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310W AC-DC PSU with TM-Bridgeless-PFC

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
IPC81	1		Printed Circuit Board		PMP9640	Any		
C1, C2, C6, C7	4	100pF	CAP, CERM, 100pF, 250V, +/-10%, KY, Radial D7x5mm	Radial D7x5mm	DE2B3KY101KA2BM01	MuRata		
C3, C4	2	0.22uF	CAP, Film, 0.22uF, 275V, +/-20%, TH	17.5x8x17.5mm	ECQ-U2A224ML	Panasonic		
C5	1	0.47uF	CAP, Film, 0.47uF, 275V, +/-20%, TH	Radial 25x8.5x18.5	ECQ-U2A474ML	Panasonic		
C8	1	330uF	CAP ALUM 330UF 450V 20% SNAP	RCAP, 30x30mm	LGW2W331MELB45	Nichicon		
C9, C10	2	220pF	CAP, CERM, 220pF, 100V, +/-5%, C0G/NP0, 1206	1206	12061A221JAT2A	AVX		
C11	1	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 1206	1206	GRM319R61E105KC36D	MuRata		
C12, C20	2	1000pF	CAP, CERM, 1000pF, 50V, +/-10%, C0G/NP0, 0603	0603	06035A102KAT2A	AVX		
C13	1	4.7uF	CAP, CERM, 4.7 uF, 10 V, +/- 10%, X5R, 0603	0603	06032D475KAT2A	AVX		
C14	1	0.22uF	CAP, CERM, 0.22 uF, 16 V, +/- 20%, X7R, 0508	0508	LLL219R71C224MA01L	MuRata		
C15	1	330pF	CAP, CERM, 330 pF, 100 V, +/- 10%, X7R, 0603	0603	06031C331KAT2A	AVX		
C16	1	18pF	CAP, CERM, 18pF, 50V, +/-5%, C0G/NP0, 0603	0603	06035A180JAT2A	AVX		
C17	1	0.22uF	CAP, CERM, 0.22uF, 50V, +/-10%, X7R, 1206	1206	12065C224KAT2A	AVX		
C18	1	100pF	CAP, CERM, 100pF, 50V, +/-5%, C0G/NP0, 0603	0603	06035A101JAT2A	AVX		
C19	1	0.1uF	CAP, CERM, 0.1uF, 25V, +/-10%, X5R, 0603	0603	06033D104KAT2A	AVX		
C21	1	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0603	0603	C0603C105K4PACTU	Kemet		
C22	1	2200pF	CAP, CERM, 2200pF, 300V, +/-20%, Y5U, CAPRD500W60D900H1200	CAPRD500W60D900H1200	VY2222M35Y5US63V7	Vishay-Bcomponents		
C23, C24	2	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 0603	0603	GRM188R61E105KA12D	MuRata		
C25	1	0.1uF	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0805	0805	08055C104KAT2A	AVX		
C26, C27, C28	3	1000uF	CAP ALUM 1000UF 35V 20% RADIAL	12.5x20mm	35ZLH1000MEFC12.5X20	Rubycon		
C29, C30, C31, C32	4	10uF	CAP CER 10UF 35V 10% X7R 1206	1206	GMK316AB7106KL-TR	MuRata		
C33	1	0.033uF	CAP, Film, 0.033uF, 1250V, +/-5%, TH	18x9.5x18mm	121MPE333J	Rubycon		
C34	1	100pF	CAP, CERM, 100pF, 1000V, +/-5%, U2J, 1206	1206	GRM31A7U3A101JW31D	MuRata		
C35	1	0.47uF	CAP, CERM, 0.47uF, 16V, +/-10%, X7R, 0603	0603	C0603C474K4RACTU	Kemet		
C36	1	0.01uF	CAP, CERM, 0.01uF, 50V, +/-10%, X7R, 0603	0603	C0603C103K5RACTU	Kemet		
C37	1	0.22uF	CAP, CERM, 0.22uF, 25V, +/-5%, X7R, 0805	0805	08053C224JAT2A	AVX		
C38	1	1uF	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0603	0603	C0603C105K4PACTU	Kemet		
C39	1	100pF	CAP, CERM, 100pF, 50V, +/-5%, C0G/NP0, 0603	0603	C1608C0G1H101J	TDK		
C40	1	2200pF	CAP, CERM, 2200pF, 50V, +/-10%, X7R, 0603	0603	C0603C222K5RAC	Kemet		
C41	1	2700pF	CAP, CERM, 2700 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	C1608C0G1H272J	TDK		
C42	1	1uF	CAP, CERM, 1uF, 50V, +/-10%, X7R, 1206	1206	C3216X7R1H105K	TDK		
C43	1	10uF	CAP, AL, 10uF, 35V, +/-20%, TH	CAPPR2-5x11	UVR1V100MDD11TA	Nichicon		
C44	1	22pF	CAP, CERM, 22pF, 50V, +/-5%, C0G/NP0, 0603	0603	06035A220JAT2A	AVX		
C45	1	1uF	CAP ALUM 1.0UF 450V 20% RADIAL	6.3x5.5mm	450PX1MEFC6.3X11	Rubycon		
C46	1	150uF	CAP ALUM 150UF 25V 20% RADIAL	6.3x11.2mm	EEU-FR1E151B	Panasonic		
C47	1	1uF	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0805	0805	0805YD105KAT2A	AVX		
C48, C49	2	47pF	CAP, CERM, 47pF, 1000V, +/-5%, U2J, 1206	1206	GRM31A7U3A470JW31D	MuRata		
D1, D4	2	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 Componen		
D6, D7	2	1.25V	Diode, Switching, 200V, 0.2A, SOD-123	SOD-123	BAV21W-7-F	Diodes Inc.		
D8	1	70V	Diode, Switching, 70V, 0.25A, SOT-23	SOT-23	BAV70-V	Vishay-Semiconductor		
D9	1	20V	Diode, Zener, 20V, 500mW, SOD-123	SOD-123	MMSZ6250B-7-F	Diodes Inc.		
D10	1	200V	Diode, Switching, 200V, 0.2A, SOD-123	SOD-123	BAV21W-7-F	Diodes Inc.		
D11, D14, D18, D19	4	0.63V	Diode, P-N, 70V, 0.2A, SOT-323	SOT-323	BAV99WT1G	Fairchild Semiconductor		
D12, D15	2	0.35V	Diode, Schottky, 30V, 0.2A, SOD-323	SOD-323	BAT54HT1G	ON Semiconductor		
D13, D16	2		DIODE SCHOTTKY 100V 30A TO220AB	TO-220AB	STPS30100ST			
D17	1	0.45V	Diode, Schottky, 60V, 3A, SOD-123	SOD-123	MBR0560-TP	Micro Commercial Componen		
D20	1	100V	Diode, Ultrafast, 100V, 0.15A, SOD-123	SOD-123	1N4148W-7-F	Diodes Inc.		
D21	1	600V	DIODE FAST REC 600V 1A DO214AC	SMA	ES1J-TP	Diodes Inc.		
D22	1	600V	Diode, Ultrafast, 600V, 1A, SMB	SMB	MURS160-13-F	Diodes Inc.		
F1	1	6.3A/250V	FUSE 6.3A 250VAC RADIAL FAST	0.335 inch	37016300430	Littelfuse		
HS1, HS3, HS4, HS5, HS6, HS7, HS8, HS9	8		Heat Sink, TO-220	TO-220 Heat Sink	507302B00000G	Aavid		
HS2	1		Heat Sink, TO-220, TH	TO-220 Heat Sink	TBD	Aavid		
J1	1		CONN HEADER .312 VERT 2POS TIN	TH Header	1-1318301-2	AMP		
J2	1	2x1	Conn Term Block, 2POS, 5.08mm, TH	PhoenixContact_1715721	1715721	Phoenix Contact		
L1, L4	2	100uH	Transformer, 100uH, TH	35.8x24.77x28.5 mm	RLT1-1109	Renco Electronics		
L2	1	2.2mH	CHOK TOROID 2.2MH 6A VERTICAL	18.5x33x27.5 mm	744824622	Wurth Elektronik eiSos		
L3	1	3.3mH	CHOKE COM MODE 3.3MH 6.0A	30x35x21mm	7448256033	Wurth Elektronik eiSos		
L5	1	1uH	Inductor, Drum Core, Ferrite, 1uH, 21.8A, 0.002 ohm, TH	10.7mm x17.3mm	PCV-0-102-25L	Coilcraft		
L6	1	72uH	Inductor, Shielded E Core, ?, 72uH, 10A, 0.038 ohm, TH	Inductor, 23.5x29.5x26.0 mm	750314573	Wurth Elektronik eiSos		
L7	1	1mH	Inductor, Unshielded Drum Core, Ferrite, 1mH, 0.25A, 4.38 ohm, TH	D6 x 8.5mm	7447462102	Wurth Elektronik eiSos		
L8	1	100uH	INDUCTOR 100UH .9A 8095 RAD	Dia 8x10mm	744772101	Wurth Elektronik eiSos		
Q1, Q2	2	550V	MOSFET, N-CH, 550V, 17A, TO-220AB	TO-220AB	IPP50R199CP	Infineon Technologies		None
Q3	1	500V	MOSFET, N-CH, 500V, 17A, DDPAK	DDPAK	STB23NM50N	ST Microelectronics		None
Q4, Q5	2	20V	Transistor, PNP, 20V, 1.5A, SOT-23	SOT-23	FMMT718TA	Diodes Inc.		
Q6, Q10	2	0.3V	Transistor, NPN, 40V, 0.15A, SOT-23	SOT-23	MMBT2222A	Fairchild Semiconductor		
Q7, Q9	2		MOSFET N-CH 600V 19.5A TO-220	TO-220AB	STP23NM60ND	ST		None
Q8, Q11	2	1.6V	Transistor, PNP, 60V, 0.8A, SOT-23	SOT-23	MMBT2907A	Fairchild Semiconductor		
Q12	1	600V	MOSFET N-CH 600V 2.4A DPAK	DPAK	STD3NK60ZD	ST Microelectronics		None
R1, R2	2	750k	RES, 750k ohm, 1%, 0.25W, 1206	1206	CRCW1206750KFKEA	Vishay-Dale		
R3	1	301k	RES, 301k ohm, 1%, 0.25W, 1206	1206	CRCW1206301KFKEA	Vishay-Dale		
R4, R5, R12, R13, R16	5	511k	RES, 511k ohm, 1%, 0.25W, 1206	1206	CRCW1206511KFKEA	Vishay-Dale		
R6, R7	2	15.0	RES, 15.0, 1%, 0.1 W, 0603	0603	CRCW060315R0FKEA	Vishay-Dale		
R8, R9	2	10.0k	RES, 10.0k ohm, 1%, 0.25W, 1206	1206	CRCW120610K0FKEA	Vishay-Dale		
R10	1	49.9k	RES, 49.9k ohm, 1%, 0.25W, 1206	1206	CRCW120649K9FKEA	Vishay-Dale		
R11	1	953k	RES, 953k ohm, 1%, 0.25W, 1206	1206	CRCW1206953KFKEA	Vishay-Dale		
R15	1	78.7k	RES, 78.7k ohm, 1%, 0.25W, 1206	1206	CRCW120678K7FKEA	Vishay-Dale		
R17	1	10k	RES, 10k ohm, 5%, 0.1W, 0603	0603	CRCW060310K0JNEA	Vishay-Dale		
R18	1	1.0k	RES, 1.0k ohm, 5%, 0.1W, 0603	0603	CRCW06031K00JNEA	Vishay-Dale		
R19	1	20.0k	RES, 20.0k ohm, 1%, 0.1W, 0603	0603	CRCW060320K0FKEA	Vishay-Dale		
R20	1	10.0k	RES, 10.0k ohm, 1%, 0.125W, 0805	0805	CRCW080510K0FKEA	Vishay-Dale		
R21	1	30.1	RES, 30.1 ohm, 1%, 0.125W, 0805	0805	CRCW080530R1FKEA	Vishay-Dale		
R22, R24	2	499k	RES, 499k ohm, 1%, 0.25W, 1206	1206	CRCW1206499KFKEA	Vishay-Dale		
R23	1	11.5k	RES, 11.5k ohm, 1%, 0.1W, 0603	0603	CRCW060311K5FKEA	Vishay-Dale		
R25, R46	2	2.49k	RES, 2.49k ohm, 1%, 0.1W, 0603	0603	CRCW06032K49FKEA	Vishay-Dale		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
R26	1	7.5k	RES, 7.5 k, 5%, 0.1 W, 0603	0603	CRCW06037K50JNEA	Vishay-Dale		
R27	1	51.1k	RES, 51.1 k, 1%, 0.1 W, 0603	0603	CRCW060351K1FKEA	Vishay-Dale		
R28	1	1.20	RES, 1.20 ohm, 1%, 1W, 2512	2512	ERJ-1TRQF1R2U	Panasonic		
R29, R31	2	3.0	RES, 3.0 ohm, 5%, 0.1W, 0603	0603	CRCW06033R00JNEA	Vishay-Dale		
R30, R32	2	20.0k	RES, 20.0k ohm, 1%, 0.125W, 0805	0805	CRCW080520K0FKEA	Vishay-Dale		
R33, R34	2	10.0	RES, 10.0 ohm, 1%, 0.25W, 1206	1206	CRCW120610R0FKEA	Vishay-Dale		
R35	1	4.99k	RES, 4.99k ohm, 1%, 0.125W, 0805	0805	CRCW08054K99FKEA	Vishay-Dale		
R36	1	511	RES, 511 ohm, 1%, 0.063W, 0402	0402	CRCW0402511R1FKED	Vishay-Dale		
R37, R43	2	10.0k	RES, 10.0k ohm, 1%, 0.1W, 0603	0603	CRCW060310K0FKEA	Vishay-Dale		
R38	1	15	RES, 15 ohm, 5%, 0.1W, 0603	0603	CRCW060315R0JNEA	Vishay-Dale		
R39	1	200	RES, 200 ohm, 5%, 0.063W, 0402	0402	CRCW0402200RJNED	Vishay-Dale		
R40	1	20.0k	RES, 20.0k ohm, 1%, 0.063W, 0402	0402	CRCW040220K0FKED	Vishay-Dale		
R41	1	3.74k	RES, 3.74k ohm, 1%, 0.063W, 0402	0402	CRCW04023K74FKED	Vishay-Dale		
R42	1	25.5k	RES, 25.5k ohm, 1%, 0.125W, 0805	0805	CRCW080525K5FKEA	Vishay-Dale		
R44	1	100k	RES, 100k ohm, 1%, 0.063W, 0402	0402	CRCW0402100KFKED	Vishay-Dale		
R45	1	0	RES, 0, 5%, 0.1 W, 0603	0603	CRCW06030000Z0EA	Vishay-Dale		
R47	1	42.2k	RES, 42.2k ohm, 1%, 0.25W, 1206	1206	CRCW120642K2FKEA	Vishay-Dale		
R48	1	475k	RES, 475k ohm, 1%, 0.25W, 1206	1206	CRCW1206475KFKEA	Vishay-Dale		
R49	1	17.8k	RES, 17.8k ohm, 1%, 0.1W, 0603	0603	CRCW060317K8FKEA	Vishay-Dale		
R50	1	392	RES, 392 ohm, 1%, 0.1W, 0603	0603	CRCW0603392RFKEA	Vishay-Dale		
R51	1	0.82	RES, 0.82 ohm, 1%, 0.25W, 1206	1206	ERJ-8RQFR82V	Panasonic		
R53, R54, R101, R102	4	20k	RES 20K OHM 1/2W 5% 1210 SMD	1210	ERJ-14YJ203U	Panasonic		
RT1	1	10 ohm	Thermistor NTC, 10 ohm, 20%, Disc, 11.5mmx6mm	Disc, 11.5mmx6mm	B57236S0100M000	EPCOS Inc		
RV1	1		Varistor 275V RMS 10MM Radial, TH	10mm Radial	S10K275E2	EPCOS Inc		
T1, T2	2	30.5 mH	Transformer, 30.5 mH, TH	XFMR, 453X906X598 mil, SMT	G135036LF	GCI		
T3	1	260uH	Transformer, Gate Drive, 260uH, SMT	XFMR_7x6x7mm, SMT	760301105	Würth Elektronik eiSos		
T4	1	250 uH	Transformer, 250uH, TH	Transformer, 41.9x31.75x49.0 mm	750314575	Würth Elektronik eiSos		
TP1	1	Red	Test Point, TH, Miniature, Red	Keystone5000	5000	Keystone		
TP2	1	Black	Test Point, TH, Miniature, Black	Keystone5001	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		
U6	1		Constant-Voltage, Constant-Current Controller With Primary-Side Regulation, D0007A	D0007A	UCC28710D	Texas Instruments		None

Notes:

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

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