

[TotemPolePFC_5.5kW-TSB-001] BOM

[Main Board 1/2]

Part Reference	Description	Part Number	Manufacture	Qty.
C1	CAP Film 0.33μF ±10% 630V Class X2 SMT	890334025034CS	Würth Elektronik	1
C2,C3,C5,C6	CAP CER 1000pF ±20% 400Vac Class X1Y2 SMT	DE2E3SA102MN3AY02F	Murata	4
C4	CAP Film 2.2μF ±10% 630V Class X2 SMT	890334026034	Würth Elektronik	1
C7,C8,C9	CAP Film 0.68μF ±10% 310V Class X2 SMT	890334025045	Würth Elektronik	3
C10,C11,C12	CAP Film 0.47μF ±10% 275V Class X2 SMT	890324025039	Würth Elektronik	3
C13,C22,C25,C30	CAP CER 1000pF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7102MTNA01	Taiyo Yuden	4
C14,C26,C29,C31,C33,C49,C50,C63,C67,C68,C76,C77	CAP CER 1μF ±10% 25Vdc X7R 1608 SMD	MSAST168SB7105KTNA01	Taiyo Yuden	12
C15,C21,C24,C47,C57,C58,C59,C60,C64,C74,C75	CAP CER 0.1μF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7104MTNA01	Taiyo Yuden	11
C16,C17,C18,C19	CAP CER 0.22μF ±10% 630Vdc X7R 5750 SMD	885342214142	Würth Elektronik	4
C20,C23	CAP CER 10μF ±20% 35Vdc X7R 3216 SMD	MSASG31LAB7106MTNB25	Taiyo Yuden	2
C27,C28,C32,C65,C66	CAP CER 22μF ±10% 25Vdc X7R 3225 SMD	MSAST32MSB7226KPNB25	Taiyo Yuden	5
C34,C35,C36,C37,C38,C39	CAP Electrolytic 390μF ±20% 450V Φ30x30mm SMT	450MXT390MEFCSN30X30	Rubycon	6
C40,C41	CAP CER 0.068μF ±10% 630Vdc X7R 3225 SMD	885342209005	Würth Elektronik	2
C42,C43,C73	CAP CER 2200pF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7222MTNA01	Taiyo Yuden	3
C44,C45,C69	CAP CER 220pF ±10% 100Vdc X7R 1608 SMD	MLASH168SSD221KTNA01	Taiyo Yuden	3
C46,C51,C52,C53,C54	CAP CER 47nF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7473MTNA01	Taiyo Yuden	5
C48	CAP CER 2.2μF ±10% 50Vdc X7R 2012 SMD	MSASU21GBB7225KTNA01	Taiyo Yuden	1
C55,C56	CAP CER 4700pF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7472MTNA01	Taiyo Yuden	2
C61	CAP Electrolytic 4.7μF ±20% 450V Φ10×16mm SMT	860241475018	Würth Elektronik	1
C62	CAP Electrolytic 220μF ±20% 25V Φ8×13mm SMT	860080474010	Würth Elektronik	1
C70,C71,C72	CAP CER T.B.DF - -Vdc - - SMD	NON-1608	Taiyo Yuden	3
CN1,CN2	CONNECTOR 2pin 300V AC Inlet C14	691218410002	Würth Elektronik	2
CN3	CONNECTOR 120pin 304V AC Inlet C14	HTEC8-160-01-L-DV-A-BL	Samtec	1
CN4,CN5	CONNECTOR 4pin 50V 1.5mm pitch SMT	64800411622	Würth Elektronik	2
CN6,CN7	CONNECTOR 6pin 250V AC Inlet C14	61300611821	Würth Elektronik	2
CN8	CONNECTOR 2pin -V 3.5mm pitch SMT	691214110002S	Würth Elektronik	1
D1,D2,D3,D4	DIODE FAST RECOVERY 600V 10A VF:1.25V TO-252AA(D-P)	RFNL10BGE6S	ROHM	4
D5	DIODE FAST RECOVERY 700V 0.8A VF:1.5V PMDTM SMD	RFN1LAM7S	ROHM	1
D6	DIODE FAST RECOVERY 600V 0.8A VF:1.45V PMDTM SMD	RFN1LAM6S	ROHM	1
D7	DIODE RECTIFIER 600V 0.2A VF:1.1V TUMD2SM SMD	RRE02VSM6S	ROHM	1
F1	FUSE 500V 30A SMT	0505030.MXEP	Littelfuse	1
IC1	IC CURRENT SEN HE/DIFF 65A SMD	ACS724KMA	Allegro	1
IC2	IC Isolated Driver SMD	BM79330FV-LB	ROHM	1
IC3,IC4	IC 1ch Gate Driver Providing Galvanic Isolation SMD	BM61M22BFJ-C	ROHM	2
IC5,IC12	IC Low Noise OPAMP 5.5V SSOP5 SMD	LMR1802G	ROHM	2
IC6	IC Voltage References - SOT-23-3	TLV431AIDBZR	TI	1
IC7,IC8	IC Digital Isolator SMD	18012115411L	Würth Elektronik	2
IC9	IC DC/DC converter SMD	BM2P129TF	ROHM	1
IC10,IC11	IC LDO 3.3V 200mA SSOP5 SMD	BU33SD2MG-M	ROHM	2
J1	Dual counter-rotating fan 12V 1.8A 0.9m^3/min	9CRV0412P5J201	SANYO DENKI	2

[TotemPolePFC_5.5kW-TSB-001] BOM



[Main Board 2/2]

Part Reference	Description	Part Number	Manufacture	Qty.
L1,L2	COIL 150μH±15% 19.5mΩ 23A PQ3635 x 33.2mm SMT	74437636351512	Würth Elektronik	2
L3,L4	COIL 15μH±10% 0.0023Ω 27A φ-mm x 22.23mm SMT	S25100141	Würth Elektronik	2
L5	COIL 220μH±20% 0.51Ω 1A φ11mm x 11.5mm SMT	7447471221	Würth Elektronik	1
LED1	LED RED 20mA VF 2.2V SMD	SML-H12U8TT86	ROHM	1
LED2	LED Green 20mA VF 2.2V SMD	SML-H12M8TT86	ROHM	1
LED3	LED Blue 5mA VF 2.9V SMD	SMLMN2BCTT86	ROHM	1
LF1	LINE FILTER 1mH 2.4mΩ 20A SMT	7448042001	Würth Elektronik	1
LF2	LINE FILTER 1.5mH 3.2mΩ 18A SMT	7448041801	Würth Elektronik	1
Q1,Q2,Q3,Q4	TRANSISTOR MOSFET Nch 600V Id:T.B.DA 0.05Ω SMD	RJ2X050DA	ROHM	4
R1,R2,R3,R4,R5,R6	RES 100kΩ J(±5%) 3216 0.25W 500V SMD	KTR18E2PJ104	ROHM	6
R7	RES PTC 56Ω SMT	B59451C1130B070	TDK	1
R8,R11,R15	RES 1kΩ J(±5%) 1608 0.1W 50V SMD	MCR03EZPJ102	ROHM	3
R9	RES 1Ω J(±5%) 3216 0.5W 200V SMD	ESR18E2PJ1R0	ROHM	1
R10	RES 470kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4703	ROHM	1
R12,R14,R16	RES 10Ω J(±5%) 3216 0.5W 200V SMD	ESR18E2PJ100	ROHM	3
R13,R17,R43	RES 1kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1001	ROHM	3
R18,R19,R20,R22,R23,R24,R30,R31,R32	RES 100kΩ F(±1%) 3216 0.25W 200V SMD	MCR18E2PF1003	ROHM	9
R21,R25,R33	RES 1.8kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1801	ROHM	3
R26,R27,R28	RES 1MΩ F(±1%) 3216 0.25W 200V SMD	MCR18E2PF1004	ROHM	3
R29	RES 18kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1802	ROHM	1
R34,R65	RES 100Ω J(±5%) 1608 0.1W 50V SMD	MCR03EZPJ101	ROHM	2
R35	RES 4.3kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4301	ROHM	1
R36	RES 5.1kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX5101	ROHM	1
R37	RES 10Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX10R0	ROHM	1
R38	RES T.B.D 1608 SMD	NON-MCR03	ROHM	1
R39,R50,R51,R52,R53,R66	RES 0Ω J(±5%) 1608 0.1W 50V SMD	MCR03EZPJ000	ROHM	6
R40	RES 4.7kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4701	ROHM	1
R41	RES 3.6kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX3601	ROHM	1
R42	RES 5.6kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX5601	ROHM	1
R44,R45,R46,R47	RES 15kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1502	ROHM	4
R48,R49	RES 10kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1002	ROHM	2
R54,R61,R62,R63,R64	RES 100kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1003	ROHM	5
R55,R56	RES 470kΩ F(±1%) 3216 0.25W 500V SMD	KTR18E2PF4703	ROHM	2
R57	RES 2.2kΩ F(±1%) 3216 0.25W 200V SMD	MCR18E2PF2201	ROHM	1
R58	RES 100Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1000	ROHM	1
R59,R60	RES 47kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4702	ROHM	2
U1,U2	Daughter Board (GaN for PFC)	GaN_D-Card_TI_Rev2510	ROHM	2
U3	Daughter Board (LF MOSFET for PFC)	LFMOS_Rev2510_A	ROHM	1
U5	Daughter Board (DCDC for PFC)	DCDC3PIN_VO5_Rev2510_A	ROHM	1
ZN1	VARISTOR 420V 2500A 10mm SMT	V320LA10P	Littelfuse	1

[TotemPolePFC_5.5kW-TSB-001] BOM



[GaN Board]

Part Reference	Description	Part Number	Manufacture	Qty.
C1,C2	CAP CER 0.1μF ±10% 50Vdc X7R 1608 SMD	MAASU168SB7104KTNA01	Taiyo Yuden	2
C3,C4,C33,C34	CAP CER 100pF ±10% 100Vdc X7R 1608 SMD	MSASH168SSD101KTNA01	Taiyo Yuden	4
C5,C6,C7,C8,C37,C38	CAP CER 1μF ±10% 50Vdc X7R 1608 SMD	MSASU168AB7105KTNA01	Taiyo Yuden	6
C10	CAP CER 10μF ±20% 35Vdc X7R 3216 SMD	MSASG31LAB7106MTNB25	Taiyo Yuden	1
C11,C12	CAP CER 10μF ±10% 25Vdc X7R 3216 SMD	MSAST31LAB7106KTNA01	Taiyo Yuden	2
C13,C16,C43,C44	CAP CER 100pF ±10% 100Vdc X7R 1608 SMD	MSASH168SSD101KTNA01	Taiyo Yuden	4
C14,C17	CAP CER 1000pF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7102MTNA01	Taiyo Yuden	2
C15,C19	CAP CER 0.22μF ±10% 50Vdc X7R 1608 SMD	MSASU168SB7224KTNB25	Taiyo Yuden	2
C22	CAP CER 33nF ±5% 1000Vdc C0G 3225 SMD	C3225C0G3A333J	TDK	1
C24	CAP CER 0.1μF ±10% 1000Vdc X7R 4532 SMD	GRM43DR7LW104KW01L	Murata	1
C36	CAP CER 0.1μF ±10% 50Vdc X7R 1608 SMD	MAASU168SB7104KTNA01	Taiyo Yuden	1
C41	CAP CER 10μF ±20% 25Vdc X7R 3216 SMD	MSAST31LAB7106MTNA01	Taiyo Yuden	1
C42	CAP CER 0.1μF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7104MTNA01	Taiyo Yuden	1
D1	DIODE SCHOTTKY BARRIER 150V 0.5A VF:0.95V SOD-323HE SMD	RB568VAM150	ROHM	1
HS1	HEAT SINK 11.5-5.9°C/W 33x37.5mm T:10mm SMT	SK40037.5AL	Fischer elektronik	1
IC1	IC DC/DC Converter 8V to 40V- HTSOP-J8 SMD	BD7F100EFJ-LB2	ROHM	1
IC2,IC3	IC Gate Driver Isolation 4ch SSOP SMD	ISO7741FDBQR	TI	2
IC4,IC5	IC GaN HEMT Power Stage 650V 21mΩ 2MHz SMD	BM3G402MUV-LA	ROHM	2
IC6	IC AND gate SMD	BD7LS08ZG-C	ROHM	1
IC7	IC LDO 3.3V 200mA SSOP5 SMD	BU33SD2MG-M	ROHM	1
R1,R2	RES 51Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX51R0	ROHM	2
R4,R8,R27,R28	RES 0Ω J(±5%) 1608 0.1W 50V SMD	MCR03EZPJ000	ROHM	4
R5,R6	RES 51Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX51R0	ROHM	2
R7	RES 100kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1003	ROHM	1
R10,R15	RES 2.2kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX2201	ROHM	2
R11,R13,R21,R23	RES 20Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX20R0	ROHM	4
R12,R22	RES 300Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX3000	ROHM	2
R14	RES 100kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1003	ROHM	1
R26	RES 10kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1002	ROHM	1
R29,R32	RES 2.7kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX2701	ROHM	2
R30	RES 3.9kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX3901	ROHM	1
R31	RES 15kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX1502	ROHM	1
R34	RES 4.7kΩ F(±1%) 3216 0.25W 200V SMD	MCR18EZPF4701	ROHM	1
R35,R36	RES 10Ω FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX10R0	ROHM	2
R37,R38	RES 430kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4303	ROHM	2
TR1	TRANSFORMER Bobbin:EP7-8pin Core:EP7 SMD	750310022	Würth Elektronik	1

[SJ-MOS Board]

Part Reference	Description	Part Number	Manufacture	Qty.
C1,C2	CAP CER T.B.DF - -Vdc - - SMD	NON-1608	-	0
HS1	HEAT SINK 11.5-5.9°C/W 33×37.5mm T:10mm SMT	SK40037.5AL	Fischer elektronik	1
Q1,Q2,Q3,Q4	-	NON-TOLL	-	0
Q5,Q6,Q7,Q8	SJ-MOSFET 600V RDS(on)max.=22mΩ in TOLL Package (Under Development)	(Under Development)	ROHM	4

[3pin DCDC Board]

Part Reference	Description	Part Number	Manufacture	Qty.
C1	CAP CER 10μF ±20% 35Vdc X7R 3216 SMD	MSASG31LAB7106MTNB25	Taiyo Yuden	1
C2	CAP CER 0.1μF ±20% 100Vdc X7R 1608 SMD	MSASH168SB7104MTNA01	Taiyo Yuden	1
C3	CAP CER 22μF ±20% 16Vdc X7R 3216 SMD	MSASE31LBB7226MTNA01	Taiyo Yuden	1
IC1	IC DCDC Converter SMD	BD9E105FP4-Z	ROHM	1
L1	COIL 10μH±20% 280mΩ 1.2A φ-mm x 2mm SMD	74438336100	Würth Elektronik	1
R1	RES 47kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX4702	ROHM	1
R2	RES 3.3kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX3301	ROHM	1
R3	RES 6.8kΩ FX(±1%) 1608 0.1W 50V SMD	MCR03EZPFX6801	ROHM	1
CN1	CONNECTOR 3pin 250V AC Inlet C14	61300311021	Würth Elektronik	1

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