



Bill of Materials for the NCP1612GEVB Evaluation Board

Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
Power Section									
S1	1	3-wire line socket	-	-	-	-	-	Yes	Yes
S2	1	Vcc socket	-	-	-	-	-	Yes	Yes
HS1	1	Heatsink	-	-	-	COLUMBIA-STAVER	TP207ST,120,12.5,NA,SP,03	No	Yes
F1	1	4-A fuse	4A	250 V	through-hole	Multicomp	MCPEP 4A 250V	No	Yes
C1, C2	2	Y capacitors	1 nF	275 V	through-hole	EPCOS	B32021A3102	No	Yes
C3	1	X2 capacitor	680nF	277V	through-hole	EPCOS	B32672Z5684K	No	Yes
C4	1	X2 capacitor	220nF	277V	through-hole	EPCOS	B32672Z5224K	No	Yes
C5	1	Filtering capacitor	470nF	450V	through-hole	EPCOS	B32592C6474K	No	Yes
C6a, C6b	2	Bulk capacitor	68µF	450 V	through-hole	Rubycon	450QXW68M12.5X40	No	Yes
C7	1	Electrolytic capacitor	22µF	50V	through-hole	Various	Various	Yes	Yes
U1	1	Diodes Bridge	GBU406	4A, 600V	through-hole	LITE-ON	GBU406	No	Yes
L1	1	DM Choke	117µH	75mΩ	through-hole	Pulse Engineering	PH9081NL	No	Yes
CM1	1	Common Mode Filter	8.5mH	85mΩ	through-hole	Pulse Engineering	PH9080NL	No	Yes
L2	1	Boost inductor	200µH	6Apk	through-hole	Würth Elektronik	750370081 (EFD30)	No	Yes
Q1	1	Power MOSFET	IPA50R250	550V	TO220	Infineon	IPA50R250CP	No	Yes
Q2	1	PNP transistor	MMBT589LT1G	30V / 2A	SOT-23	ON Semiconductor	MMBT589LT1G	No	Yes
D1	1	Boost diode	MUR550	5A, 520V	Axial	ON Semiconductor	MUR550APFG	No	Yes
D2	1	Bypass diode	1N5406	3A, 600 V	Axial	ON Semiconductor	1N5406G	No	Yes
DZ2	1	33-V zener diode	MMSZ33T2	33V, 0.5W	SOD-123	ON Semiconductor	MMSZ33T2	No	Yes
Rth1	1	Inrush Current Limiter	15Ω	1.8Amax	through-hole	EPCOS	B57153S0150M000	No	Yes
D3, D4	2	Switching diode	D1N4148	100 V	SOD123	Vishay	1N4148W-V	No	Yes
R1, R2	2	X2 Capacitors discharge resistor	1MΩ	1%, 500V	SMD, 1206	Various	Various	Yes	Yes
R3	1	Current sense resistor	80mΩ	1%, 3W	through-hole	Vishay	LVR03R0800FE12	No	Yes
R4	1	SMD resistor, 1206, 1/4W	10kΩ	10%, 1/4W	SMD, 1206	Various	Various	Yes	Yes
R5	1	SMD resistor, 1206, 1/4W	2.2Ω	10%, 1/4W	SMD, 1206	Various	Various	Yes	Yes
R6	1	SMD resistor, 1206, 1/4W	22Ω	10%, 1/4W	SMD, 1206	Various	Various	No	Yes
Control Section									
R7	1	SMD resistor, 1206, 1/4W	0Ω	1%	SMD, 1206	Various	Various	Yes	Yes
R9, R10, R23, R24, R25, R28, R29	7	SMD resistor, 1206, 1/4W	1.8MΩ	1%	SMD, 1206	Various	Various	Yes	Yes
R8, R22, R27	3	SMD resistor, 1206, 1/4W	560kΩ	1%	SMD, 1206	Various	Various	Yes	Yes
R11, R12, R35	3	SMD resistor, 1206, 1/4W	27kΩ	1%	SMD, 1206	Various	Various	Yes	Yes
R14	1	SMD resistor, 1206, 1/4W	270kΩ	1%	SMD, 1206	Various	Various	Yes	Yes
R13, R15, R16, R17, R32	5	SMD resistor, 1206, 1/4W	120kΩ	1%, 250 V	SMD, 1206	Various	Various	Yes	Yes
R18	1	SMD resistor, 1206, 1/4W	27Ω	0.1	SMD, 1206	Various	Various	Yes	Yes
R20, R21	2	SMD resistor, 1206, 1/4W	4.7kΩ	5%	SMD, 1206	Various	Various	Yes	Yes
R26	1	SMD resistor, 1206, 1/4W	120kΩ	1%	SMD, 1206	Various	Various	Yes	Yes
R33	1	SMD resistor, 1206, 1/4W	39kΩ	1%	SMD, 1207	Various	Various	Yes	Yes
C8, C17	2	Capacitor	1nF	25V, 10%	SMD, 1206	Various	Various	Yes	Yes
C9	1	Capacitor	2.2µF	25V, 10%	SMD, 1206	Various	Various	Yes	Yes
C10, C11, C15	3	Capacitor	220nF	25V, 10%	SMD, 1206	Various	Various	Yes	Yes
C16	1	Capacitor	470pF	25V, 10%	SMD, 1206	Various	Various	Yes	Yes
C13, C18	2	Capacitor	10nF	100V, 10%	SMD, 1206	Various	Various	Yes	Yes
D5, D6	2	Switching diode	D1N4148	100 V	SOD123	Vishay	1N4148W-V	No	Yes
DZ1	1	22-V zener diode	MMSZ22T1	22V, 0.5W	SOD-123	ON Semiconductor	MMSZ22T1	No	Yes
Q	1	PFC Controller	NCP1612	-	SOIC-8	ON Semiconductor	NCP1612B	No	Yes

Notes:

*R19, R31, Q3, C12 and C14 are not connected

*S3, S4, S6: not connected

*S2, S5 shorted

*Applications require the use of Y1 capacitors. In this case, CD12-E2GA102MYNSA from TDK or DE1E3KX102MA5B01 from muRata may be a good option for C1 and C2.