

Universal AC input, 24V/10A with PFC

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
IPC1	1		Printed Circuit Board		PMP5141	Any	-	-
C1	1	150uF	CAP, AL, 150uF, 400V, +/-20%, 0.884 ohm, TH	CAPPR10-30x25	EETED2G151DA	Panasonic		
C2	1	0.47uF	CAP, Film, 0.47uF, 275V, +/-20%, TH	Radial 25x8.5x18.5	ECQ-U2A474ML	Panasonic		
C3	1	1uF	CAP FILM 1UF 450VDC RADIAL	Radial 18.2x8.5x17.9	450MPK105J	Rubycon		
C4	1	2.2uF	CAP FILM 2.2UF 450VDC RADIAL	Radial 25.7x9.4x19.7	B32673P4225K	Panasonic		
C5	1	220pF	CAP, CERM, 220pF, 50V, +/-10%, COG/NP0, 0603	0603	06035A221JAT2A	AVX		
C6	1	0.1uF	CAP, CERM, 0.1uF, 25V, +/-10%, X5R, 0603	0603	06033D104KAT2A	AVX		
C7	1	1000pF	CAP, CERM, 1000pF, 50V, +/-10%, COG/NP0, 0603	0603	06035A102KAT2A	AVX		
C8	1	0.22uF	CAP, CERM, 0.22uF, 16V, +/-10%, X7R, 0603	0603	C1608X7R1C224K	TDK		
C9	1	1uF	CAP, CERM, 1uF, 10V, +/-10%, X5R, 0603	0603	C0603C105K8PACTU	Kemet		
C10	1	220pF	CAP, CERM, 220pF, 50V, +/-10%, COG/NP0, 0603	0603	06035A221FAT2A	AVX		
C11	1	18pF	CAP, CERM, 18pF, 50V, +/-5%, COG/NP0, 0603	0603	06035A180JAT2A	AVX		
C12	1	0.22uF	CAP, CERM, 0.22uF, 50V, +/-10%, X7R, 1206	1206	12065C224KAT2A	AVX		
C13	1	100pF	CAP, CERM, 100pF, 50V, +/-5%, COG/NP0, 0603	0603	06035A101JAT2A	AVX		
C14	1	1000uF	CAP, AL, 1000uF, 16V, +/-20%, TH	CAPPR5-10x16	16ZLJ1000MCE10X16	Rubycon		
C16	1	6800pF	CAP, CERM, 6800pF, 50V, +/-5%, X7R, 0603	0603	C0603C682J5RACTU	Kemet		
C17	1	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 0805	0805	GRM216R61E105KA12D	MuRata		
C18	1	2200pF	CAP, CERM, 2200pF, 50V, +/-10%, X7R, 0603	0603	C0603C222K5RAC	Kemet		
C19	1	2200pF	CAP, CERM, 2200pF, 300V, +/-20%, Y5U, CAPRD500W60D900H1200	CAPRD500W60D900H1200	VY2222M35Y5USU6V5	Vishay-Bccomponents		
C20, C21	2	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 0603	0603	GRM188R61E105KA12D	MuRata		
C22	1	0.1uF	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0805	0805	08055C104KAT2A	AVX		
C23	1	1000uF	CAP, AL, 680uF, 35V, +/-20%, TH	12.5x20	35ZLH1000MEFC12.5X20	Rubycon		
C24, C25, C26, C27, C28	5	3.3uF	CAP, CERM, 3.3uF, 50V, +/-20%, X7R, 1210	1210	C3225X7R1H335M	TDK		
C29	1	0.033uF	CAP, Film, 0.033uF, 1250V, +/-5%, TH	18x9.5x18mm	121MPE333J	Rubycon		
C30	1	100pF	CAP, CERM, 100pF, 500V, +/-10%, X7R, 1808	1808	VJ1808Y101KXEAT5Z	Vishay-Vitramon		
C31	1	0.47uF	CAP, CERM, 0.47uF, 16V, +/-10%, X7R, 0603	0603	C0603C474K4RACTU	Kemet		
C32	1	0.01uF	CAP, CERM, 0.01uF, 50V, +/-10%, X7R, 0603	0603	C0603C103K5RACTU	Kemet		
C33	1	0.22uF	CAP, CERM, 0.22uF, 25V, +/-5%, X7R, 0805	0805	08053C224JAT2A	AVX		
C34	1	1uF	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0603	0603	C0603C105K4PACTU	Kemet		
C35	1	100pF	CAP, CERM, 100pF, 50V, +/-5%, COG/NP0, 0603	0603	C1608C0G1H101J	TDK		
C36	1	4700pF	CAP, CERM, 4700pF, 16V, +/-10%, X7R, 0603	0603	GRM188R71C472KA01D	MuRata		
C37	1	1uF	CAP, CERM, 1uF, 50V, +/-10%, X7R, 1206	1206	C3216X7R1H105K	TDK		
D1	1	1.2V	Diode, Switching-Bridge, 600V, 3A, TH	DO-201AD	1N5406	Vishay-Semiconductor		
D2	1	0.98V	Diode, Ultrafast, 600V, 8A, TH	TO-220AC	MUR860G	ON Semiconductor		
D3	1	GBU6J	RECT BRIDGE GPP 6A 600V GBU	GBU	GBU6J	Micro Commercial Component		
D4	1	1.25V	Diode, Switching, 200V, 0.2A, SOD-123	SOD-123	BAV21W-7-F	Diodes Inc.		
D5	1	13V	Diode, Zener, 13V, 500mW, SOD-123	SOD-123	MMSZ5243B-7-F	Diodes Inc.		
D6	1	100V	Diode, Schottky, 100V, 2A, SMB	SMB	B2100-13-F	Diodes Inc.		
D7	1	15V	Diode, Zener, 15V, 500mW, SOD-123	SOD-123	MMSZ5245B-7-F	Diodes Inc.		
D8, D11, D15, D16	4	0.63V	Diode, P-N, 70V, 0.2A, SOT-323	SOT-323	BAV99W1G	Fairchild Semiconductor		
D9, D13	2	0.35V	Diode, Schottky, 30V, 0.2A, SOD-323	SOD-323	BAT54HT1G	ON Semiconductor		
D10, D12	2		DIODE SCHOTTKY 100V 20A TO220AB	TO-220AB	STPS20SM100ST			
D14	1	0.45V	Diode, Schottky, 60V, 3A, SOD-123	SOD-123	MBR0560-TP	Micro Commercial Component		
D100	1	200V	Diode, Switching, 200V, 0.2A, SOD-123	SOD-123	BAV21W-7-F	Diodes Inc.		
F1	1	6.3A/250V	FUSE 6.3A 250VAC RADIAL FAST	0.335 inch	37016300430	Littelfuse		
HS1, HS3	2	504102B000000	Heatsink, TO-220 Vertical-mount,	0.700 x 0.850 inch	504102B000000	Thermalloy		
HS2	1	530614B000000G	Heatsink, TO-220 Vertical-mount,	1.180 x 1.000 inch	530614B000000G	Thermalloy		
HS4	1	578622B03200G	Heatsink, TO-220 Vertical-mount,		578622B03200G	Thermalloy		
HS5, HS7	2	504222B000000G	Heatsink, TO-220 Vertical-mount,	0.700 x 0.850 inch	504222B000000G	Thermalloy		
J1	1		AC Receptacle, 10A 250VAC	20X50X28.7mm	703W-00/54	Qualtek Electronics Corporati		
J2	1	2x1	Conn Term Block, 2POS, 5.08mm, TH	PhoenixContact_1715721	1715721	Phoenix Contact		
L1	1	100uH	Inductor, ?, 100uH, 10.4A, 0.08 ohm, TH	23.5mm x21.2mm	CL-1920-100LF	GCI Technologies		
L2	1	160uH 8% @40kHz 01_V, 0 ADC	PFC Boost Inductor, TH	GCI, Inductor 3350X2800X3550MM	G135027LF	GCI Technologies		
L3	1	4700uH	Coupled inductor, 4700uH, 3.5A, 0.1 ohm, +/-%, TH	37x43.5x26.5 mm	ET35V-472LF	GCI Technologies		
L4	1	1uH	Inductor, Drum Core, Ferrite, 1uH, 21.8A, 0.002 ohm, TH	10.7mm x17.3mm	PCV-0-102-25L	Coilcraft		
L5	1	72uH	Coupled inductor, 72uH, A, 0.033 ohm, +/-6%, TH	Inductor, 19.5x17.5x20.5mm	G135040LF	GCI Technologies		
Q1	1	550V	MOSFET, N-CH, 550V, 17A, TO-220AB	TO-220AB	IPP50R199CP	Infineon Technologies		
Q2, Q7, Q10	3	20V	Transistor, PNP, 20V, 1.5A, SOT-23	SOT-23	FMPT718TA	Diodes Inc.		
Q3	1		TRANS BIPOLAR NPN 2A 450V DPAK	DPAK	MJD18002D2T4G			
Q4	1		TRANS AMP NPN GP 40V .5A SOT-223	SOT-223	PZT2222A			
Q5, Q9	2		Transistor, NPN, 32V, 0.1A, SOT-23	SOT-23	FMPT620TA	Diode Inc	None	None
Q6, Q8	2		MOSFET N-CH 500V 12A TO220FP	TO-220AB	STP12NM50FP	ST		None
R1, R28, R30	3	3.0	RES, 3.0 ohm, 5%, 0.1W, 0603	0603	CRCW06033R00JNEA	Vishay-Dale		
R2	1	10.0k	RES, 10.0k ohm, 1%, 0.25W, 1206	1206	CRCW120610K0FKEA	Vishay-Dale		
R3, R5, R8	3	511k	RES, 511k ohm, 1%, 0.25W, 1206	1206	CRCW1206511KFKEA	Vishay-Dale		
R4, R7, R9	3	560k	RES, 560k ohm, 5%, 0.125W, 0805	0805	CRCW0805560KJNEA	Vishay-Dale		
R6	1	43.2k	RES, 43.2k ohm, 1%, 0.1W, 0603	0603	CRCW0603432KFKEA	Vishay-Dale		
R10	1	10k	RES, 10k ohm, 5%, 0.1W, 0603	0603	CRCW060310K0JNEA	Vishay-Dale		
R11	1	1.0k	RES, 1.0k ohm, 5%, 0.1W, 0603	0603	CRCW06031K00JNEA	Vishay-Dale		
R12, R14, R18, R20	4	499k	RES, 499k ohm, 1%, 0.25W, 1206	1206	CRCW1206499KFKEA	Vishay-Dale		
R13, R19	2	22k	RES 22K OHM 2W 1% 2512	2512	RHC2512FT22K0			
R15	1	11.3k	RES, 11.3k ohm, 1%, 0.1W, 0603	0603	CRCW060311K3FKEA	Vishay-Dale		
R16	1	10.0k	RES, 10.0k ohm, 1%, 0.125W, 0805	0805	CRCW080510K0FKEA	Vishay-Dale		
R17	1	30.1	RES, 30.1 ohm, 1%, 0.125W, 0805	0805	CRCW080530R1FKEA	Vishay-Dale		
R23	1	8.87k	RES, 8.87k ohm, 1%, 0.1W, 0603	0603	CRCW06038K87FKEA	Vishay-Dale		
R24	1	20.0k	RES, 20.0k ohm, 1%, 0.1W, 0603	0603	CRCW060320K0FKEA	Vishay-Dale		
R25	1	698	RES, 698 ohm, 1%, 0.25W, 1206	1206	CRCW1206698RFKEA	Vishay-Dale		
R26, R46	2	0	RES, 0 ohm, 5%, 0.25W, 1206	1206	CRCW1206000Z0EA	Vishay-Dale		
R27	1	1.20	RES, 1.20 ohm, 1%, 1W, 2512	2512	ERJ-1TRQF1R2U	Panasonic		
R29, R31	2	20.0k	RES, 20.0k ohm, 1%, 0.125W, 0805	0805	CRCW080520K0FKEA	Vishay-Dale		
R32	1	4.99k	RES, 4.99k ohm, 1%, 0.125W, 0805	0805	CRCW08054K99FKEA	Vishay-Dale		
R33	1	511	RES, 511 ohm, 1%, 0.063W, 0402	0402	CRCW0402511RFKED	Vishay-Dale		
R34, R40, R100	3	10.0k	RES, 10.0k ohm, 1%, 0.1W, 0603	0603	CRCW060310K0FKEA	Vishay-Dale		
R35	1	15	RES, 15 ohm, 5%, 0.1W, 0603	0603	CRCW060315R0JNEA	Vishay-Dale		
R36	1	200	RES, 200 ohm, 5%, 0.063W, 0402	0402	CRCW0402200RJNED	Vishay-Dale		
R37	1	20.0k	RES, 20.0k ohm, 1%, 0.063W, 0402	0402	CRCW040220K0FKED	Vishay-Dale		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
R38	1	3.74k	RES, 3.74k ohm, 1%, 0.063W, 0402	0402	CRCW04023K74FKED	Vishay-Dale		
R39	1	21.5k	RES, 21.5k ohm, 1%, 0.1W, 0603	0603	CRCW060321K5FKEA	Vishay-Dale		
R41	1	100k	RES, 100k ohm, 1%, 0.063W, 0402	0402	CRCW0402100KFKEA	Vishay-Dale		
R42	1	1.00k	RES, 1.00k ohm, 1%, 0.1W, 0603	0603	CRCW06031K00FKEA	Vishay-Dale		
R43	1	2.49k	RES, 2.49k ohm, 1%, 0.1W, 0603	0603	CRCW06032K49FKEA	Vishay-Dale		
R44	1	10.0	RES, 10.0 ohm, 1%, 0.25W, 1206	1206	CRCW120610R0FKEA	Vishay-Dale		
R45	1	10.0	RES, 10.0 ohm, 1%, 0.063W, 0402	0402	CRCW040210R0FKED	Vishay-Dale		
RT1	1	2.5ohm	NTC THERMISTOR S236 /2.5 /M		B57236S259M	Thermometrics		
T1	1	30.5 mH	Transformer, 30.5 mH, TH	XFMR, 453X906X598 mil, SMT	G135036LF	GCI Technologies		
T2	1	260uH	Transformer, Gate Drive, 260uH, SMT	XFMR_7x6x7mm, SMT	G135056LF	GCI Technologies	760301105	Würth Elektronik eiSos
T3	1	360uH	Transformer, 360uH, TH	31.5x30.8x24.5 mm	G135043LF	GCI Technologies		
TP3	1	Red	Test Point, TH, Miniature, Red	Keystone5000	5000	Keystone		
TP4	1	Black	Test Point, TH, Miniature, Black	Keystone5001	5001	Keystone		
TP5	1	5001	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone		
U1	1		TRANSITION MODE PFC CONTROLLER, D0008A	D0008A	UCC28051D	Texas Instruments		None
U2	1		SINGLE DIFFERENTIAL COMPARATOR, DBV0005A	DBV0005A	TL331DBV	Texas Instruments		None
U3	1		High-Performance Resonant Mode Controller with Voltage Control, 50 % Duty Cycle, -40 to +125 degC, 8-pin SOIC (D), Green (RoHS & no Sb/Br)	D0008A	UCC25600D	Texas Instruments	Equivalent	None
U4	1		Opto-Isolator, 1 Channel, TH	DIP-4	PC817X4NSZ0F			
U5	1		Adjustable Precision Zener Shunt Regulator, 3-pin SOT-23	MF03A	LM431ACM3	National Semiconductor		
U100	1		Precision Micropower Shunt Voltage Reference, 3-pin SOT-23	MF03A	LM4040D25QDBZR	National Semiconductor		
XF1	1	TR5	Fuse Holder, TR5, TH	TR5 Fuse Holder	56000001009	Littelfuse		
C15	0	1000pF	CAP, CERM, 1000pF, 50V, +/-10%, C0G/NP0, 0603	0603	06035A102KAT2A	AVX		
R21, R22	0	100k	RES, 100k ohm, 1%, 0.1W, 0603	0603	CRCW0603100KFKEA	Vishay-Dale		

Notes:

Unless otherwise noted in the Alternate PartNumber and/or Alternate Manufacturer columns, all parts may be substituted with equivalents.

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