

Bill of Materials for the NCP1566 5 V/10 A demonstrator - February 2019 - Rev 0.5

ON Semiconductor

11/20/2019

Designator	Quantity	Description	Value	Wiring Status	Rating	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free	Comments
C1	1	MLC capacitor	2.2 µF		100 V	-		Kemet	C1210C225M1RACTU	No		Low ESR
C2	1	MLC capacitor	2.2 µF		100 V	-		Kemet	C1210C225M1RACTU	No		Low ESR
C3	1	MLC capacitor	2.2 µF		100 V	-		Kemet	C1210C225M1RACTU	No		Low ESR
C4	1	MLC capacitor	2.2 µF		100 V	-		Kemet	C1210C225M1RACTU	No		Low ESR
C5	0	Ceramic capacitor	0.1 µF		16 V	20%	805	Generic				Not soldered, replaced by RA
C6	1	Ceramic capacitor	0.1 µF		16 V	20%	805	Generic				
C7	1	Electrolytic Capacitor	22 µF		25 V	-		Generic	EXV226M035A9DAA	No		
C8	1	Ceramic capacitor	0.1 µF		16 V	20%	805	Generic				
C9	1	Ceramic capacitor	0.1 µF		16 V	20%	805	Generic				
C10	1	Ceramic capacitor	100 pF		16 V	20%	805	Generic				
C11	1	Ceramic capacitor	100 pF		16 V	20%	805	Generic				
C12	1	Ceramic capacitor	6.8 nF		16 V	20%	805	Generic				
C13	1	Ceramic capacitor	0.1 µF		16 V	20%	805	Generic				
C14	1	Ceramic capacitor	47 nF		16 V	20%	805	Generic				
C15	1	Ceramic capacitor	0.22 µF		25 V	20%	805	Generic				
C16	1	Ceramic capacitor	10 nF		16 V	20%	805	Generic				
C17	1	Tantalum capacitor	220 µF		10 V	-		Kemet	T520Y227M010ATE040	No		Low ESR
C18	1	Tantalum capacitor	220 µF		10 V	-		Kemet	T520Y227M010ATE040	No		Low ESR
C19	1	Tantalum capacitor	220 µF		10 V	-		Kemet	T520Y227M010ATE040	No		Low ESR
C20	1	Tantalum capacitor	220 µF		10 V	-		Kemet	T520Y227M010ATE040	No		Low ESR
C21	1	Tantalum capacitor	220 µF		10 V	-		Kemet	T520Y227M010ATE040	No		Low ESR
C22	1	Electrolytic Capacitor	22 µF		25 V	-		Generic	EXV226M035A9DAA	No		
C23	0	Ceramic capacitor	-	open	16 V	-		Generic				
C24	1	Capacitor	820 pF		100 V	20%	805	Generic				
C25	1	Capacitor	0.33 µF		16 V	20%	805	Generic				
C26	1	MLC capacitor	0.1 µF		200 V	-	2220	Kemet	C2220X104K2RACTU	No		
C27	1	Capacitor - Y type	2.2 nF		2 kV	-	1812	TDK	C4532X7R3D222K	No		
C28	1	Ceramic capacitor	10 nF		16 V	20%	805	Generic				
C29	0	Ceramic capacitor	-	open	-	-	-	-	-	-	-	-
C30	1	Ceramic capacitor	220 pF		-	20%	0805	Generic				
C31	0	Ceramic capacitor	1 µF	open	25 V	20%		Generic				
C32	1	Ceramic capacitor	1.5 nF		16 V	20%		Generic				
C33	0	Ceramic capacitor	-	open	-	-	-	-	-	-	-	-
C34	1	Ceramic capacitor	470 pF		-	-	-	Generic				
C39	0	Ceramic capacitor	0.1 µF	open	-	20%	805	Generic				
C40	1	MLC capacitor	0.1 µF		100 V	20%	805					
C100	1	Ceramic capacitor	1 nF		30 V	20%	805	Generic				
C101	1	Ceramic capacitor	1 nF		30 V	20%	805	Generic				
C104	1	Ceramic capacitor	0.1 µF		25 V	20%	805	Generic				
RA	1	Resistor	2.7k		-	20%	805	Generic				Soldered as a replacement for C5
R1	1	Resistor	51k		0.25 W	1%	0805	Generic				
R2	1	Resistor	10		0.25 W	1%	0805	Generic				
R3	1	Resistor	82 k		0.25 W	1%	0805	Generic				
R4	1	Resistor	2 k		0.25 W	1%	0805	Generic				
R5	1	Resistor	51.1 k		0.25 W	1%	0805	Generic				
R6	1	NTC	33 k@25 °C		-	1%	0603	AVX	NB 21 M 0 0333			
R7	1	Resistor	75m		2 W	0.5%	2512	Generic	MCLR12FTDSR075	No		Rsense
R8	1	Resistor	75 k		0.25 W	1%	0805	Generic				
R9	1	Resistor	100 k		0.25 W	1%	0805	Generic				
R10	1	Resistor	470		0.25 W	1%	0805	Generic				
R11	1	Resistor	499		0.25 W	1%	0805	Generic				
R12	1	Resistor	220		0.25 W	1%	0805	Generic				
R13	1	Resistor	270		0.25 W	1%	0805	Generic				

R14	1	Resistor	24.9 k		0.25 W	1%	0805	Generic				
R15	1	Resistor	0	short	0.25 W	1%	0805	Generic				
R16	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R17	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R18	1	Resistor	48.7 k		0.25 W	1%	0805	Generic				
R19	1	Resistor	1 Meg		0.25 W	5%	0805	Generic				
R20	1	Resistor	1.1 k		0.25 W		0805	Generic				
R21	1	Resistor	1.2 k		0.25 W	1%	0805	Generic				
R22	0	Resistor	-	open	0.25 W	1%	0805	Generic				
R23a	1	Resistor	2.2		0.25 W	1%	0805	Generic				
R23b	1	Resistor	2.2		0.25 W	1%	0805	Generic				
R24a	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R24b	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R25a	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R25b	1	Resistor	10 k		0.25 W	1%	0805	Generic				
R26	1	Resistor	1 k		0.25 W	1%	0805	Generic				
R27	1	Resistor	0	short			0805	Generic				
R29a	1	Resistor	2.2		0.25 W	1%	0805	Generic				
R29b	1	Resistor	2.2		0.25 W	1%	0805	Generic				
R30	1	Resistor	24.9 k		0.25 W	1%	0805	Generic				
R31	1	Resistor	23.7 k		0.25 W	1%	0805	Generic				
R34	1	Resistor	499		0.25 W	1%	0805	Generic				
R35	0	Resistor	-	open	0.25 W		0805	Generic				
R36	1	Resistor	499		0.25 W	1%	0805	Generic				
R37	1	Resistor	499		0.25 W	1%	0805	Generic				
R38	1	Resistor	1.2 k		0.25 W	1%	0805	Generic				
R39	1	Resistor	4.7		1 W	1%	2512	Generic	ASC2512-4R7FT4			Welwyn
R40	1	Resistor	4.7		1 W	1%	2512	Generic	ASC2512-4R7FT4			Welwyn
R41	1	Resistor	0	short	0.25 W	1%	0805	Generic				
R42	0	Resistor	150	open	0.25 W	1%	0805	Generic				
R43	1	Resistor	1k		0.25 W	1%	0805	Generic				
R44	1	Resistor	1k		0.25 W	1%	0805	Generic				
R45	1	Resistor	10		0.25 W - 100 V	1%	0805	Generic				
R47	1	Resistor	220		0.25 W	1%	0805	Generic				
R60	1	Resistor	470		0.25 W	1%	0808	Generic				
R100	1	Resistor	2.2		0.5 W	1%	1206	Generic				
R101	1	Resistor	2.2		0.5 W	1%	1206	Generic				
R102	1	Resistor	10k		0.25 W	1%	0805	Generic				
R103	0	Resistor	-	open								
L1	1	Inductor	1.5 µH		7.5 A			Coilcraft	MSS1038-152NL	No		
L2	1	Inductor	3.3 µH		15 A			Champs Technology	PQL2050-3R3-22	No		
L3	1	Inductor	660 µH		2.3 A			Coilcraft	DO1606CT-684	No		
T1	1	Transformer	-		75 W			Champs Technology	G45R2-0902-04-80R	No		
J1a	1	Banana plug	-		24 A			Hirschmann	973582101			Red
J1b	1	Banana plug	-		24 A			Hirschmann	973582100			Black
J2a	1	30 A PC screw	-		30 A			Keystone	CAT. NO. 8199			
J2b	1	30 A PC screw	-		30 A			Keystone	CAT. NO. 8199			
Q1A	1	N-channel MOSFET	FDMS2572		150 V/27 A		Power 56	Fairchild	FDMS2572	No		
Q1B	1	N-channel MOSFET	FDMS2572		150 V/27 A		Power 56	Fairchild	FDMS2572	No		
Q2	1	P-channel MOSFET	IRF6217		150 V/0.7 A		SO-8	International Rectifier	IRF6217	No		
Q3	1	N-channel MOSFET	NTMFS4982NF		30 V/207 A		SO-8FL	ON Semiconductor	NTMFS4982NFT1G	NTMFS4983NF		
Q4	1	N-channel MOSFET	NTMFS4982NF		30 V/207 A		SO-8FL	ON Semiconductor	NTMFS4982NFT1G	NTMFS4983NF		
Q5	1	N-channel MOSFET	NTMFS4982NF		30 V/207 A		SO-8FL	ON Semiconductor	NTMFS4982NFT1G	NTMFS4983NF		
Q6	1	N-channel MOSFET	NTMFS4982NF		30 V/207 A		SO-8FL	ON Semiconductor	NTMFS4982NFT1G	NTMFS4983NF		
Q7	1	Bipolar transistor	MMBT2222A					ON Semiconductor				
Q8	1	Bipolar transistor	MMBT2222A					ON Semiconductor				
U1	1	PWM Controller	NCP1566					ON Semiconductor		No		
U2	1	optocoupler	PS2801					CEL	PS2801-1	No		
U6	1	optocoupler	PS2801					CEL	PS2801-1	No		
U8	1	shunt regulator	NCP431				SOT-23	ON Semiconductor	NCP431ACSNT1G	No		SOT-23
U9	1	shunt regulator	NCP431				SOT-23	ON Semiconductor	NCP431ACSNT1G	No		SOT-23
DA	1	signal diode	MMSD914				SOD-123					Soldered in replacement of R26, cath. to R60
D1	1	signal diode	MMSD914				SOD-123					
D2	1	signal diode	MMSD914				SOD-123					
D3	1	signal diode	MMSD914				SOD-123					
D4	1	signal diode	MMSD914				SOD-123					
D5	1	Zener diode	MMSZ4693		7.5 V		SOD-123					

D6	1	Zener diode	MMSZ4689		5.1 V		SOD-123					
D7	1	signal diode	MMSD914				SOD-123					
D10	0	Zener diode	MMSZ4702T1G	open	15 V		SOD-123					