



Bill of Materials for the NCL30125 Evaluation Board (5 V - 300 W)

Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed
C1	1	Ceramic capacitor	100 pF	10%, 50 V	0805	Generic	Standard	Yes
C2, C3	2	Y2 capacitor	1 nF	20%, 300 Vac	through-hole	Epcos	B32021A3102M000	Yes
C4, C5	2	Electrolytic capacitor	150 µF	400 V	D18_H40_P7.5	Würth Elektronik	860021381022	No
C6, C7	1	X2 capacitor	470 nF	275 V ac	L15_W10_P12.5	Würth Elektronik	890324024005	No
C9, C10, C11, C12, C13	5	Electrolytic capacitor	2000 µF	10%, 6.3 V	D10_H12.5_P5	Würth Elektronik	870025175013	No
C14	1	Ceramic capacitor	10 nF	10%, 100 V	1206	Generic	Standard	Yes
C15, C26, C27	3	Ceramic capacitor	100 nF	10%, 50 V	0805	Generic	Standard	Yes
C16	1	Y1 capacitor	1 nF	20%, 250 Vac	through-hole	Murata	DE1E3KX102MA4BN01F	Yes
C14	1	Ceramic capacitor	4.7 nF	10%, 100 V	1206	Generic	Standard	Yes
C18, C21, C30	3	Ceramic capacitor	1 nF	10%, 50 V	0805	Generic	Standard	Yes
C19	1	Ceramic capacitor	1.5 nF	10%, 50 V	0805	Generic	Standard	Yes
C20	1	Ceramic capacitor	33 nF	10%, 50 V	0805	Generic	Standard	Yes
C22	1	Ceramic capacitor	22 nF	10%, 50 V	0805	Generic	Standard	Yes
C23, C24	1	Electrolytic capacitor	22 µF	50 V	D6.3_H11_P2	Würth Elektronik	860080672001	No
C25	1	Ceramic capacitor	390 pF	10%, 50 V	0805	Generic	Standard	Yes
C28, C29	2	Electrolytic capacitor	47 µF	50 V	D6.3_H11_P2.5	Würth Elektronik	860010673012	No
CM1	1	Common choke	5 mH	30%, 6 A	through-hole	Würth Elektronik	744825605	No
D1, D4, D10, D13	4	Switching diode	MMSD4148	100 V	SOD-123	ON Semiconductor	MMSD4148	No
D2	1	Zener diode	15 V		SOD-123	ON Semiconductor	Standard	Yes
D3, D9, D14	3	Power rectifiers	MUR160	1 A, 600 V	through-hole	ON Semiconductor	MUR160G	No
D5, D6	2	Power rectifiers	MRA4007	1 A, 1 kV	SMA	ON Semiconductor	MRA4007T3G	No
D8, D17	2	Zener diode	18 V		SOD-123	ON Semiconductor	Standard	Yes
D11, D15	2	Dual switching diode	BAV23CL	400 mA, 250 V	SOT-23	ON Semiconductor	BAV23CL	No
D12	1	Zener diode	12 V		SOD-123	ON Semiconductor	Standard	Yes
D16	1	Schottky diode	BAT54	40 V, 300 mA	SOD-323	Generic	BAT54JFILM	Yes
F1	1	Fuse	5 A, 250 V		through-hole	Generic	0217005.MXP	Yes
HS1	1	Headsink	SK 481 50		through-hole	Fischer Elektronik	SK 481 50	Yes
HS1.1	2	Clips	THFU 2	17.8x10mm		Generic	THFU 2	Yes
HS2	1	Headsink	SWP10	100 mm, black	through-hole	Fischer Elektronik	SWP10	Yes
HS2.1	1	Insulator		100x20mm		Generic	H486A-150-1.0	Yes
HS3	1	Headsink	SK 481 50		through-hole	Fischer Elektronik	SK 481 50	Yes
HS3.1	1	Clips	THFU 2	17.8x10mm		Generic	THFU 2	Yes
IC1	1	Diode Bridge	GSIB1580	15 A, 800 V	through-hole	Vishay	GSIB1580-E3/45	Yes
IC2	1	Primary Controller			SO-16	ON Semiconductor	NCL30125B2	No
IC3	1	Optocoupler	SFH6156-2		SMD-4	Vishay	SFH6156-2T	Yes
IC4	1	Shunt Regulator	NCP431	2.5-36 V, 1-100 mA	SOT-23	ON Semiconductor	NCP431AVSNT1G	No
IC5	1	Sync. Rectification IC	NCP4306		SO-8	ON Semiconductor	NCP4306AADZZADR2G	No
J1	1	Input Connector		10 A, 250 Vac		Generic	GSF1.1201.31	Yes
J2, J3, J4, J5	4	Output Connector			through-hole	Generic	8196	Yes
L1	1	Inductor	2.2 µH	75 A	through-hole	Würth Elektronik	7443763521022	No
L2	1	Inductor	2.2 mH	40 mA	SMD	Würth Elektronik	744045222	No
L3	1	Inductor	820 µH	40 mA	SMD	Würth Elektronik	744045821	No
M1, M8	2	MOSFET	FDPF20N50	20 A, 500 V	TO-220F	ON Semiconductor	FDPF20N50	No
M2, M3, M4	3	MOSFET	NTMFS5C423	150 A, 40 V	SO-8FL	ON Semiconductor	NTMFS5C423	No
M5, M6, M7	3	MOSFET	NTMFS5C410	330 A, 40 V	SO-8FL	ON Semiconductor	NTMFS5C410	No
M9	1	MOSFET	CS1N60	0.8 A, 600 V	TO-252	Generic	CS1N60A4H	Yes
Q1	1	NPN transistor	FMMT493	1 A, 100 V	SOT-23	Diodes	FMMT493TA	No
Q2, Q3	2	NPN transistor	MMBTA06L	500 mA, 60 V	SOT-23	ON Semiconductor	MMBTA06LT1G	No
R1	1	Ceramic Resistor	470 Ω	5%	0805	Generic	Standard	Yes
R2	1	NTC Thermistor	3 Ω	5 A	through-hole	Epcos	B57236S0309M0	Yes
R3, R12, R13, R18, R29	5	Ceramic Resistor	10 Ω	5%	0805	Generic	Standard	Yes
R4, R8, R22, R31	4	Ceramic Resistor	47 kΩ	5%	0805	Generic	Standard	Yes
R5	1	Zener diode	4.3 V		SOD-123	ON Semiconductor	Standard	Yes
R6, R20	2	Ceramic Resistor	4.7 Ω	5%	2512	Generic	Standard	Yes
R7	1	Ceramic Resistor	10 kΩ	5%	0805	Generic	Standard	Yes
R9, R10	2	Ceramic Resistor	2.2 kΩ	5%	0805	Generic	Standard	Yes
R11, R14	2	Ceramic Resistor	3 MΩ	5%	0805	Generic	Standard	Yes
R15	1	Ceramic Resistor	590 Ω	5%	0805	Generic	Standard	Yes
R16	1	Ceramic Resistor	200 kΩ	5%	0805	Generic	Standard	Yes
R17	1	Ceramic Resistor	NC	5%	0805	Generic	Standard	Yes
R19, R30	1	Ceramic Resistor	2.5 kΩ	5%	0805	Generic	Standard	Yes
R6, R17, R20	3	Ceramic Resistor	NC	5%	2512	Generic	Standard	Yes
R21	1	Ceramic Resistor	20 kΩ	5%	0805	Generic	Standard	Yes
R23	1	Ceramic Resistor	100 kΩ	5%	0805	Generic	Standard	Yes
R24	1	Ceramic Resistor	100 Ω	5%	0805	Generic	Standard	Yes
R25	1	NTC, Beta = 4190	100k @ 25°C	5%	through-hole	Vishay	NTCLE100E3104JB0	No
R26, R32	2	Ceramic Resistor	1 kΩ	5%	0805	Generic	Standard	Yes
R27	1	Ceramic Resistor	0.68 Ω	5%, 1 W	2512	Generic	RL2512FK-070R68L	Yes
R28	1	Ceramic Resistor	0.1 Ω	5%, 1 W	2512	Generic	TLM3AER10JTE	Yes
R33	1	Ceramic Resistor	24 kΩ	5%	0805	Generic	Standard	Yes
R34	1	Ceramic Resistor	12 kΩ	5%	0805	Generic	Standard	Yes
R35	1	Ceramic Resistor	43 kΩ	5%	0805	Generic	Standard	Yes
ST1	1	jumper400h			through-hole	Generic	D3082F05	Yes
T1	1	Transformer			through-hole	Würth Elektronik	750317590rev01	No
TP1 to TP19	19	Test point			SMD	Keystone	Keystone 5019	Yes
X1, X2, X3, X4	4	Support à riveter			through-hole	Generic	SFCBS-M4-12M-01	Yes