

Single stage AC-DC LLC Resonant Converter

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
IPC81	1		Printed Circuit Board		PMP8762	Any	-	-
C1	1	330uF	CAP ALUM 330UF 200V 20% SNAP		EET-ED2D331BA	Panasonic		
C2	1	1uF	CAP FILM 1UF 250VDC RADIAL	12.7x11.6x4.9mm	ECQ-E2105JB	Panasonic		
C3	1	0.47uF	CAP, Film, 0.47uF, 275V, +/-20%, TH	Radial 25x8.5x18.5	ECQ-U2A474ML	Panasonic		
C4, C5, C11, C15, C32	5	1uF	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0603	0603	C0603C105K4PACTU	Kemet		
C6, C7	2	1000pF	CAP, CERM, 1000pF, 300V, +/-20%, Y5U, Radial Disc 7.5mm, ls=7.5	Radial Disc 7.5mm, ls=7.5	VY2102M29Y5UG63V7	Vishay-Bccomponents		
C8	1	2200pF	CAP, CERM, 2200pF, 300V, +/-20%, Y5U, CAPRD500W60D900H1200	CAPRD500W60D900H1200	VY2222M35Y5US6UV5	Vishay-Bccomponents		
C9, C10	2	47pF	CAP, CERM, 47pF, 25V, +/-5%, COG/NP0, 0402	0402	GRM1555C1E470JA01D	MuRata		
C12, C16	2	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 0603	0603	GRM188R61E105KA12D	MuRata		
C13, C14, C21, C22	4	10uF	CAP, CERM, 10uF, 16V, +/-10%, X5R, 1210	1210	1210YD106KAT2A	AVX		
C17, C18	2	1000uF	CAP ALUM 1000UF 16V 20% RADIAL	10x20	EEUFM1C102	Panasonic		
C19	1	0.1uF	CAP, CERM, 0.1uF, 25V, +/-10%, X7R, 0603	0603	06033C104KAT2A	AVX		
C20	1	1uF	CAP, CERM, 1uF, 25V, +/-10%, X5R, 0805	0805	08053D105KAT2A	AVX		
C23	1	0.1uF	CAP, Film, 0.1uF, 630V, +/-20%, TH	B32922 10.5mm	B32922C3104M	EPCOS Inc		
C24	1	100pF	CAP, CERM, 100pF, 500V, +/-10%, X7R, 1808	1808	VJ1808Y101KXEAT5Z	Vishay-Vitramon		
C25	1	0.47uF	CAP, CERM, 0.47uF, 16V, +/-10%, X7R, 0603	0603	C0603C474K4RACTU	Kemet		
C26	1	680pF	CAP, CERM, 680pF, 100V, +/-10%, X7R, 0603	0603	06031C681KAT2A	AVX		
C27	1	0.01uF	CAP, CERM, 0.01uF, 50V, +/-10%, X7R, 0603	0603	C0603C103K5RACTU	Kemet		
C28	1	100pF	CAP, CERM, 100pF, 25V, +/-10%, X7R, 0603	0603	06033C101KAT2A	AVX		
C29	1	0.22uF	CAP, CERM, 0.22uF, 25V, +/-10%, X5R, 0603	0603	06033D224KAT2A	AVX		
C30	1	0.01uF	CAP, CERM, 0.01uF, 100V, +/-10%, X7R, 0603	0603	06031C103KAT2A	AVX		
C31	1	0.22uF	CAP, CERM, 0.22uF, 25V, +/-5%, X7R, 0805	0805	08053C224JAT2A	AVX		
C33	1	10uF	CAP, AL, 10uF, 35V, +/-20%, TH	CAPPR2-5x11	UVR1V100MDD1TA	Nichicon		
C34	1	22pF	CAP, CERM, 22pF, 50V, +/-5%, COG/NP0, 0603	0603	06035A220JAT2A	AVX		
C36	1	0.1uF	CAP, CERM, 0.1uF, 25V, +/-10%, X5R, 0603	0603	06033D104KAT2A	AVX		
C38	1	1000pF	CAP, CERM, 1000pF, 50V, +/-10%, COG/NP0, 0603	0603	06035A102KAT2A	AVX		
C39	1	6800pF	CAP, CERM, 6800pF, 50V, +/-5%, X7R, 0603	0603	C0603C682J5RACTU	Kemet		
C101	1	150uF	CAP ALUM 150UF 35V 20% RADIAL	CAPPR3p5-8x16	35ZL150MEFC8X11.5	Rubycon		
D1	1	GBU6J	RECT BRIDGE GPP 6A 600V GBU	GBU	GBU6J	Micro Commercial Componen		
D2, D3, D5	3	0.63V	Diode, P-N, 70V, 0.2A, SOT-323	SOT-323	BAV99WT1G	Fairchild Semiconductor		
D4	1	0.45V	Diode, Schottky, 60V, 3A, SOD-123	SOD-123	MBR0560-TP	Micro Commercial Componen		
D6	1	0.35V	Diode, Schottky, 30V, 0.2A, SOD-323	SOD-323	BAT54HT1G	ON Semiconductor		
D7	1	1.4V	Diode, Ultrafast, 100V, 0.25A, SOD-323	SOD-323	BAS316.115	NXP Semiconductor		
D8	1	100V	Diode, Ultrafast, 100V, 0.15A, SOD-123	SOD-123	1N4148W-7-F	Diodes Inc.		
D9	1	600V	DIODE FAST REC 600V 1A DO214AC	SMA	ES1J-TP	Diodes Inc.		
D10	1	600V	Diode, Ultrafast, 600V, 1A, SMB	SMB	MURS160-13-F	Diodes Inc.		
D12	1	200V	Diode, Switching, 200V, 0.2A, SOD-123	SOD-123	BAV21W-7-F	Diodes Inc.		
D101, D102	2	30V	Diode, Schottky, 30V, 0.2A, SOD-323	SOD-323	BAT54HT1G	ON Semiconductor		
F1	1	6.3A/250V	FUSE 6.3A 250VAC RADIAL FAST	0.335 inch	37016300430	Littelfuse		
HS1	1		Heat Sink, TO-220, TH	TO-220 Heat Sink	530614B00000G	Avaid		
HS2, HS3	2	504102B00000	Heatsink, TO-220 Vertical-mount,	0.700 x 0.850 inch	504102B00000	Thermalloy		
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	1	180uH	Inductor, Shielded, Ferrite, 180uH, 2.65A, 0.17 ohm, TH	13.3mm DIA	RFS1317-184KL	Coilcraft		
L2	1	10000uH	Coupled inductor, 10000uH, 3A, 0.105 ohm, +/-30%, TH	18.5x33x27.5 mm	744824310	Würth Elektronik eiSos		
L3	1	1uH	Inductor, Shielded Drum Core, Ferrite, 1uH, 13A, 0.00386 ohm, SMD	WE-PD-XXL	7447709001	Würth Elektronik eiSos		
L4	1	100uH	Inductor, Unshielded Drum Core, Ferrite, 100uH, 0.8A, 0.457 ohm, TH	D6 x 8.5mm	7447462101	Würth Elektronik eiSos		
Q1, Q9	2	40V	MOSFET, N-CH, 40V, 22A, SON 5x6mm	SON 5x6mm	CSD18501Q5A	Texas Instruments		None
Q2, Q6	2		MOSFET N-CH 250V 15.6A TO-220F	TO-220AB	FOPF16N25C	Fairchild		None
Q3, Q7	2	0.3V	Transistor, NPN, 40V, 0.15A, SOT-23	SOT-23	MMBT2222A	Fairchild Semiconductor		
Q4, Q10	2		TRANS PNP 60V 300MW SMD SOT23-3	SOT-23	MMBT2907A-7-F	Diodes Inc.		
Q11	1	600V	MOSFET N-CH 600V 2.4A DPAK	DPAK	STD3NK60ZD	STMicroelectronics		None
R1, R3	2	100k	RES, 100k ohm, 1%, 0.1W, 0603	0603	CRCW0603100KFKEA	Vishay-Dale		
R2, R4	2	221k	RES, 221k ohm, 1%, 0.1W, 0603	0603	CRCW0603221KFKEA	Vishay-Dale		
R5, R6, R11, R12	4	100	RES, 100 ohm, 1%, 0.063W, 0402	0402	CRCW0402100RFKED	Vishay-Dale		
R7, R10	2	10	RES, 10 ohm, 5%, 0.1W, 0603	0603	CRCW060310R0JNEA	Vishay-Dale		
R8	1	1.0	RES, 1.0 ohm, 5%, 1W, 2010	2010	CRCW20101R00JNEFHP	Vishay-Dale		
R9, R13	2	20.0k	RES, 20.0k ohm, 1%, 0.125W, 0805	0805	CRCW080520K0FKEA	Vishay-Dale		
R14	1	4.99k	RES, 4.99k ohm, 1%, 0.25W, 1206	1206	CRCW12064K99FKEA	Vishay-Dale		
R15	1	511	RES, 511 ohm, 1%, 0.1W, 0603	0603	CRCW0603511RFKEA	Vishay-Dale		
R16, R21	2	2.0k	RES, 2.0k ohm, 5%, 0.1W, 0603	0603	CRCW06032K00JNEA	Vishay-Dale		
R17	1	3.83k	RES, 3.83k ohm, 1%, 0.1W, 0603	0603	CRCW06033K83FKEA	Vishay-Dale		
R18	1	0	RES, 0 ohm, 5%, 0.1W, 0603	0603	CRCW0603000Z0EA	Vishay-Dale		
R19	1	15.0	RES, 15.0 ohm, 1%, 0.1W, 0603	0603	CRCW060315R0FKEA	Vishay-Dale		
R20	1	1.0Meg	RES, 1.0Meg ohm, 5%, 0.1W, 0603	0603	CRCW06031M00JNEA	Vishay-Dale		
R22, R40	2	10.0k	RES, 10.0k ohm, 1%, 0.1W, 0603	0603	CRCW060310K0FKEA	Vishay-Dale		
R23	1	100	RES, 100 ohm, 1%, 0.1W, 0603	0603	CRCW0603100RFKEA	Vishay-Dale		
R24	1	20.0k	RES, 20.0k ohm, 1%, 0.1W, 0603	0603	CRCW060320K0FKEA	Vishay-Dale		
R25	1	2.94k	RES, 2.94k ohm, 1%, 0.1W, 0603	0603	CRCW06032K94FKEA	Vishay-Dale		
R26	1	1.27k	RES, 1.27k ohm, 1%, 0.1W, 0603	0603	CRCW06031K27FKEA	Vishay-Dale		
R27	1	1.00k	RES, 1.00k ohm, 1%, 0.1W, 0603	0603	CRCW06031K00FKEA	Vishay-Dale		
R28	1	51.1k	RES, 51.1k ohm, 1%, 0.1W, 0603	0603	CRCW060351K1FKEA	Vishay-Dale		
R29	1	38.3k	RES, 38.3k ohm, 1%, 0.25W, 1206	1206	CRCW120638K3FKEA	Vishay-Dale		
R30	1	475k	RES, 475k ohm, 1%, 0.25W, 1206	1206	CRCW1206475K5FKEA	Vishay-Dale		
R31	1	18.7k	RES, 18.7k ohm, 1%, 0.1W, 0603	0603	CRCW060318K7FKEA	Vishay-Dale		
R32	1	392	RES, 392 ohm, 1%, 0.1W, 0603	0603	CRCW0603392RFKEA	Vishay-Dale		
R33	1	0.82	RES, 0.82 ohm, 1%, 0.25W, 1206	1206	ERJ-8RF82V	Panasonic		
R36, R39	2	200k	RES, 200k ohm, 1%, 0.25W, 1206	1206	ERJ-8ENF2003V	Panasonic		
R41	1	8.66k	RES, 8.66k ohm, 1%, 0.1W, 0603	0603	CRCW06038K66FKEA	Vishay-Dale		
R42	1	63.4k	RES, 63.4k ohm, 1%, 0.1W, 0603	0603	CRCW060363K4FKEA	Vishay-Dale		
RT1	1	1 ohm	NTC THERMISTOR S 237/1 /M 51	55x25x53 mm	B57237S109M51	EPCOS Inc		
T1	1	80uH	Transformer, 80.6 uH, TH	55x25x53 mm	SRX35ER-xxxH015	TDK		
T2	1	260uH	Transformer, Gate Drive, 260uH, SMT	XFMR_7x6x7mm, SMT	760301105	Würth Elektronik eiSos		
TP1	1	Red	Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone		

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TP2, TP4, TP6	3	Black	Test Point, TH, Miniature, Black	Keystone5001	5001	Keystone	Equivalent, [NoValue], [N	Any, [NoValue], [NoValue]
TP3, TP5	2	Red	Test Point, TH, Miniature, Red	Keystone5000	5000	Keystone		
U1, U2	2		GREEN Rectifier Controller Device, D0008A	D0008A	UCC24610D	Texas Instruments		None
U3	1		50 mA, 24 V, 3.2-mA Supply Current Low-Dropout Linear Regulator, DCK0005A	DCK0005A	TPS71550DCK	Texas Instruments		None
U4	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
U5	1		Opto-Isolator, 1 Channel, TH	DIP-4	PC817X4NSZ0F			
U6	1		Adjustable Precision Zener Shunt Regulator, 3-pin SOT-23	MF03A	LM431ACM3	National Semiconductor		
U7	1		Constant-Voltage, Constant-Current Controller With Primary-Side Regulation, D0007A	D0007A	UCC28710D	Texas Instruments		None
U8	1		SINGLE DIFFERENTIAL COMPARATOR, DBV0005A	DBV0005A	TL331DBV	Texas Instruments		None
U9	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		
C35	0	22uF	CAP, CERM, 22uF, 25V, +/-20%, X5R, 1210	1210	12103D226MAT2A	AVX		
Q5, Q8	0	20V	Transistor, PNP, 20V, 1.5A, SOT-23	SOT-23	FMMT718TA	Diodes Inc.		
TP7	0	Red	Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone		
TP8	0	Black	Test Point, TH, Miniature, Black	Keystone5001	5001	Keystone	Equivalent	Any

Notes:

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

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