Film Resistors - Through Hole 3watts 100ohms 1% 100ppm		
R11	100R	10mm x 3.6mm	0.60 in	RN60D1000FB14	Metal Film Resistors - Through Hole 1/4watt 100ohms 1% 100ppm		
R12	10K	10mm x 3.6mm	0.60 in	RN60D1002FB14	Metal Film Resistors - Through Hole 1/4watt 10Kohms 1% 100ppm		
R13	4.75K	10mm x 3.6mm	0.60 in	RN60D4751FB14	Metal Film Resistors - Through Hole 1/4watt 4.75Kohms 1% 100ppm		
R14	1.5K	10mm x 3.6mm	0.60 in	RN60D1501FRE6	Metal Film Resistors - Through Hole 1/4watt 1.5Kohms 1% 100ppm		
R15	221R	10mm x 3.6mm	0.60 in	RN60D2210FB14	Metal Film Resistors - Through Hole 1/4watt 221ohms 1% 100ppm		
R16	1.5K	10mm x 3.6mm	0.60 in	RN60D1501FRE6	Metal Film Resistors - Through Hole 1/4watt 1.5Kohms 1% 100ppm		
R17	1.5K	10mm x 3.6mm	0.60 in	RN60D1501FRE6	Metal Film Resistors - Through Hole 1/4watt 1.5Kohms 1% 100ppm		
R18	1.5K	10mm x 3.6mm	0.60 in	RN60D1501FRE6	Metal Film Resistors - Through Hole 1/4watt 1.5Kohms 1% 100ppm		
R19	47.5K	10mm x 3.6mm	0.60 in	RN60D4752FB14	Metal Film Resistors - Through Hole 1/4watt 47.5Kohms 1% 100ppm		
R20	221R	10mm x 3.6mm	0.60 in	RN60D2210FB14	Metal Film Resistors - Through Hole 1/4watt 221ohms 1% 100ppm		
R21	100R	10mm x 3.6mm	0.60 in	RN60D1000FB14	Metal Film Resistors - Through Hole 1/4watt 100ohms 1% 100ppm		
R22	10K	10mm x 3.6mm	0.60 in	RN60D1002FB14	Metal Film Resistors - Through Hole 1/4watt 10Kohms 1% 100ppm		

Item	Value			Part Number	Description	Manufacturer	Notes
Q1	LU1014D	n/a	n/a	LU1014D	POWER J-FET		
Q2	IRFP240	n/a	n/a	IRFP240PBF	MOSFET N-CH 200V 20A TO247-3		
Q3	IRFP240	n/a	n/a	IRFP240PBF	MOSFET N-CH 200V 20A TO247-3		
Q4	ZTX450	n/a	n/a	ZTX450	BJT- NPN TO-92-3		
Q5	IRFP240	n/a	n/a	IRFP240PBF	MOSFET N-CH 200V 20A TO247-3		

C1	15000	35mm	10mm	-	-		on output cap board, I have no idea what type might sound good. I have tried Nichicon KG series in this position on F2J and did not like the result hence the qty(15) 1000uF Nichicon KZ caps on the output cap board. Omit this cap if using the 15x Nichicon Muse or Elna Silmic II
C2	220	16mm Dia.	7.5mm & 5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C3	220	16mm Dia.	7.5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C4	220	16mm Dia.	7.5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C5	220	16mm Dia.	7.5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C6	220	16mm Dia.	7.5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C7	220	16mm Dia.	7.5mm & 5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		
C8	1	30mm Dia. Max	5mm, 1.5in, 2.2in	-	-		bypass capacitor for C1, on output cap board - choose any film cap that fits on the board. Omit this cap if using the 15x Nichicon Muse or Elna Silmic II.
C9	33pF	2.5mm x 5mm	5mm	CD5EC330JO3	Mica Capacitors MICA 33pF300VJ		
C10	220	16mm Dia.	7.5mm & 5mm	UKZ1H221MHHM	CAP ALUM 220UF 20% 50V RADIAL		bypass capacitor for C1, on output cap board, Omit this cap if using the 15x Nichicon Muse or Elna Silmic II.
C1,C8,C10 Alternate	15x 1000	16mm Dia.	7.5mm	UKZ1E102MHHM	CAP ALUM 1000UF 20% 25V RADIAL - NICHICON MUSE	Nichicon	Premium Grade Audio Caps, I used these and like them. Elna Silmic II may also be an option. Omit C1, C8 and C10 if using this option.

D1	1N4001		0.50 in	1N4001G	Rectifiers 50V 1A Standard		
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P1	5K	n/a	n/a	3296P-1-502LF	Trimmer Resistors - Through Hole 3/8" 5Kohms Sealed Horizontal Adjust		
P2	5K	n/a	n/a	3296P-1-502LF	Trimmer Resistors - Through Hole 3/8" 5Kohms Sealed Horizontal Adjust		I would consider a single turn pot here, but then again I don't have a distortion meter to use for setting this item.

LED1	BLUE	3mm, 5mm	2.5mm	TLHB44K2M1	Standard LEDs - Through Hole Blue 3mm 466nm 15mcd	Vishay	I really liked these, they are not too bright and have a diffuse lens to spread the beam.
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V2.4L and V2.4R PCB 8-28-2021

Misc

Item	Qty	Part Number	Description	Manufacturer	Notes
Spade Connector 1/4"	8	62409-1	Terminals .250 PCB TAB	TE Connectivity	Omit if soldering wires directly into the board
1/4" Female Spade 14-16ga	8	D14-250-M	Terminals 16-14 .250 FML DISC	Panduit	
Ring Terminal for M3 Screw	1	34120	Ring Terminal, 16-14 ga., for M3 Screw	TE Connectivity	Use to bring safety earth to mounting screw on power supply board.

Chassis Parts

Item	Qty	Part Number	Description	Manufacturer	Notes
IEC Input Module	1	4304.6090	IEC Input Terminal, Fused, Switched	Schurter	Same switch used for by the diyAudio Deluxe chassis.
Fuses	2	SST 4-R	Cartridge Fuse, 5mm x 20mm, 4 A	Bel	
RCA Input - White	1	NYS367-9	Panel Mount RCA Jack, White/Gold	REAN/Neutrik	These are cheap and seem to be fine.
RCA Input - Red	1	NYS367-2	Panel Mount RCA Jack, Red/Gold	REAN/Neutrik	These are cheap and seem to be fine.
XLR Input Jack	2	NC3FD-L-B-1	Panel Mount XLR, Female, Gold Contacts	Neutrik	These require a 24mm hole in the panel.

F3 Power Supply BOM

V2.1 PCB 11-04-2020

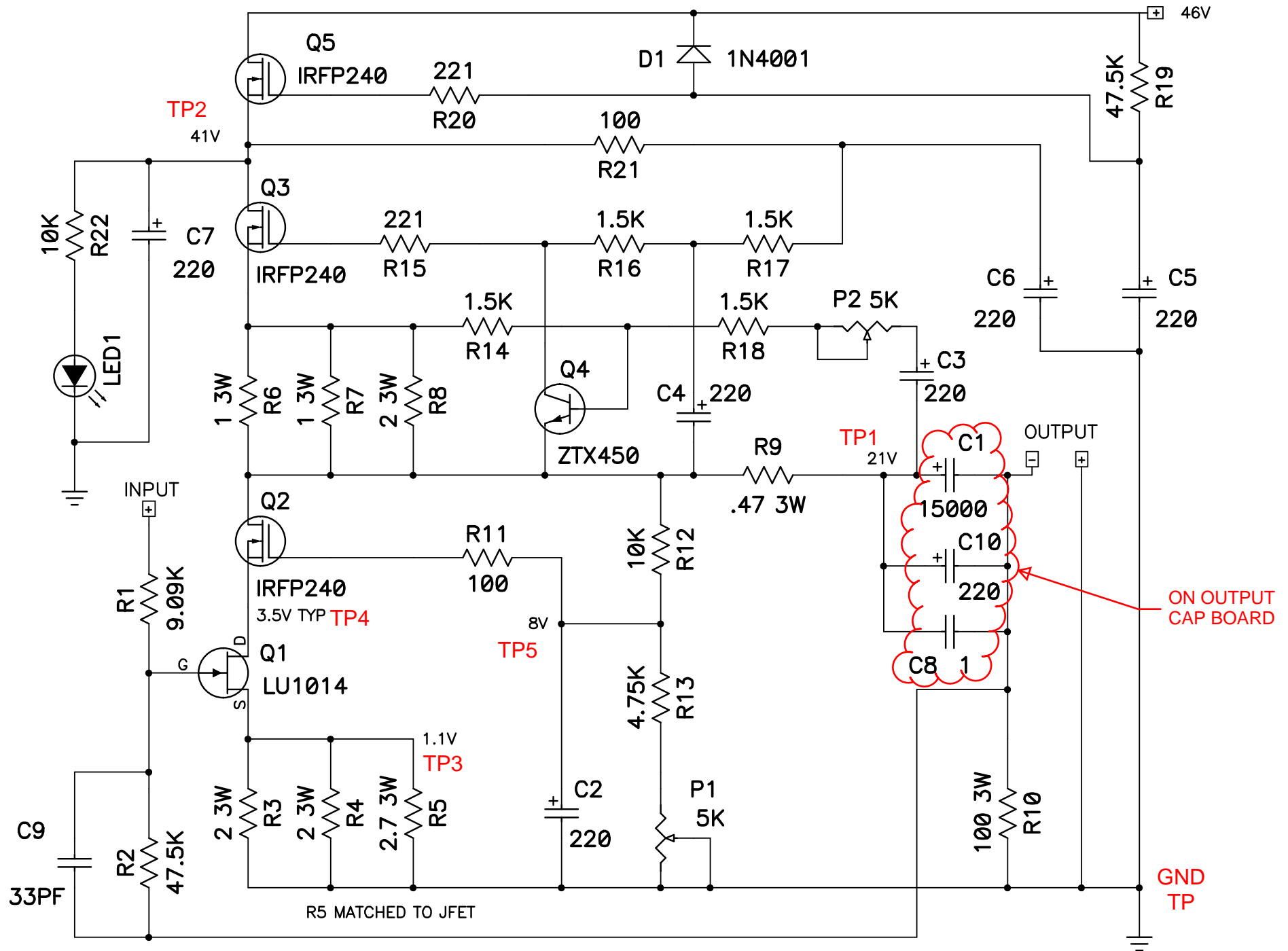
Item	Value	Qty	Part Number	Description	Manufacturer	Notes
R1-R8	1 ohm	8	ERX-3S11R0	Metal Film Resistors - Through Hole 1 OHM 5% 300PPM 3W	Panasonic	
R9, R10	2.2K ohm	2	ERG-3SJ222	Metal Oxide Resistors 2.2K OHM 5% 300PPM 3W	Panasonic	
R101	10K ohm	1	RN60C1002FRE6	Metal Film Resistors - Through Hole 1/8watt 10Kohms 1% 50ppm	Vishay	LED Dimming Resistor, choose value to suit your taste and choice of LED
R102	10K ohm	1	RN60C1002FRE6	Metal Film Resistors - Through Hole 1/8watt 10Kohms 1% 50ppm	Vishay	LED Dimming Resistor, choose value to suit your taste and choice of LED
C1 - C8	> 15,000 uF	8	381LX153M063A052	Aluminum Electrolytic Capacitors - Snap In 63volts 15000uF 105c 35x52x10L/S	Cornell Dubilier Electronics	I used 50V caps because I had already built the power supply with them, but they really are marginal, use 63V to be safe.
C9	3300pF	1	R413I13300000M	Safety Capacitors 1000volts 3300pF 20%	KEMET	
TH1	CL-60	1	CL-60	Inrush Current Limiters 5A 10ohm Straight leads	Amphenol	Ground Lift, a small bend in legs will allow it to mount straight!
TH2	CL-60	1	CL-60	Inrush Current Limiters 5A 10ohm Straight leads	Amphenol	Ground Lift, a small bend in legs will allow it to mount straight!
THx	CL-60	See Notes	CL-60	Inrush Current Limiters 5A 10ohm Straight leads	Amphenol	Use qty(1) for 240V and qty(2) for 120V wire per F1 schematic in F1 service manual, a small bend in the legs will allow it to mount straight

Misc

Item	Qty	Part Number	Description	Manufacturer	Notes
Spade Connector 1/4"	12	62409-1	Terminals .250 PCB TAB	TE Connectivity	Omit if soldering wires directly into the board
1/4" Female Spade 14-16ga wire	20	D14-250-M	Terminals 16-14 .250 FML DISC	Panduit	
Connector for LED wiring	2	10-11-2024	Headers & Wire Housings KK 100 Housing Crimp Pol Ramp 2 Ckt	Molex	connector for LED wiring
Crimps for LED wiring connector	4	08-50-0114	Headers & Wire Housings CRIMP TERM 22-30 TIN	Molex	crimps for use with LED wiring connector, I crimp to wire with a pliers and then solder
Header for LED wiring	2	22-23-2021	Headers & Wire Housings VERT PCB HDR 2P TIN FRICTION LOCK	Molex	on board connector for LED, omit if soldering wires directly
Diode Bridge Rectifier	2	KBPC5010-G	Diode Bridge Rectifier, 50A, 1000V	Comchip Technology	this does not mount to the board, there is probably something better than this, but it works fine, eliminate if using the Schottky Diode Bridge Rectifier Boards
Blue LED Power Indicator	2	TLHB44K2M1	Standard LEDs - Through Hole Blue 3mm 466nm 15mcd	Vishay	I really liked these, they are not too bright and have a diffuse lens to spread the beam.

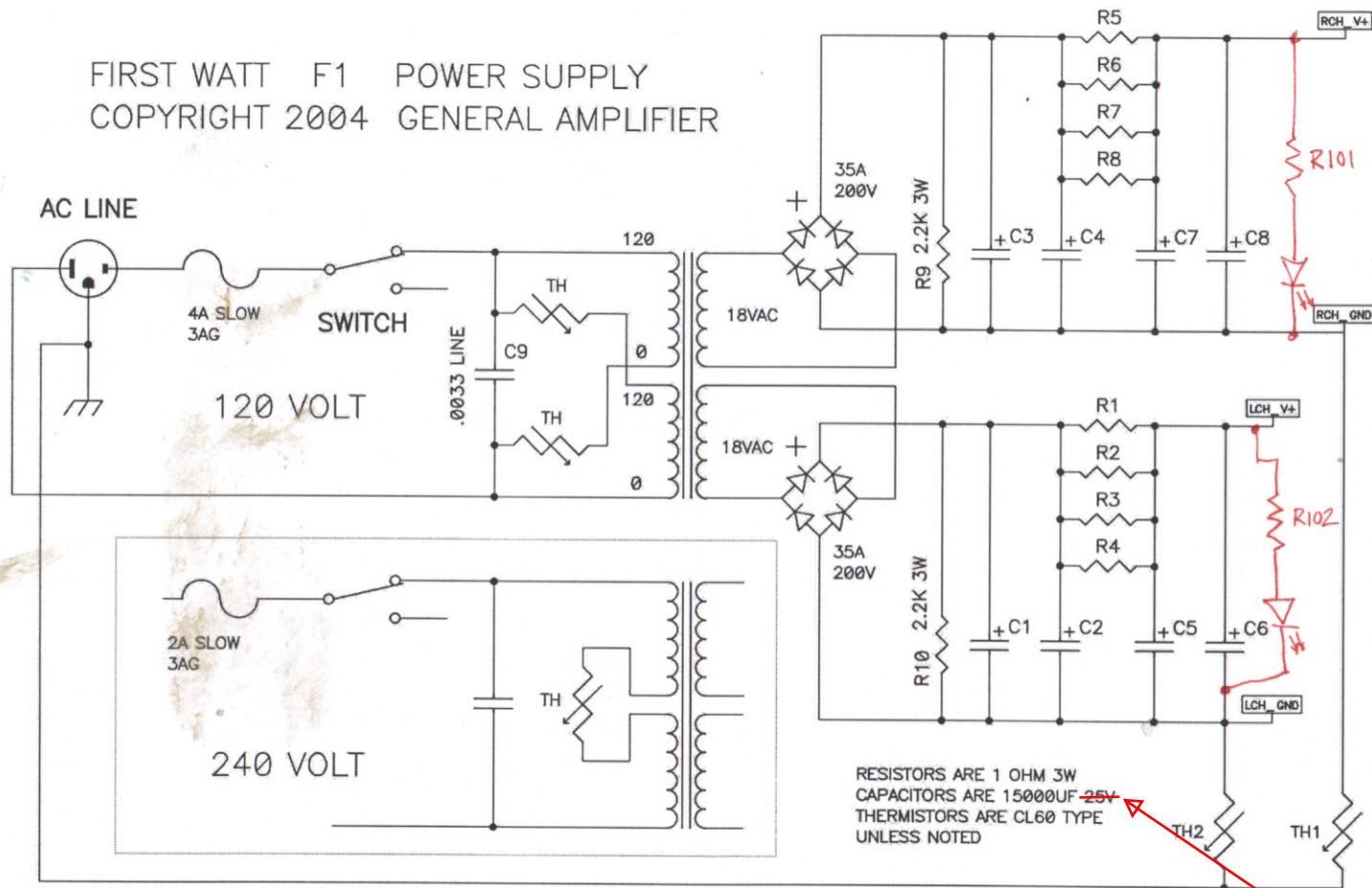
Schottky Diode Bridge Rectifier Parts

Item	Qty	Part Number	Description	Manufacturer	Notes
Schottky Diodes	8	VS-15TQ060-M3	Schottky Diodes, TO-220, 60V, 15A	Vishay	
Heat Sinks	4	529902B02500G	Extruded Radial Fin Heatsink, for TO-220, 25.4 x 41.91 x 50.8	Aavid	
Thermal Transfer Pads	8	SP2000-0.015-00-58	Thermal Transfer Pad for TO-220, Sil-Pad TSP 3500 Series	Bergquist Company	
Insulating Washer	8	7721-7PPSG	Insulating Washer for TO-220	Aavid	I bought mine in a bag of 100 from Amazon for a much lower price



FIRST WATT F3 R0 11/04/05

FIRST WATT F1 POWER SUPPLY
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Here is the schematic for the power supply for both channels

R101 - R102 calculate to suit your LED and desired brightness
(I like my LED's dim and target ~ 5-10 mcd)

FOR F3 USE 63V CAPS