

Bill of Materials for the NCV Evaluation Board

Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
C1 - C4, C35, C36	6	Capacitor, Ceramic, X7R	2.2 uF, 100 V	2.2 uF, 100 V	SMD, 1210_AM	Kemet	C1210C225M1RACTU	Yes	Yes
C5	1	Capacitor, Ceramic, X7R	2.2 uF, 50 V	2.2 uF, 50 V	SMD, 1206_AM	Samsung	CL31B225KBHNNNE	Yes	Yes
C6, C7, C13	3	Capacitor, Ceramic, X7R	10 nF, 50 V	10 nF, 50 V	SMD, 0603_AM	Yageo	CC0603KRX7R9BB103	Yes	Yes
C8	1	Capacitor, Ceramic, X7R	22 nF, 50 V	22 nF, 50 V	SMD, 0603_AM	Yageo	CC0603KRX7R9BB223	Yes	Yes
C9	1	Capacitor, Ceramic, X7R	1 nF, 50 V	1 nF, 50 V	SMD, 0603_AM	Yageo	CC0603KRX7R9BB102	Yes	Yes
C10	1	Capacitor, Ceramic, COG	100 pF, 50 V	100 pF, 50 V	SMD, 0603_AM	Yageo	CC0603JRNPO9BN101	Yes	Yes
C11	1	Capacitor, Ceramic, X7R	4.7 uF, 50 V	4.7 uF, 50 V	SMD, 1206_AM	Murata	GRM31CR71H475KA12L	Yes	Yes
C12	1	Capacitor, Ceramic, X7R	6800 pF, 630 V	6800 pF, 630 V	SMD, 0805_AM	Kemet	C0805C682KBRACTU	Yes	Yes
C14 - 16	3	Capacitor, Ceramic, X7R	22 uF, 25 V	22 uF, 25 V	SMD, 1210_AM	Murata	GRM32ER71E226KE15L	Yes	Yes
C17	1	Capacitor, Ceramic, X7R	47 uF, 16 V	47 uF, 16 V	TBD	Panasonic	EEF-CX1C470R	Yes	Yes
C18 - C23, C29	7	REF DES NOT USED	NOT USED	NOT USED					Yes
C24	1	Capacitor, Ceramic, X7R	470 pF, 100 V	470 pF, 100 V	SMD, 0603_AM	Murata	GRM188R72A471KA01D	Yes	Yes
C25, C26, C27, C28	4	DNP	DNP	DNP				No	Yes
C30	1	Capacitor, Ceramic, X7T	0.1 uF, 250 V	0.1 uF, 250 V	SMD, 0805_AM	TDK	C2012X7T2E104K125AA	Yes	Yes
C31, C32, C34	3	REF DES NOT USED	NOT USED	NOT USED					Yes
C33	1	Capacitor, Ceramic, X7R	2.2 uF, 50 V	2.2 uF, 50 V	SMD, 0603_AM	Murata	GRM188R61H225KE11D	Yes	Yes
CT1	1	Current Sense Transformer	1:100; 2 mH	1:100; 2 mH	SMD, 5300_CST_6P	Murata	53100C	Yes	Yes
CY1	1	Capacitor, Ceramic, X7R	1 nF, 250 Vac	1 nF, 250 Vac	SMD, 1808_JD	Johanson Dielectric	502R29W102KV3E-X1Y2-SC	Yes	Yes
D1, D4, D5, D9	4	Diode, Switching	200 V, 0.2 A	200 V, 0.2 A	SMD, SOD-323_Rev3	ON Semiconductor	BAS20HT1G	No	Yes
D2, D7, D12	3	REF DES NOT USED	NOT USED	NOT USED					Yes
D3	1	Diode, Fast recovery	600 V, 1 A	600 V, 1 A	SMD, SMA_2	ON Semiconductor	MURA160T3G	No	Yes
D6	1	Diode, Zener	10 V, 300 mW	10 V, 300 mW	SMD, SOD-323_Rev3	ON Semiconductor	MM3Z10VT1G	No	Yes
D8	1	Diode, Zener	15 V, 300 mW	15 V, 300 mW	SMD, SOD-323_Rev3	ON Semiconductor	MM3Z15VT1G	No	Yes
D10	1	DNP	DNP	DNP				No	Yes
D11	1	Diode, Switching	250 V, 0.2 A, Dual	250 V, 0.2 A, Dual	SMD, SC-88A_2	ON Semiconductor	BAS21DW5T1G	No	Yes
D13	1	Diode, Schottky	100 V, 10 A	100 V, 10 A	SMD, SOIC8_FL5	ON Semiconductor	NTS10100MFST1G	No	Yes
J1, J2	2	Terminal Block, 2 pos, in-line	300 V, 10 A	300 V, 10 A	PC_2POS_3.5MM	Phoenix Contact	1984617	Yes	Yes
L1	1	Power Inductor, Shielded	4.7 uH, 4.5 A	4.7 uH, 4.5 A	IHLP_2020	Vishay	IHLP2020CZER4R7M11	Yes	Yes
M1	1	Transistor, MOSFET, Power	100 V, 50 A	100 V, 50 A	SMD, SOIC8_FL5	ON Semiconductor	NTMFS6B14NT1G	No	Yes
P1 - P5	5	Printed Circuit Pin	8 A	8 A	TH, MM_D1.02mm	Mill-Max	1179-0-00-15-00-00-33-0	Yes	Yes

Q1	1	Transistor, NPN, General Purpose	40 V, 0.6 A	40 V, 0.6 A	SOT-23	ON Semiconductor	MMBT2222ALT1G	No	Yes
R1	1	Resistor, 1/4 W	64.9 kΩ	64.9 kΩ	SMD, 1206_AM	Stackpole	RMCF1206FT64K9	Yes	Yes
R2	1	Resistor, 1/10 W	7.5 kΩ	7.5 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT7K50	Yes	Yes
R3	1	Resistor, 1/8 W	4.99 Ω	4.99 Ω	SMD, 0805_AM	Stackpole	RMCF0805FT4R99	Yes	Yes
R4	1	Resistor, 1/10 W	49.9 kΩ	49.9 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT49K9	Yes	Yes
R5, R11, R15	3	Resistor, 1/10 W	10 Ω	10 Ω	SMD, 0603_AM	Stackpole	RMCF0603FT10R0	Yes	Yes
R6	1	Resistor, 1/10 W	2.2 Ω	2.2 Ω	SMD, 0603_AM	Stackpole	RMCF0603FT2R20	Yes	Yes
R7, R13, R14, R17, R25, R30	6	Resistor 1/10 W	10 kΩ	10 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT10K0	Yes	Yes
R8, R8A	2	Resistor, 1/10 W	0 Ω	0 Ω	SMD, 0603_AM	Stackpole	RMCF0603ZT0R00		Yes
R9	1	Resistor, 1/10 W	750	75000%	SMD, 0603_AM	Stackpole	RMCF0603FT750R	Yes	Yes
R10	1	Resistor, 1/8 W	20 kΩ	20 kΩ	SMD, 1206_AM	Stackpole	RMCF1206FT20K0	Yes	Yes
R12	1	Resistor, 1/10 W	38.3 kΩ	38.3 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT38K3	Yes	Yes
R16	1	Resistor, 1/10 W	2 kΩ	2 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT2K00	Yes	Yes
R18, R18A	2	Resistor, 1/4 W	100 Ω	100 Ω	SMD, 1206_AM	Stackpole	RMCF1206FT100R	Yes	Yes
R19	1	Resistor, 1/10 W	4.99 kΩ	4.99 kΩ	SMD, 0603_AM	Stackpole	RMCF0603FT4K99	Yes	Yes
R20	1	Resistor, 1/10 W	9.31 Ω	9.31 Ω	SMD, 0603_AM	Stackpole	RMCF0603FT9R31	Yes	Yes
R21, R23, R24, R27, R28, R29	6	DNP	DNP	DNP				No	Yes
R22, R26	2	Resistor, 1/10 W	0 Ω	0 Ω	SMD, 0603_AM	Stackpole	RMCF0603ZT0R00	Yes	Yes
R31	1	Resistor, 1/4 W	0 Ω	0 Ω	SMD, 1206_AM	Stackpole	RMCF1206ZT0R00	Yes	Yes
RT1	1	NTC Thermistor	100 kΩ	100 kΩ	SMD, 0805_AM	Vishay	NCTS0805E3104JMT	Yes	Yes
TP1 - 5, 9 - 11	8	Testpoint, Red, 40 mil			MM, D1.02MM	Keystone Electronics	5000	Yes	Yes
TX1	1	Flyback Transformer	12 uH, 6.25 A, Np:Ns = 1:1	12 uH, 6.25 A, Np:Ns = 1:1	SMD, RM6, Custom	Würth Electronics	750316765 REV01	No	Yes
U1	1	PWM Controller			SMD, Micro-10, 3x3 mm	ON Semiconductor	NCP12700BDNR2G	No	Yes
U2	1	Optocoupler	50 mA, 80-160%	50 mA, 80-160%	SMD, SSOP-4	Fairchild	HMHA2801A	No	Yes
U3	1	Shunt Regulator	36 V, 100 mA	36 V, 100 mA	SOT-23	ON Semiconductor	NCP431AVSNT1G	No	Yes