B.17 MSP-TS430RGC64B

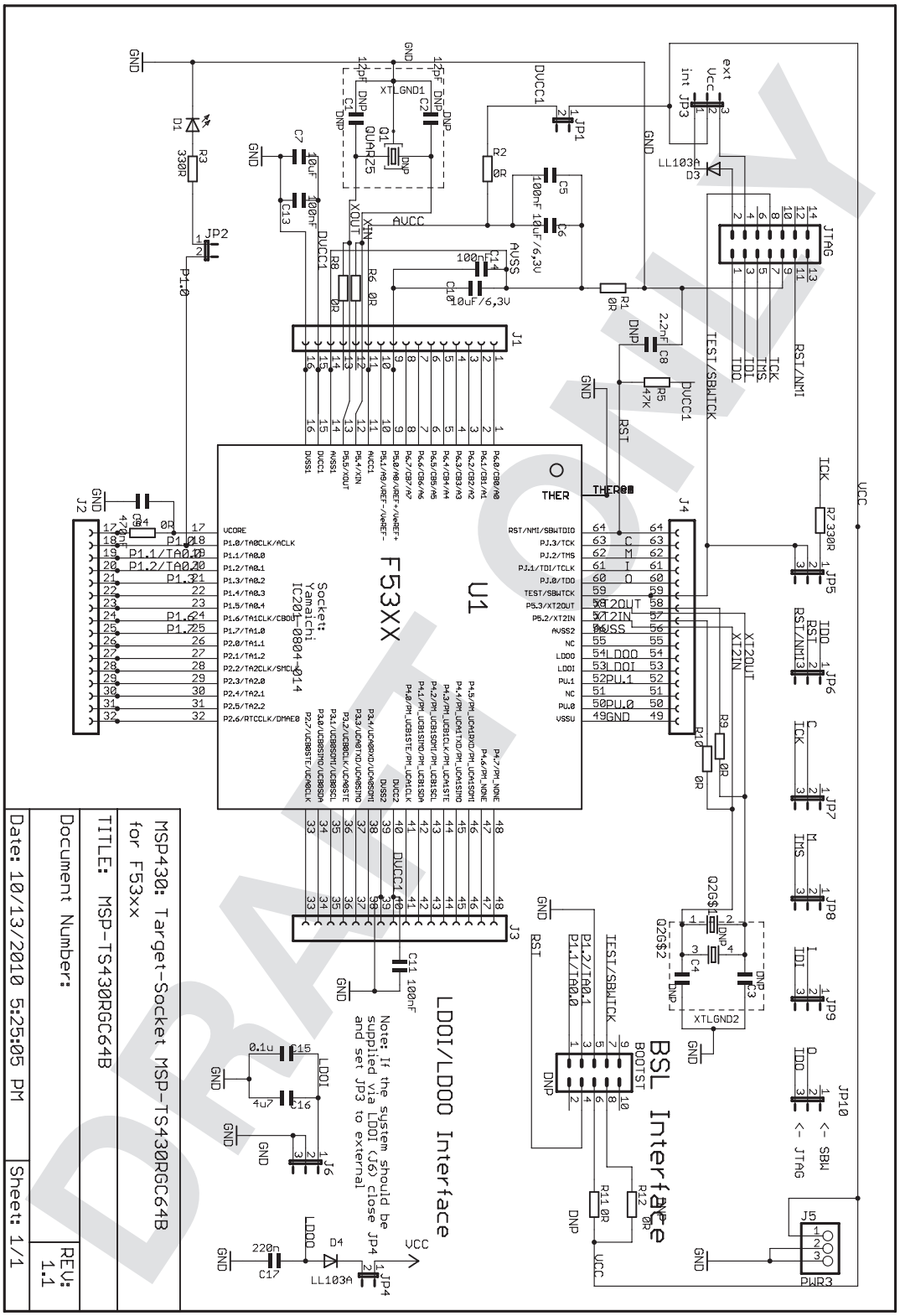


Figure B-33. MSP-TS430RGC64B Target Socket Module, Schematic

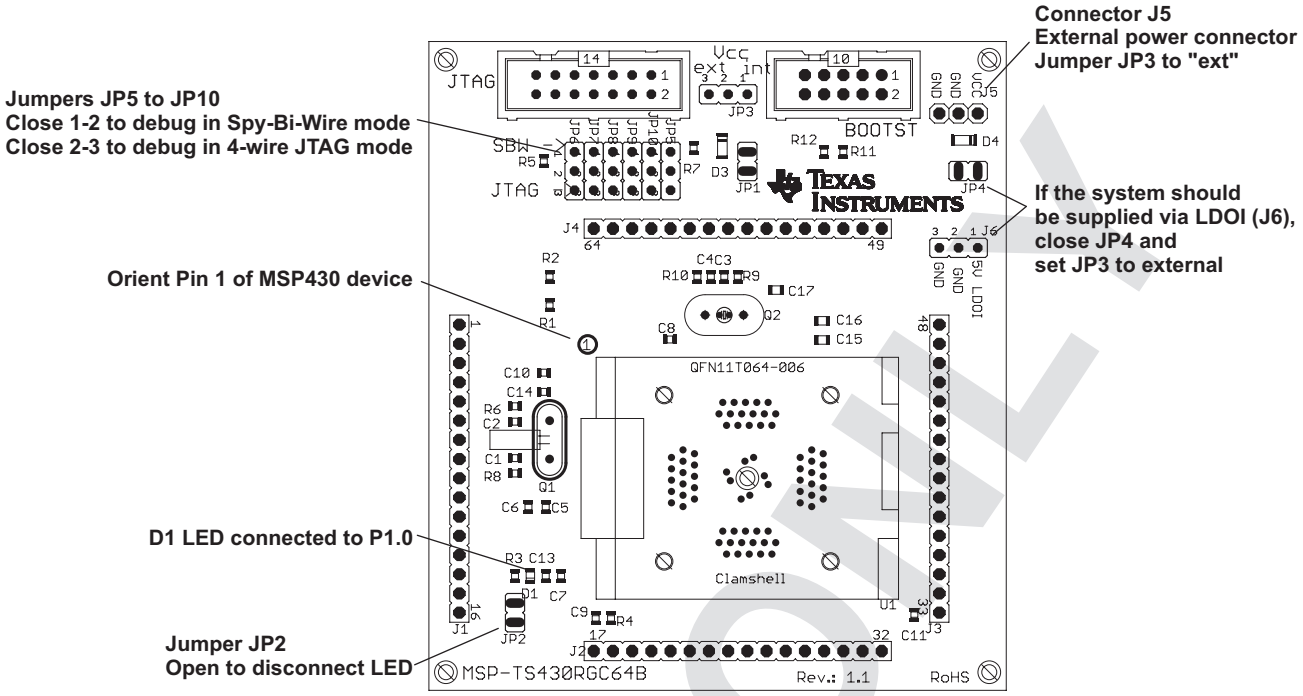


Figure B-34. MSP-TS430RGC64B Target Socket Module, PCB

Table B-18. MSP-TS430RGC64B Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
2	C3, C4	0	47pF, SMD0805		DNP
3	C6, C7, C10	3	10uF/6.3V, SMD0805		
4	C5, C11, C13, C14, C15	5	100nF, SMD0805	311-1245-2-ND	
5	C8	1	2.2nF, SMD0805		
6	C9	1	470nF, SMD0805	478-1403-2-ND	
7	C16	1	4.7uF, SMD0805		
8	C17	1	220nF, SMD0805		
9	D1	1	green LED, SMD0805	P516TR-ND	
10	J1, J2, J3, J4	0	16-pin header, TH	SAM1029-16-ND (Header) SAM1213-16-ND (Receptacle)	DNP: Headers and receptacles enclosed with kit. Keep vias free of solder:
11	J5 , J6	2	3-pin header, male, TH		
12	JP3, JP5, JP6, JP7, JP8, JP9, JP10	7	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3 on JP5, JP6, JP7, JP8, JP9, JP10 place jumpers on pins 1-2 on JP3,
13	JP1, JP2, JP4	3	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
14		10	Jumper	15-38-1024-ND	See Pos. 12 and Pos. 13
15	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
16	BOOTST	0	10-pin connector, male, TH		"DNP Keep vias free of solder"
17	Q1	0	Crystal	Micro Crystal MS3V-T1R 32.768kHz, C(Load) = 12.5pF	DNP: Q1 Keep vias free of solder
18	Q2	0	Crystal	Q2: 4MHz Buerklin: 78D134	DNP: Q2 Keep vias free of solder
19	Insulating disk to Q2	0	Insulating disk to Q2	http://www.ettinger.de/Art_Detail.cfm?ART_ARTNUM=70.08.121	
20	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
21	R1, R2, R4, R6, R8, R9,R10, R11, R12	3	0 Ohm, SMD0805	541-000ATR-ND	DNP: R6, R8, R9, R10, R11,R12
22	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
23	U1	1	Socket: QFN11T064-006-N-HSP		Manuf.: Yamaichi
24	PCB	1	85 x 76 mm		2 layers
25	Adhesive plastic feet	4	about 6mm width, 2mm height	for example, 3M Bumpons Part No. SJ-5302	Apply to corners at bottom side
26	D3,D4				
27	MSP430	2	MSP430F5310 RGC		DNP: enclosed with kit, supplied by TI

B.18 MSP-TS430RGC64C

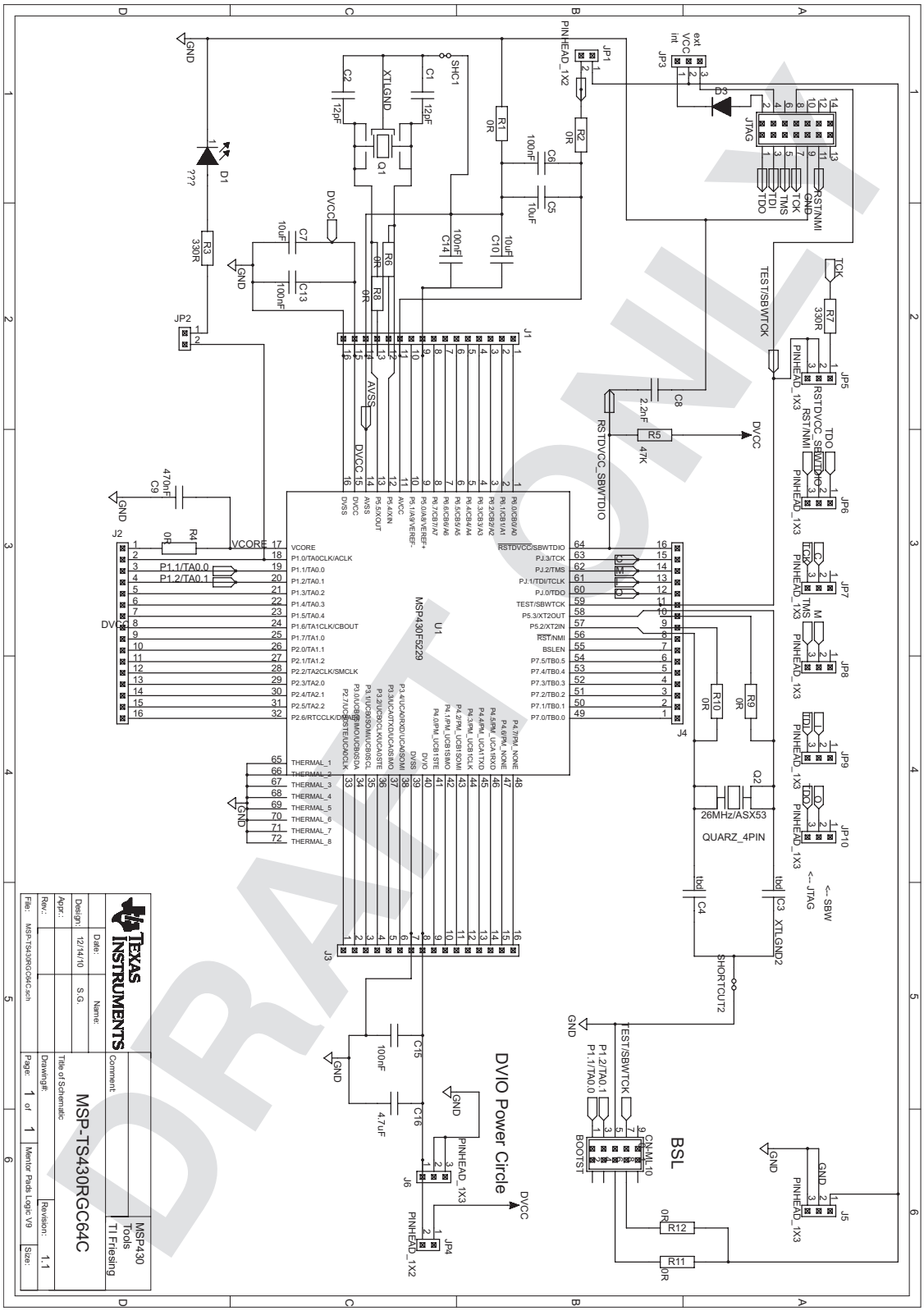


Figure B-35. MSP-TS430RGC64C Target Socket Module, Schematic

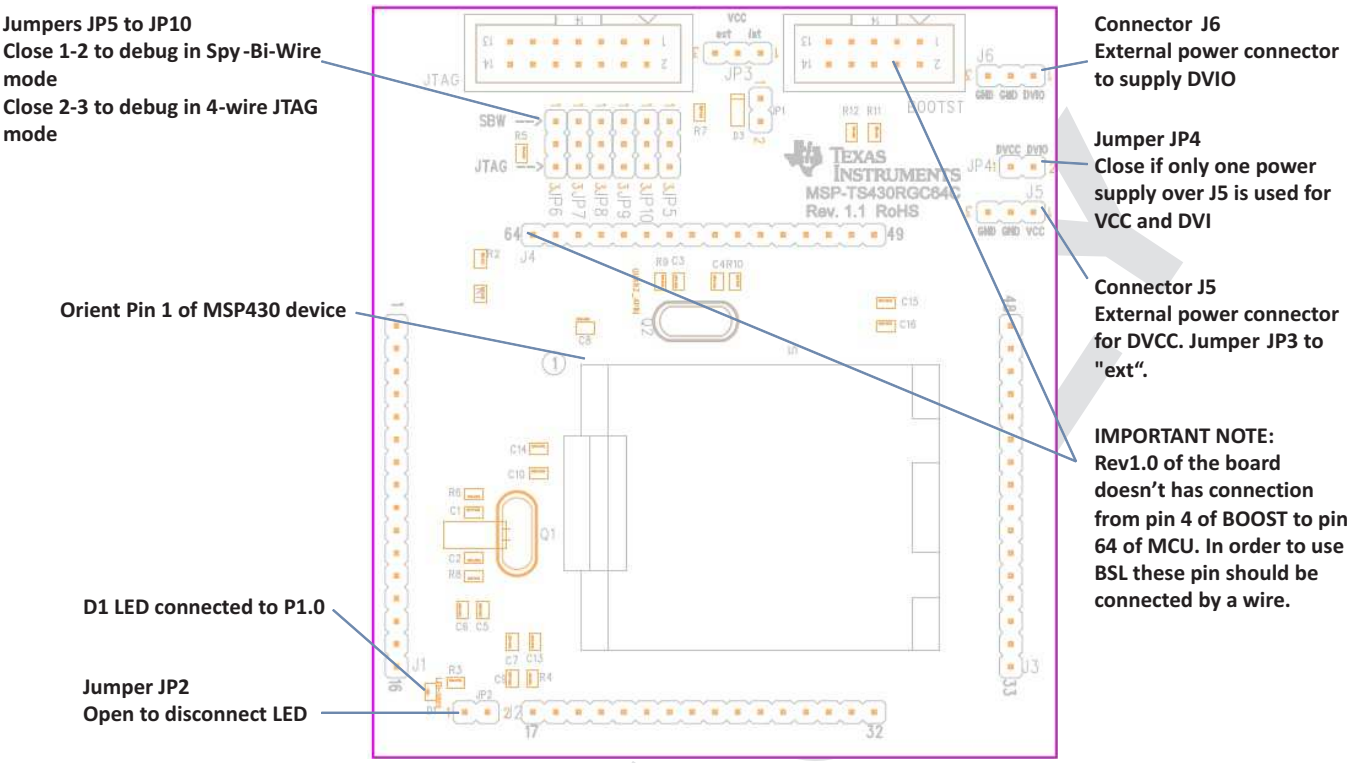


Figure B-36. MSP-TS430RGC64C Target Socket Module, PCB

Table B-19. MSP-TS430RGC64C Bill of Materials

Item	Qty	Reference	Value	Description	Comment	Supplier No.
1	0	C1, C2	12pF	CAP, SMD, Ceramic, 0805	DNP C1 C2	
2	0	C3, C4	tbd	CAP, SMD, Ceramic, 0805	DNP C3 C4	
4	3	C5, C7, C10	10uF	CAP, SMD, Ceramic, 0805		
5	5	C8 C6 C13-15	100nF	CAP, SMD, Ceramic, 0805		DigiKey: 311-1245-2-ND
5	5	C8	2.2nF	CAP, SMD, Ceramic, 0805		
6	1	C9	470nF	CAP, SMD, Ceramic, 0805		DigiKey: 478-1403-2-ND
7	1	C16	4.7uF	CAP, SMD, Ceramic, 0805		
8	1	D1	Green LED	LED, SMD, 0805		
9	4	J1-J4	16-pin header	Pinheader 1x16: Grid: 100mil / 2.54 mm	DNP: headers and receptacles enclosed with kit. Keep vias free of solder. : Header : Receptacle	 SAM1029-16-ND SAM1213-16-ND
10	2	J5, J6	3-pin header, male, TH	Pinheader 1x3: Grid: 100mil / 2.54 mm		SAM1035-03-ND
11		JP5, JP6, JP7, JP8, JP9, JP10	3-pin header, male, TH	Pinheader 1x3: Grid: 100mil / 2.54 mm	place jumpers on pins 2-3	SAM1035-03-ND
12		JP3	3-pin header, male, TH	Pinheader 1x3: Grid: 100mil / 2.54 mm	place jumper on pins 1-2	SAM1035-03-ND
13		JP1, JP2, JP4	2-pin header, male, TH	Pinheader 1x2; Grid: 100mil / 2.54 mm	place jumper on header	SAM1035-02-ND
14	10		Jumper		Place on: JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10	15-38-1024-ND
15	1	JTAG	2x7Pin,Wanne	Header, THD, Male 2x7 Pin, Wanne, 100mil spacing		HRP14H-ND
16	0	BOOTST	2x5Pin,Wanne	Header, THD, Male 2x5 Pin, Wanne, 100mil spacing		DNP
17	1	Q1	26MHz/ASX53	CRYSTAL, SMD, 5x3MM, 26MHz		Only Kit.
18	0	Q2	26MHz/ASX53	CRYSTAL, SMD, 5x3MM, 26MHz		300-8219-1-ND
19	1	D3	LL103A	DIODE, SMD, SOD123, Schottky		Buerklin: 24S3406
20	2	R3, R7	330 Ohm, SMD0805			541-330ATR-ND
21	1	R5	47k Ohm, SMD0805	RES, SMD, 0805, 1/8W, x%		541-47000ATR-ND
22		R1, R2, R4, R6, R8, R9, R10, R11, R12	0 Ohm, SMD0805	RES, SMD, 0805, 1/8W, x%	DNP: R6, R8, R9, R10, R11,R12	541-000ATR-ND
23	1	U1		Socket: QFN11T064-006-N-HSP	Manuf.: Yamaichi	
24	2	MSP430	MSP430F5229IRGCR	IC, MCU, SMD, 9.15x9.15mm Thermal Pad with Socket		
25	4	Rubber stand off	Rubber stand off		apply to corners at bottom side	Buerklin: 20H1724
26	1	PCB	84 x 76 mm	84 x 76 mm		

B.19 MSP-TS430RGC64USB

Due to the use of diodes in the power chain, the voltage on the MSP430F5xx device is approximately 0.3 V lower than is set by the debugging tool. Set the voltage in the IDE to 0.3 V higher than desired; for example, to run the MCU at 3.0 V, set it to 3.3 V.

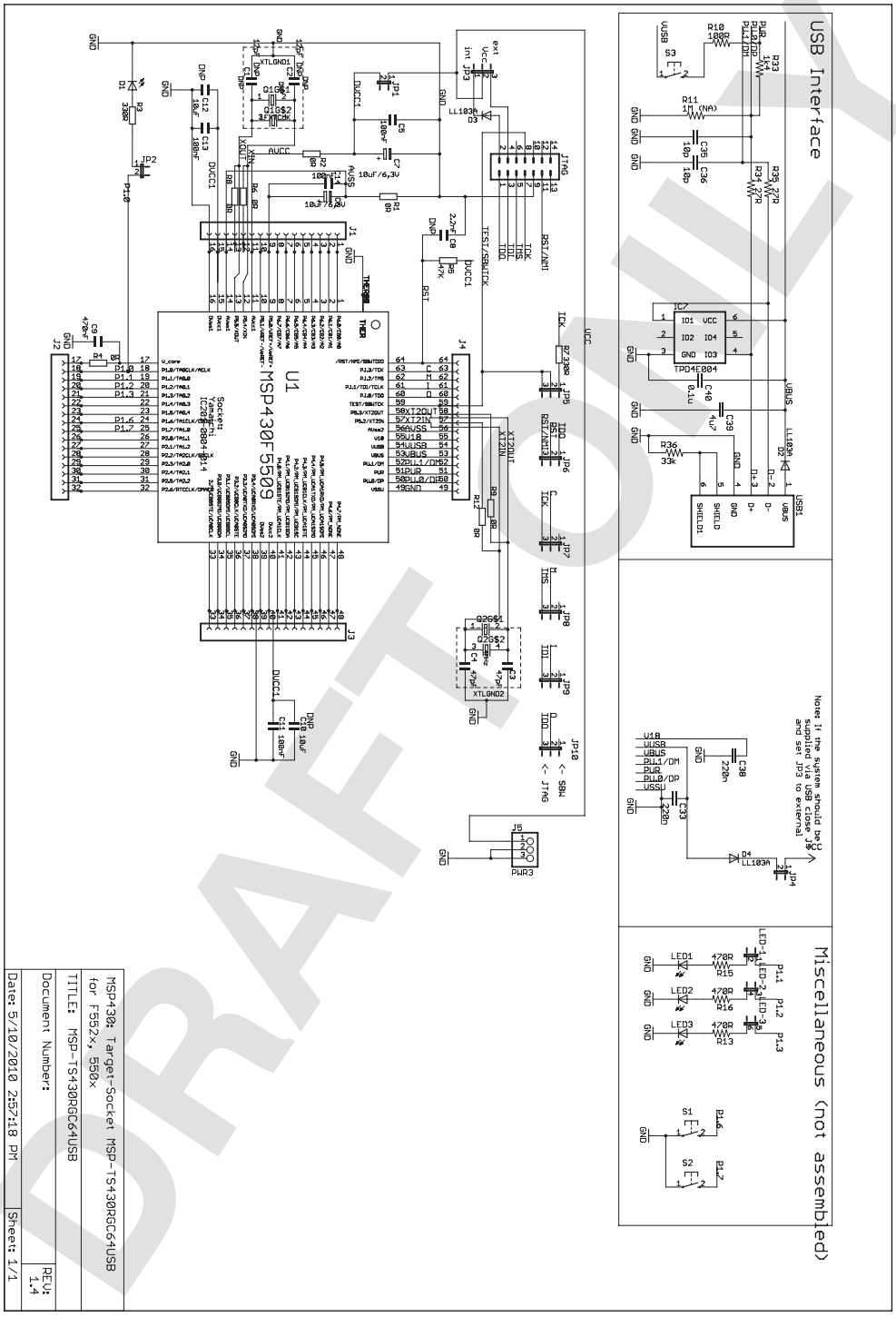


Figure B-37. MSP-TS430RGC64USB Target Socket Module, Schematic

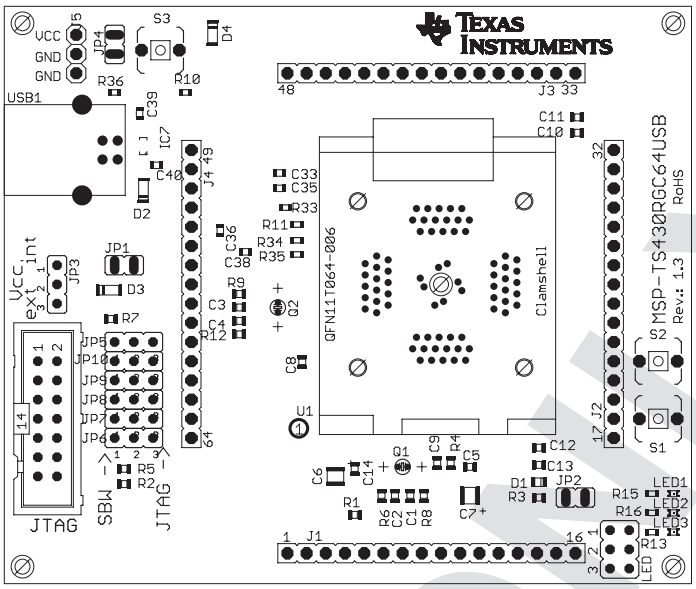


Figure B-38. MSP-TS430RGC64USB Target Socket Module, PCB

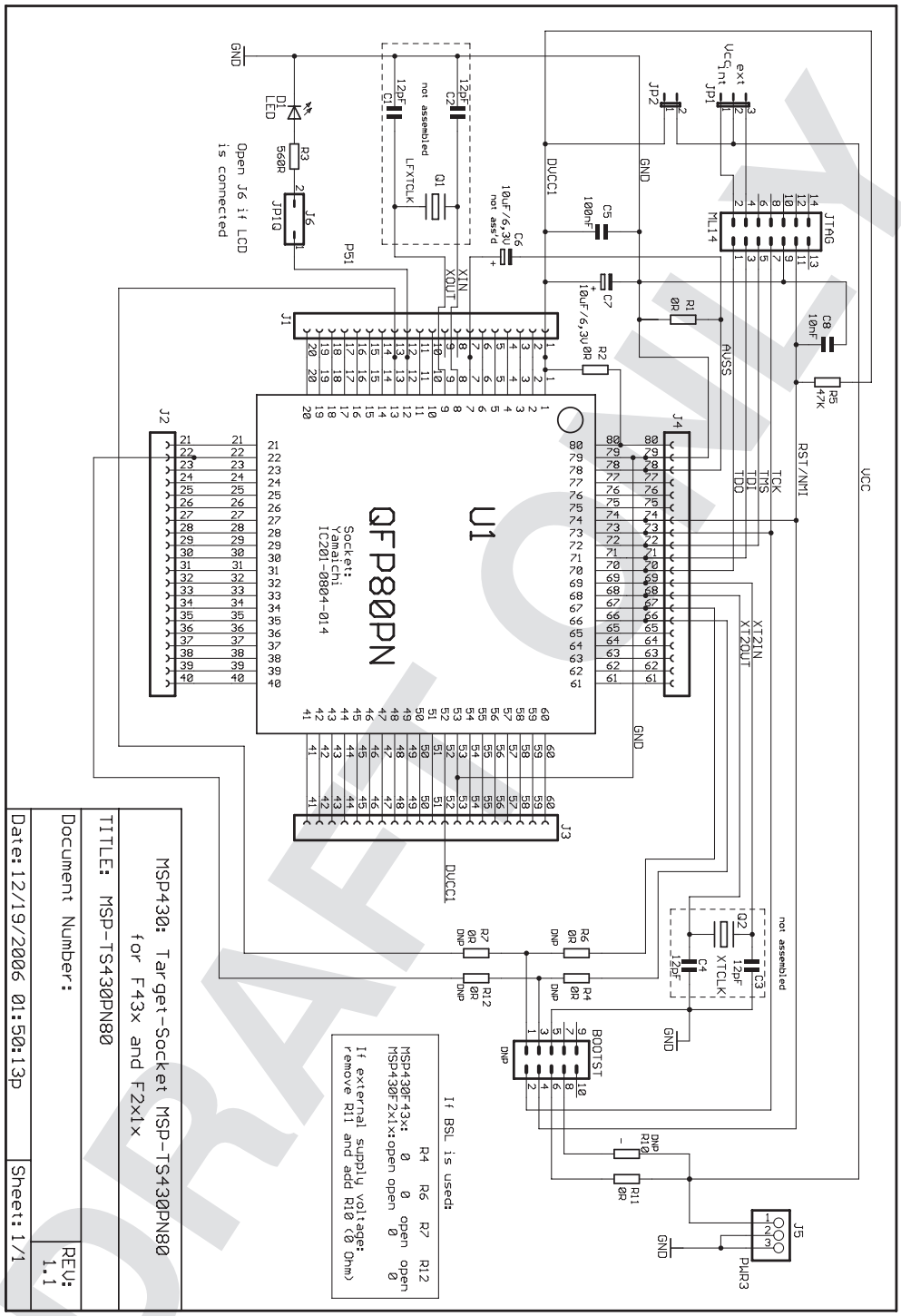
Table B-20. MSP-TS430RGC64USB Bill of Materials

Pos.	Ref Des	No. Per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP: C1, C2
1.1	C3, C4	2	47pF, SMD0805		
2	C6, C7	2	10uF/6.3V, Tantal Size B	511-1463-2-ND	
3	C5, C11, C13, C14	4	100nF, SMD0805	311-1245-2-ND	
3.1	C10, C12	0	10uF, SMD0805		DNP: C10, C12
4	C8	1	2.2nF, SMD0805		
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	green LED, SMD0805	P516TR-ND	
7	J1, J2, J3, J4	4	16-pin header, TH		DNP: headers and receptacles enclosed with kit. Keep vias free of solder.
				SAM1029-16-ND	: Header
				SAM1213-16-ND	: Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
9	JP5, JP6, JP7, JP8, JP9, JP10	6	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3
10	JP1, JP2, JP4	3	2-pin header, male, TH	SAM1035-02-ND	place jumper on header
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	place jumper on pins 1-2
12		10	Jumper	15-38-1024-ND	Place on: JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	Q1	0	Crystal	Q1: Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Q1 Keep vias free of solder"
15	Q2	1	Crystal	Q2: 4MHz Buerklin: 78D134	
16	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
17	R1, R2, R4, R6, R8, R9, R12	2	0 Ω, SMD0805	541-000ATR-ND	DNP: R4, R6, R8, R9, R12
18	R10	1	100 Ω, SMD0805	Buerklin: 07E500	
18	R11	1	1M Ω, SMD0805		
18	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
19	U1	1	Socket: QFN11T064-006		Manuf.: Yamaichi
20	PCB	1	79 x 77 mm		2 layers
21	Rubber stand off	4		Buerklin: 20H1724	apply to corners at bottom side
22	MSP430	2	MSP430F5509 RGC		DNP: enclosed with kit. Is supplied by TI
23	Insulating disk to Q2	1	Insulating disk to Q2	http://www.ettinger.de/Art_Detail.cfm?ART_ARTNUM=70.08.121	
27	C33	1	220n SMD0603	Buerklin: 53D2074	
28	C35	1	10p SMD0603	Buerklin: 56D102	
29	C36	1	10p SMD0603	Buerklin: 56D102	
30	C38	1	220n SMD0603	Buerklin: 53D2074	
31	C39	1	4u7 SMD0603	Buerklin: 53D2086	
32	C40	1	0.1u SMD0603	Buerklin: 53D2068	
33	D2, D3, D4	3	LL103A	Buerklin: 24S3406	

Table B-20. MSP-TS430RGC64USB Bill of Materials (continued)

Pos.	Ref Des	No. Per Board	Description	DigiKey Part No.	Comment
34	IC7	1	TPD4E004		Manu: TI
36	LED	0	JP3QE	SAM1032-03-ND	DNP
37	LED1	0	LEDCHIPLED_0603	FARNELL: 852-9833	DNP
38	LED2	0	LEDCHIPLED_0603	FARNELL: 852-9868	DNP
39	LED3	0	LEDCHIPLED_0603	FARNELL: 852-9841	DNP
40	R13, R15, R16	0	470R	Buerklin: 07E564	DNP
41	R33	1	1k4 / 1k5	Buerklin: 07E612	
42	R34	1	27R	Buerklin: 07E444	
43	R35	1	27R	Buerklin: 07E444	
44	R36	1	33k	Buerklin: 07E740	
45	S1	0	PB	P12225STB-ND	DNP
46	S2	0	PB	P12225STB-ND	DNP
46	S3	1	PB	P12225STB-ND	
47	USB1	1	USB_RECEPTACLE	FARNELL: 117-7885	

B.20 MSP-TS430PN80



NOTE: For MSP430F(G)47x devices:
Connect pins 7 and 10 (GND) externally to DV_{SS} (see data sheet).
Connect load capacitance on V_{ref} pin 60 when SD16 is used (see data sheet).

Figure B-39. MSP-TS430PN80 Target Socket Module, Schematic

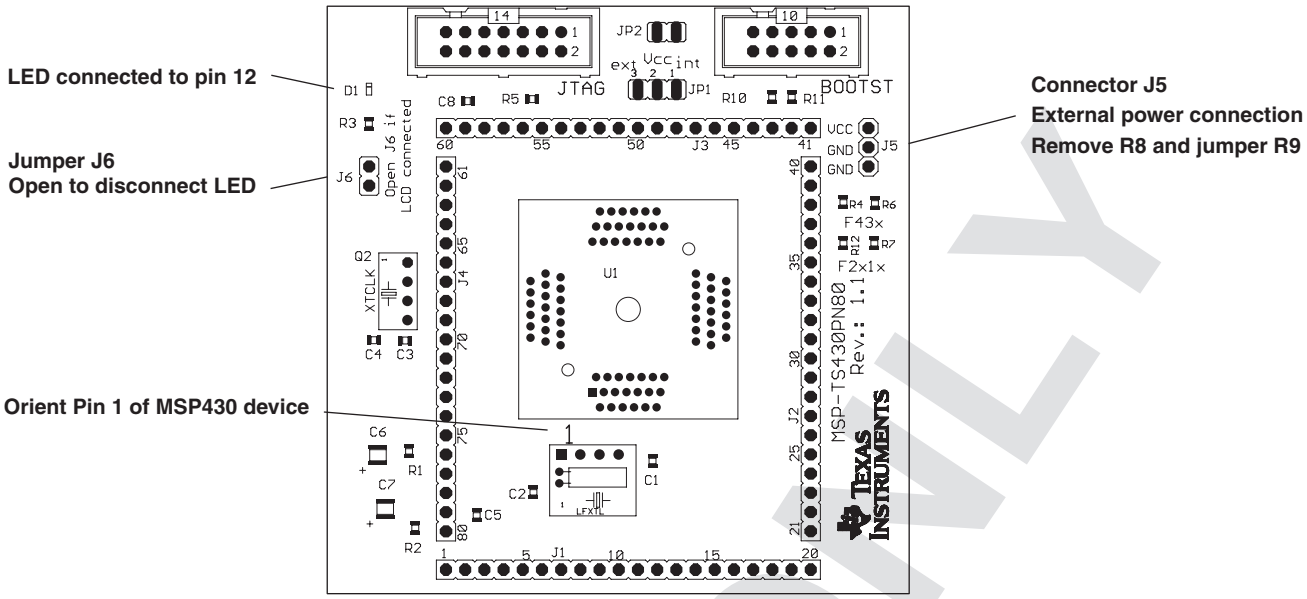


Figure B-40. MSP-TS430PN80 Target Socket Module, PCB

Table B-21. MSP-TS430PN80 Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP: C1, C2
1.1	C3, C4	0	47pF, SMD0805		DNP: Only recommendation. Check your crystal spec.
2	C6, C7	1	10uF/10V, Tantal Size B	511-1463-2-ND	
3	C5	1	100nF, SMD0805	478-3351-2-ND	
4	C8	1	10nF, SMD0805	478-1383-2-ND	
5	D1	1	green LED, SMD0603	475-1056-2-ND	
6	J1, J2, J3, J4	0	25-pin header, TH	SAM1029-20-NDSAM1213-20-ND	DNP: Headers and receptacles enclosed with kit.Keep vias free of solder.: Header: Receptacle
7	J5, JP1	2	3-pin header, male, TH	SAM1035-03-ND	
8	J6, JP2	2	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
9		3	Jumper	15-38-1024-ND	Place on: J6, JP2, JP1/Pos1-2
10	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
11	BOOTST	0	10-pin connector, male, TH		DNP: Keep vias free of solder
12	Q1, Q2	0	Crystal	Q1: Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Keep vias free of solder
13	R3	1	560 Ω, SMD0805	541-560ATR-ND	
14	R1, R2, R4, R6, R7, R10, R11, R12	2	0 Ω, SMD0805	541-000ATR-ND	DNP: R4, R6, R7, R10, R11, R12
15	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
16	U1	1	Socket: IC201-0804-014		Manuf.: Yamaichi
17	PCB	1	77 x 77 mm		2 layers
18	Adhesive Plastic feet	4	~6mm width, 2mm height	for example, 3M Bumpons Part No. SJ-5302	Apply to corners at bottom side
19	MSP430	2	MSP430FG439IPN		DNP: Enclosed with kit supplied by TI

B.21 MSP-TS430PN80A

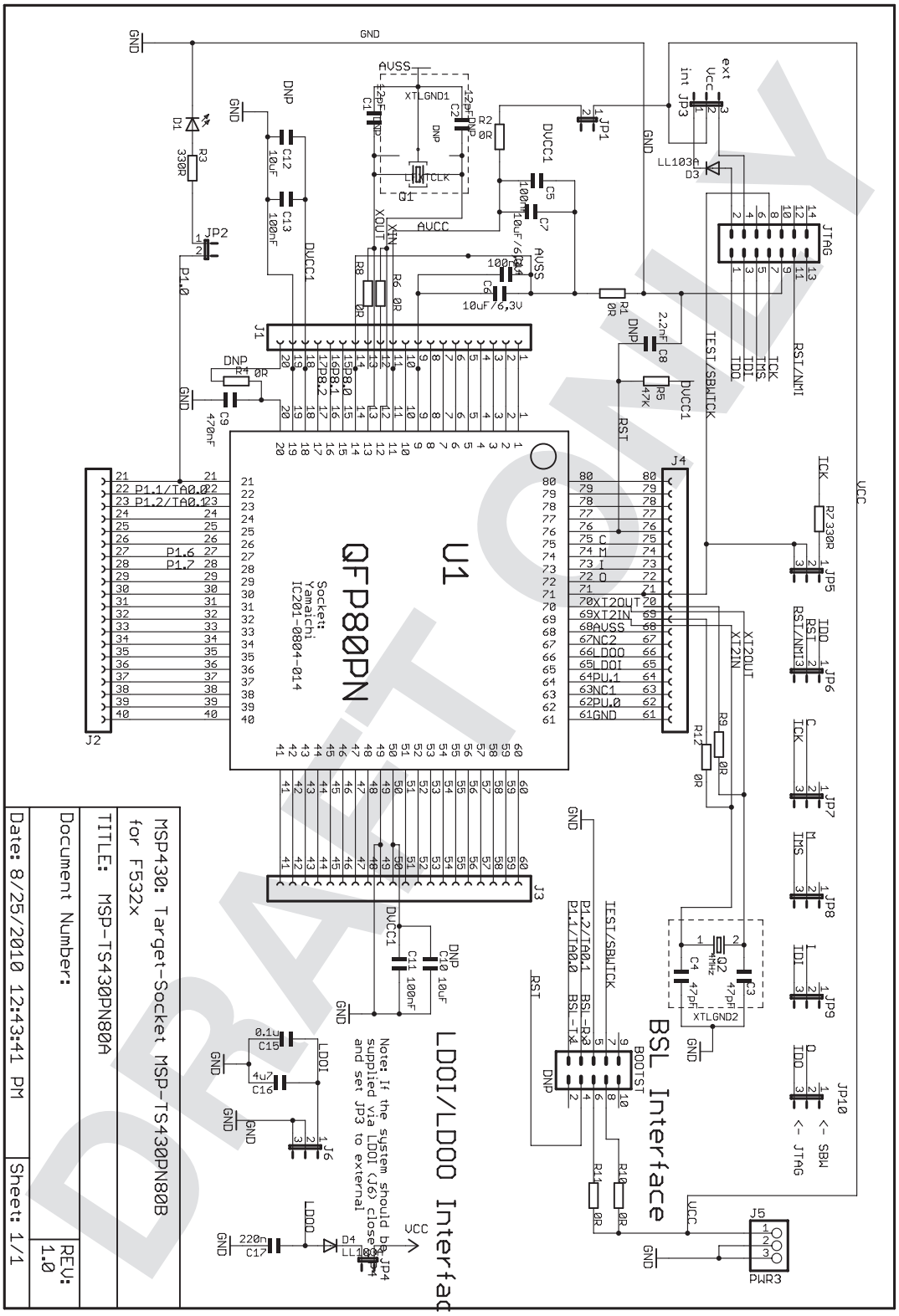


Figure B-41. MSP-TS430PN80A Target Socket Module, Schematic

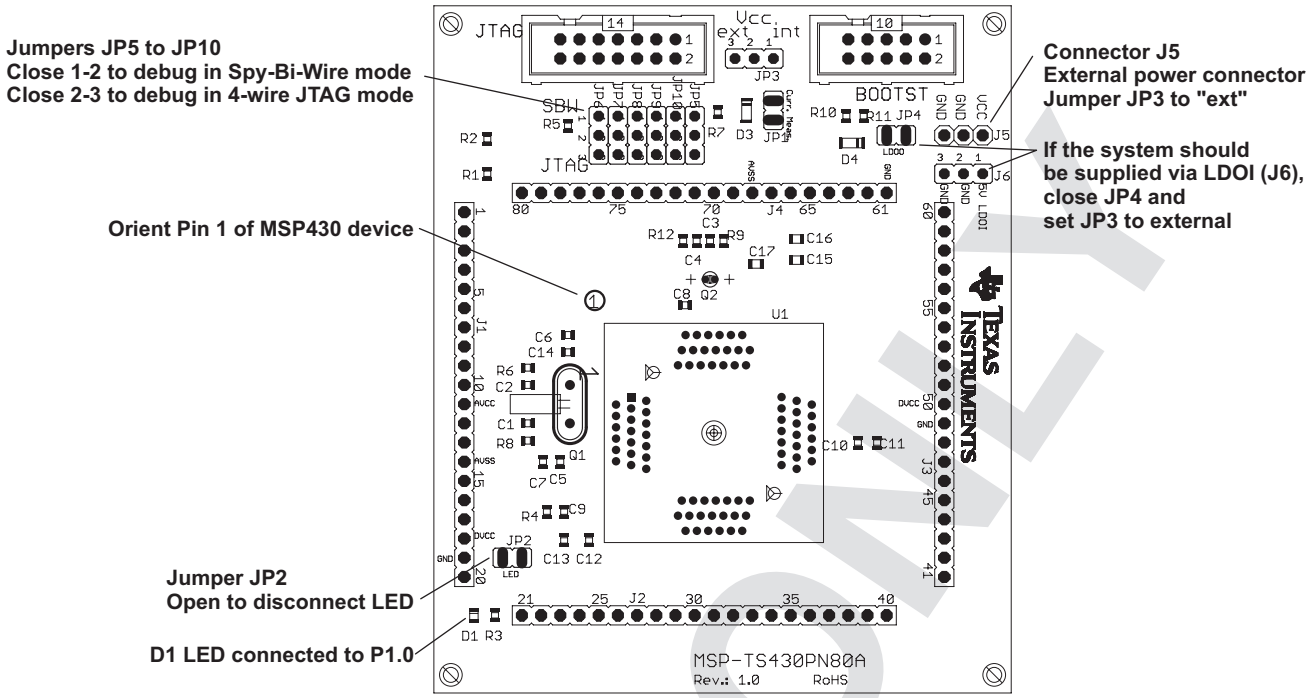


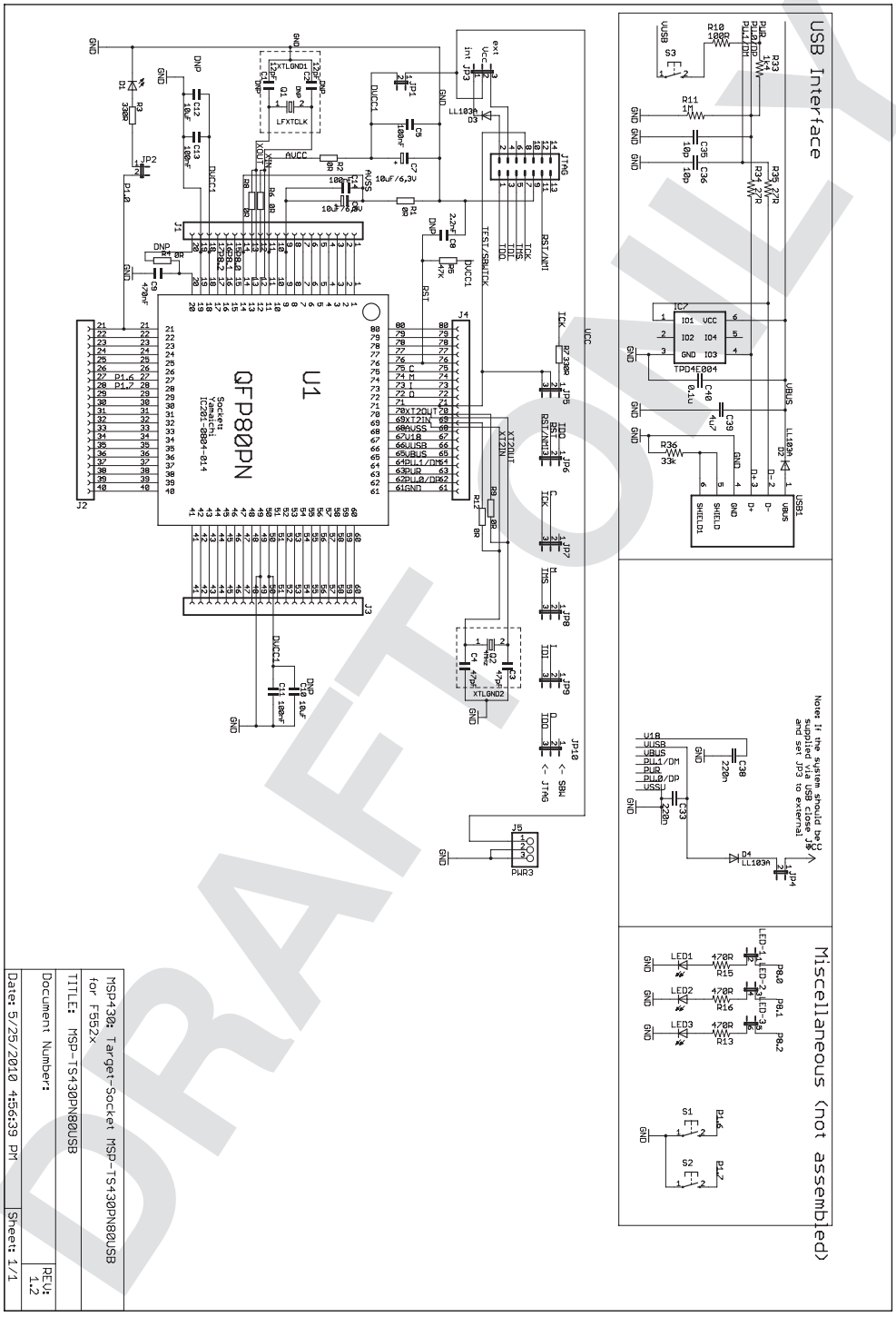
Figure B-42. MSP-TS430PN80A Target Socket Module, PCB

Table B-22. MSP-TS430PN80A Bill of Materials

Position	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
2	C3, C4	0	47pF, SMD0805		DNP
3	C6, C7, C10, C12	3	10uF/6.3V, SMD0805		DNP C10
4	C5, C11, C13, C14, C15	5	100nF, SMD0805	311-1245-2-ND	
5	C8	1	2.2nF, SMD0805		
6	C9	1	470nF, SMD0805	478-1403-2-ND	
7	C16	1	4.7uF, SMD0805		
8	C17	1	220nF, SMD0805		
9	D1	1	green LED, SMD0805	P516TR-ND	
10	J1, J2, J3, J4	0	20-pin header, TH	SAM1029-20-ND (Header) SAM1213-20-ND (Receptacle)	DNP: Headers and receptacles enclosed with kit. Keep vias free of solder:
11	J5 , J6	2	3-pin header, male, TH		
12	JP3, JP5, JP6, JP7, JP8, JP9, JP10	7	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3 on JP5, JP6, JP7, JP8, JP9, JP10 place jumpers on pins 1-2 on JP3,
13	JP1, JP2, JP4	3	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
14		10	Jumper	15-38-1024-ND	See Pos. 12 and Pos. 13
15	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
16	BOOTST	0	10-pin connector, male, TH		"DNP Keep vias free of solder"
17	Q1	0	Crystal	Micro Crystal MS3V-T1R 32.768kHz, C(Load) = 12.5pF	DNP: Q1 Keep vias free of solder
18	Q2	0	Crystal	Q2: 4MHz Buerklin: 78D134	DNP: Q2 Keep vias free of solder
19	Insulating disk to Q2	0	Insulating disk to Q2	http://www.ettinger.de/Art_Detail.cfm?ART_ARTNUM=70.08.121	
20	D3,D4	2	LL103A	Buerklin: 24S3406	
21	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
22	R1, R2, R4, R6, R8, R9,R10, R11, R12	3	0 Ohm, SMD0805	541-000ATR-ND	DNP: R6, R8, R9, R10, R11,R12
23	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
24	U1	1	Socket:IC201-0804-014		Manuf.: Yamaichi
25	PCB	1	77 x 91 mm		2 layers
26	Adhesive plastic feet	4	about 6mm width, 2mm height	for example, 3M Bumpons Part No. SJ-5302	Apply to corners at bottom side
27	MSP430	2	MSP430F5329IPN		DNP: enclosed with kit, supplied by TI

B.22 MSP-TS430PN80USB

Due to the use of diodes in the power chain, the voltage on the MSP430F5xx device is approximately 0.3 V lower than is set by the debugging tool. Set the voltage in the IDE to 0.3 V higher than desired; for example, to run the MCU at 3.0 V, set it to 3.3 V.



NOTE: R11 should be populated.

Figure B-43. MSP-TS430PN80USB Target Socket Module, Schematic

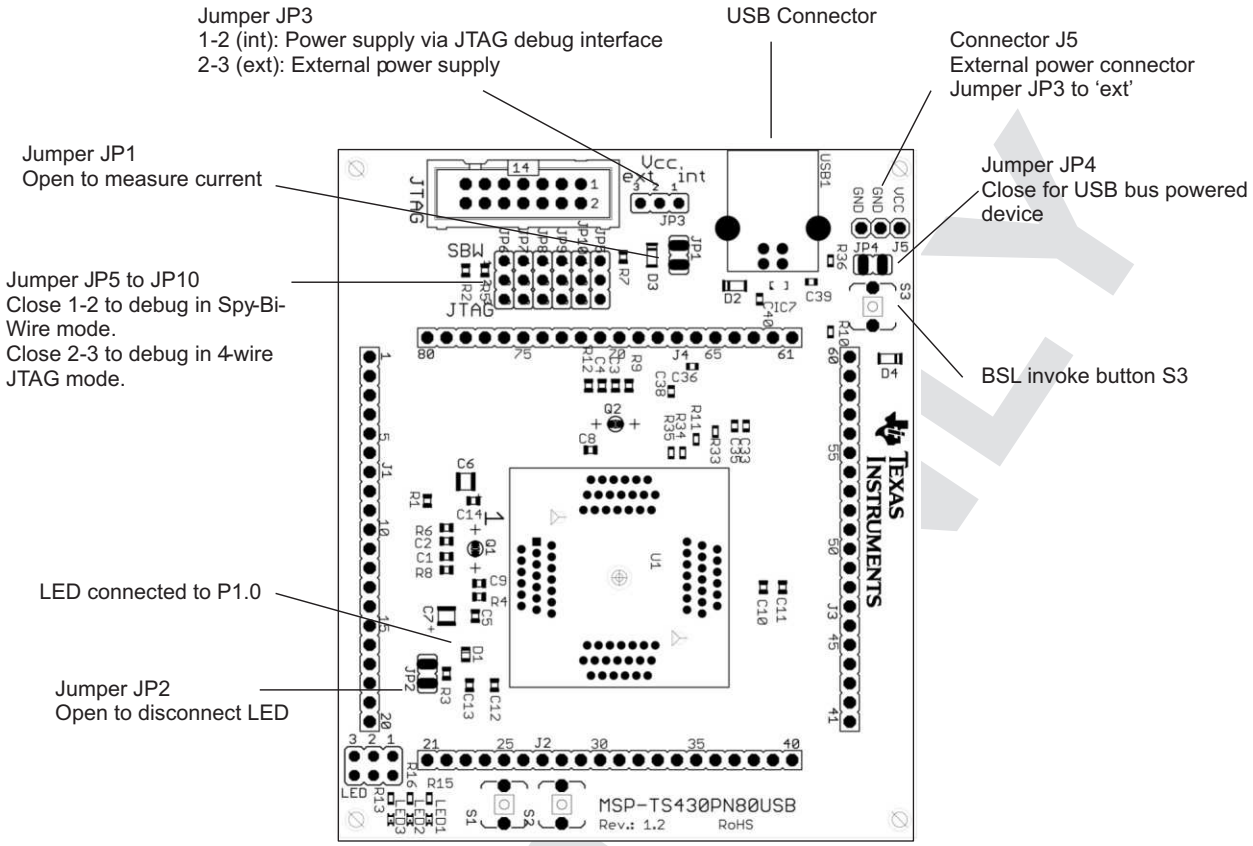


Figure B-44. MSP-TS430PN80USB Target Socket Module, PCB

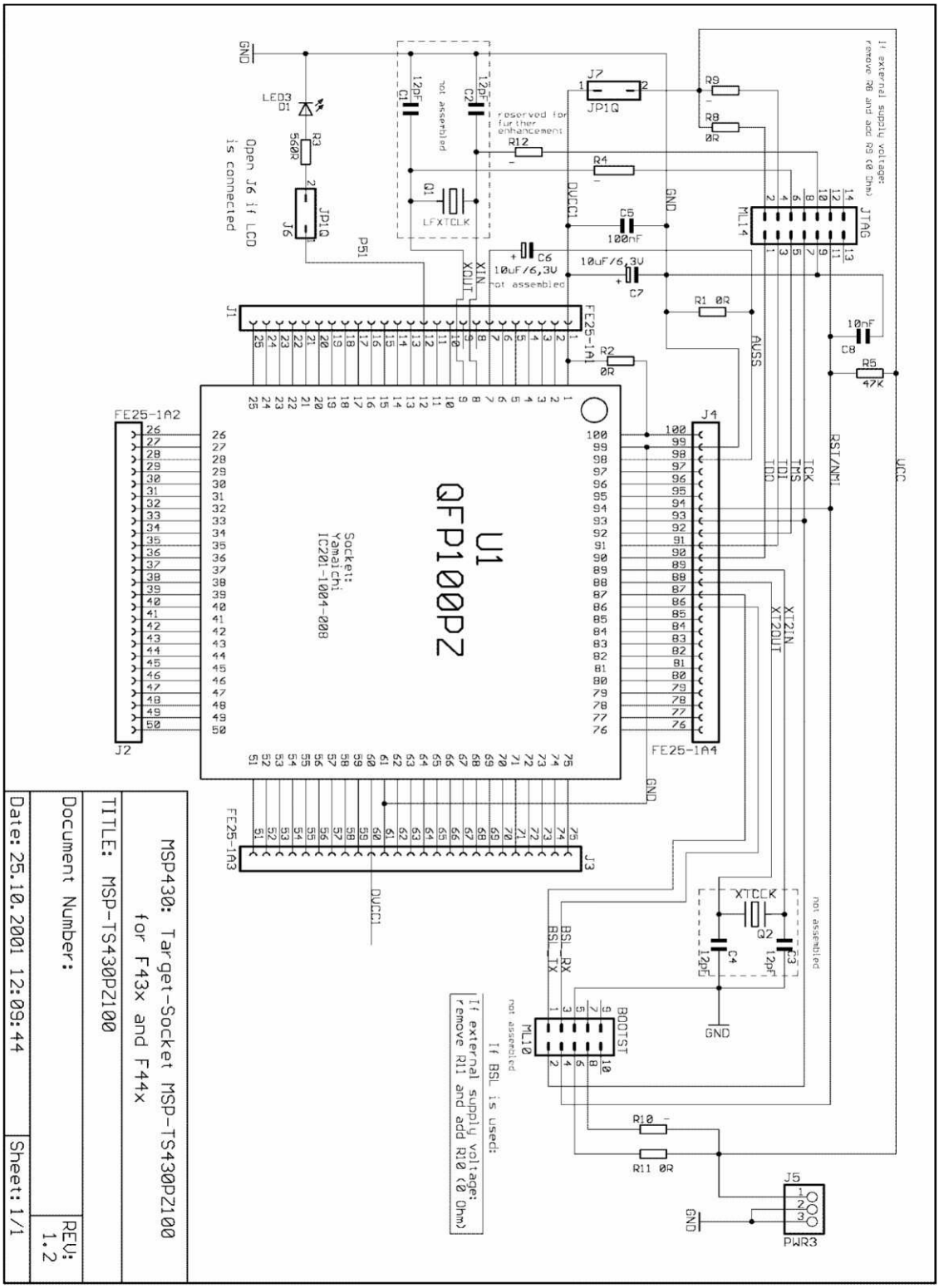
Table B-23. MSP-TS430PN80USB Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP: C1, C2
1.1	C3, C4	2	47pF, SMD0805		
2	C6, C7	2	10uF/6.3V, Tantal Size B	511-1463-2-ND	
3	C5, C11, C13, C14	4	100nF, SMD0805	311-1245-2-ND	
3.1	C10, C12	0	10uF, SMD0805	311-1245-2-ND	DNP: C10, C12
4	C8	1	2.2nF, SMD0805		
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	green LED, SMD0805	P516TR-ND	
7	J1, J2, J3, J4	4	20-pin header, TH	SAM1029-20-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder.: Header: Receptacle
7.1		4	20-pin header, TH	SAM1213-20-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder.: Header: Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
9	JP5, JP6, JP7, JP8,JP9, JP10	6	3-pin header, male, TH	SAM1035-03-ND	Place jumpers on pins 2-3
10	JP1, JP2	2	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
	JP4	1		SAM1035-02-ND	Place jumper only on one pin
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	Place jumper on pins 1-2
12		10	Jumper	15-38-1024-ND	Place on: JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	Q1	0	Crystal	Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Q1 Keep vias free of solder
15	Q2	1	Crystal	"Q2: 4MHzBuerklin: 78D134"	
16	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
17	R1, R2, R4, R6, R8, R9, R12	2	0 Ω, SMD0805	541-000ATR-ND	DNP: R4, R6, R8, R9, R12
18	R10	1	100 Ω, SMD0805	Buerklin: 07E500	
18	R11	0	1M Ω, SMD0805		DNP
18	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
19	U1	1	Socket:IC201-0804-014		Manuf.: Yamaichi
20	PCB	1	79 x 77 mm		2 layers
21	Rubber standoff	4		Buerklin: 20H1724	Apply to corners at bottom side
22	MSP430	2	MSP430F5529		DNP: Enclosed with kit supplied by TI
23	Insulating disk to Q2	1	Insulating disk to Q2	http://www.ettinger.de/Art_Detail.cfm?ART_ARTNUM=70.08.121	
27	C33	1	220n	Buerklin: 53D2074	
28	C35	1	10p	Buerklin: 56D102	

Table B-23. MSP-TS430PN80USB Bill of Materials (continued)

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
29	C36	1	10p	Buerklin: 56D102	
30	C38	1	220n	Buerklin: 53D2074	
31	C39	1	4u7	Buerklin: 53D2086	
32	C40	1	0.1u	Buerklin: 53D2068	
33	D2, D3, D4	3	LL103A	Buerklin: 24S3406	
34	IC7	1	TPD4E004		Manu: TI
36	LED	0	JP3QE	SAM1032-03-ND	DNP
37	LED1	0	LEDCHIPLED_0603	FARNELL: 852-9833	DNP
38	LED2	0	LEDCHIPLED_0603	FARNELL: 852-9868	DNP
39	LED3	0	LEDCHIPLED_0603	FARNELL: 852-9841	DNP
40	R13, R15, R16	0	470R	Buerklin: 07E564	DNP
41	R33	1	1k4	Buerklin: 07E612	
42	R34	1	27R	Buerklin: 07E444	
43	R35	1	27R	Buerklin: 07E444	
44	R36	1	33k	Buerklin: 07E740	
45	S1	0	PB	P12225STB-ND	DNP
46	S2	0	PB	P12225STB-ND	DNP
46	S3	1	PB	P12225STB-ND	
47	USB1	1	USB_RECEPTACLE	FARNELL: 117-7885	

B.23 MSP-TS430PZ100



NOTE: Connections between the JTAG header and pins XOUT and XIN are no longer required and should not be made.

Figure B-45. MSP-TS430PZ100 Target Socket Module, Schematic

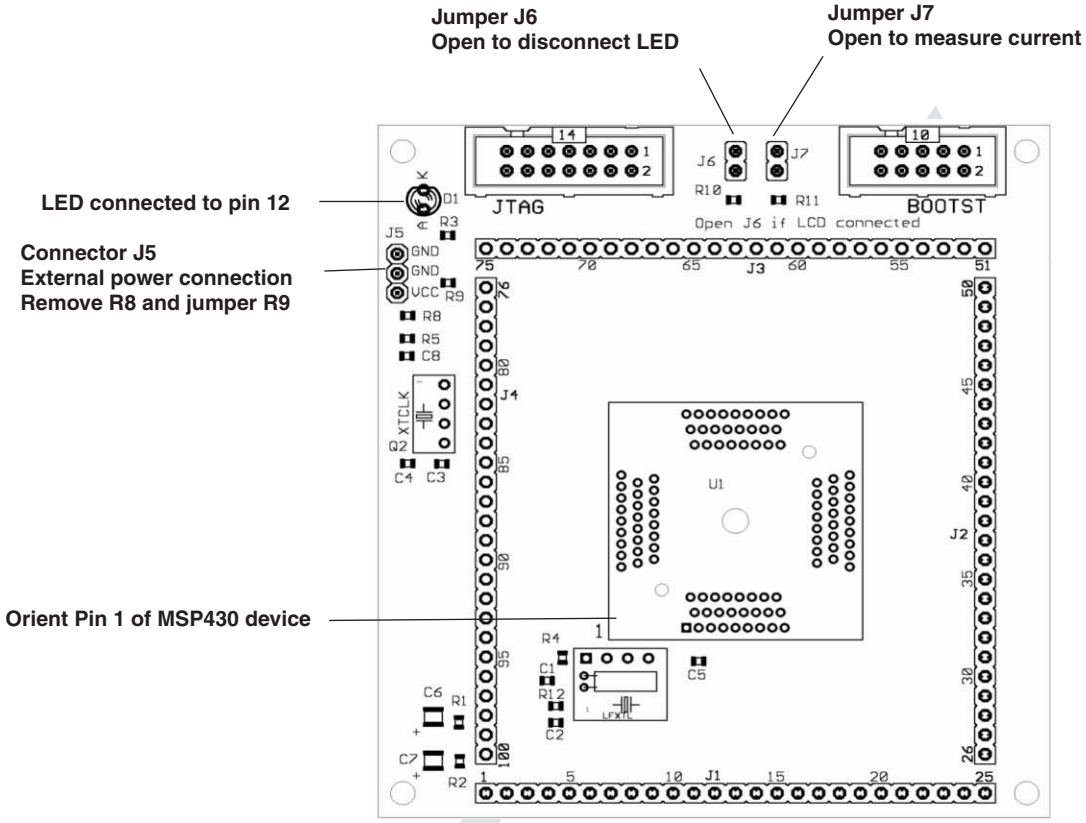


Figure B-46. MSP-TS430PZ100 Target Socket Module, PCB

Table B-24. MSP-TS430PZ100 Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
1b	C3, C4	0	47pF, SMD0805		DNP: Only recommendation. Check your crystal spec.
2	C6, C7	1	10uF/10V, Tantal Size B	511-1463-2-ND	DNP: C6
3	C5	1	100nF, SMD0805	478-3351-2-ND	
4	C8	1	10nF, SMD0805	478-1383-2-ND	
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	yellow LED, TH, 3mm, T1	511-1251-ND	
7	J1, J2, J3, J4	0	25-pin header, TH	SAM1029-25-NDSAM1213-25-ND	DNP: Headers and receptacles enclosed with kit.Keep vias free of solder.: Header: Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
9	J6, J7	2	2-pin header, male, TH	SAM1035-02-ND	place jumper on header
10		2	Jumper	15-38-1024-ND	Place on: J6, J7
11	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
12	BOOTST	0	10-pin connector, male, TH		DNP: Keep vias free of solder
13	Q1, Q2	0	Crystal	Q1: Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Keep vias free of solder
14	R3	1	330 Ω, SMD0805	541-330ATR-ND	
15	R1, R2, R4, R8, R9, R10, R11, R12	3	0 Ω, SMD0805	541-000ATR-ND	DNP: R4, R9, R10, R12
16	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
17	U1	1	Socket: IC201-1004-008 or IC357-1004-53N		Manuf.: Yamaichi
18	PCB	1	82 x 90 mm		2 layers
19	Adhesive Plastic feet	4	~6mm width, 2mm height	for example, 3M Bumpons Part No. SJ-5302	Apply to corners at bottom side
20	MSP430	2	MSP430FG4619IPZ		DNP: enclosed with kit supplied by TI

B.24 MSP-TS430PZ100A

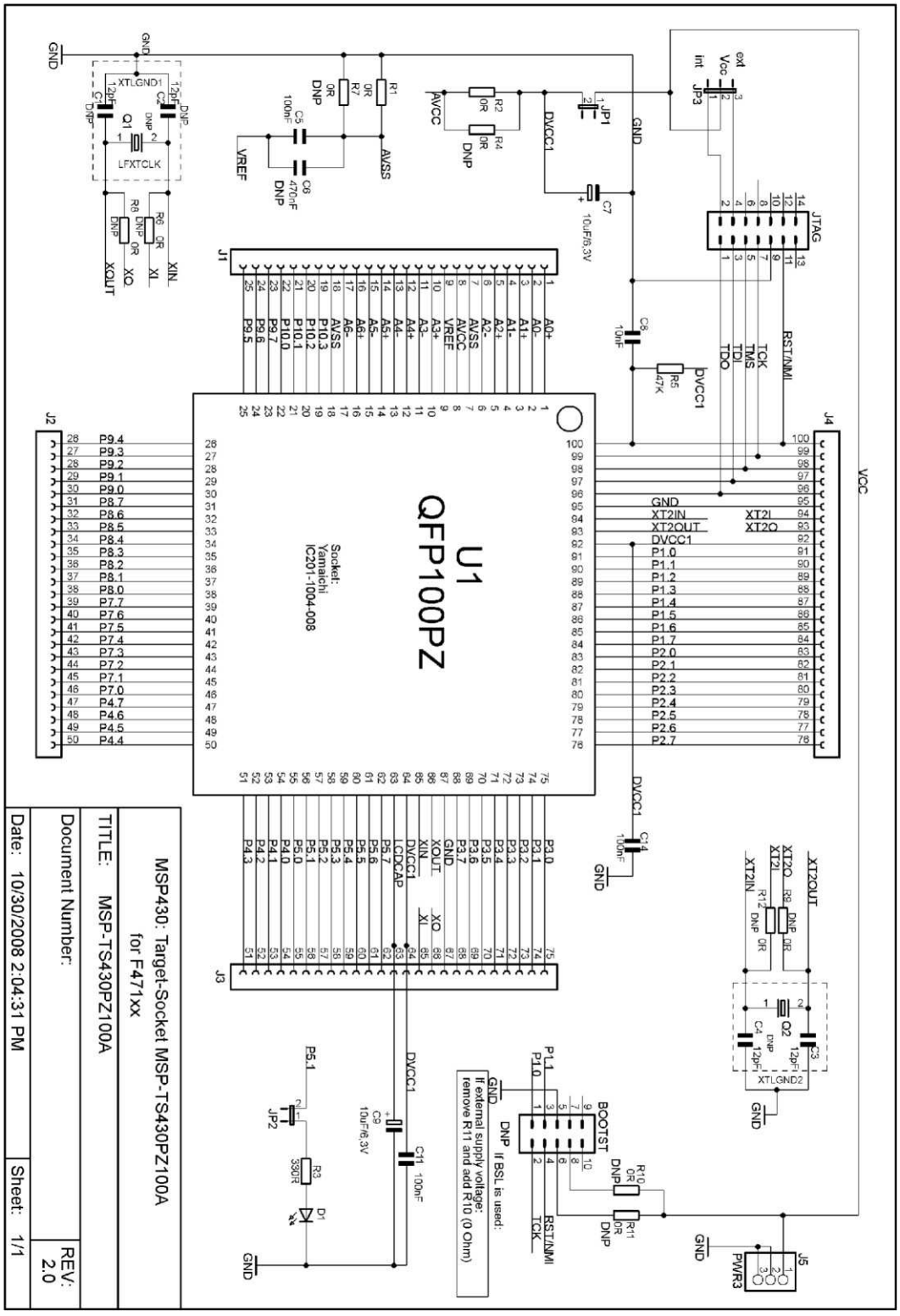


Figure B-47. MSP-TS430PZ100A Target Socket Module, Schematic

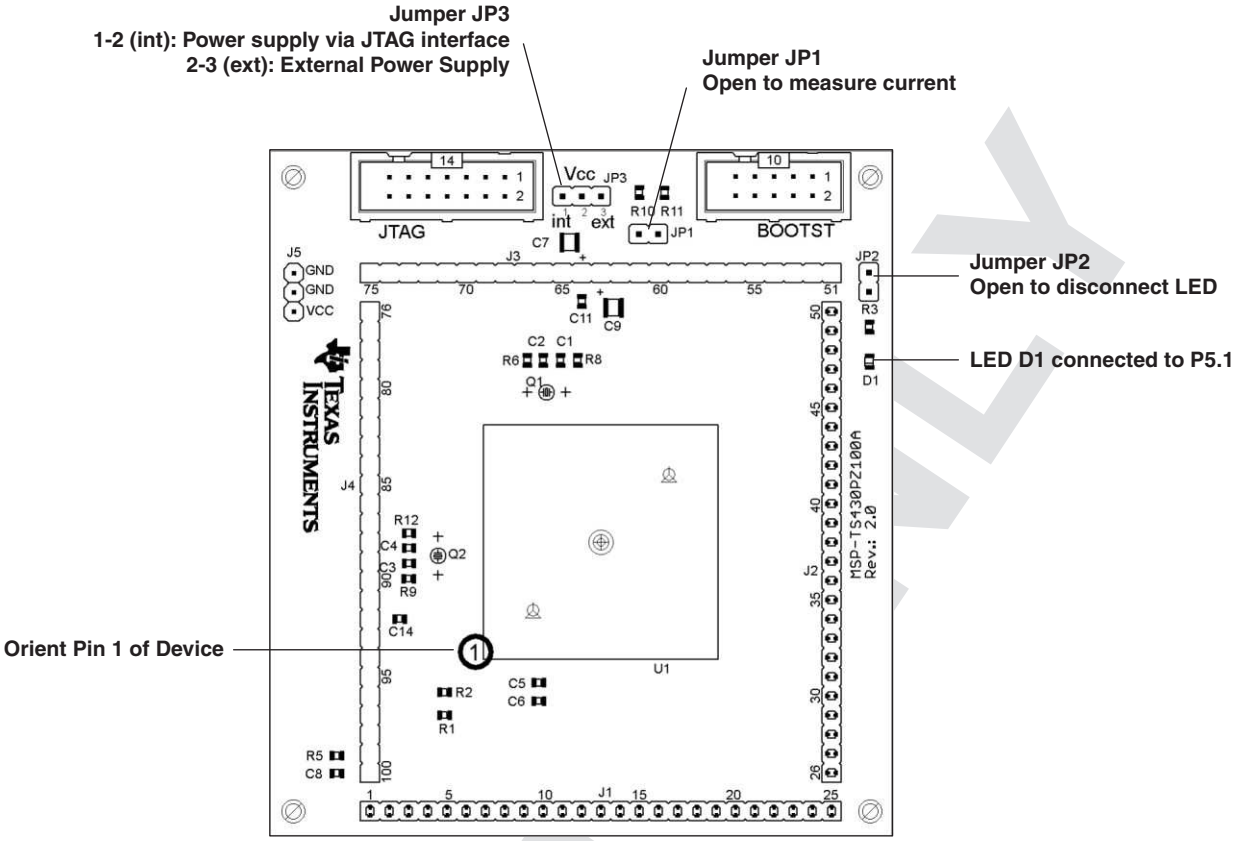


Figure B-48. MSP-TS430PZ100A Target Socket Module, PCB

Table B-25. MSP-TS430PZ100A Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
1b	C3, C4	0	47pF, SMD0805		DNP: Only recommendation. Check your crystal spec.
2	C7, C9	2	10uF/10V, Tantal Size B	511-1463-2-ND	
3	C5, C11, C14	3	100nF, SMD0805	311-1245-2-ND	
4	C8	1	10nF, SMD0805	478-1358-1-ND	
5	C6	0	470nF, SMD0805	478-1403-2-ND	DNP
6	D1	1	green LED, SMD0805	67-1553-1-ND	
7	J1, J2, J3, J4	0	25-pin header, TH	SAM1029-25-NDSAM1213-25-ND	DNP: Headers and receptacles enclosed with kit.Keep vias free of solder.: Header: Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
10	JP1, JP2	2	2-pin header, male, TH	SAM1035-02-ND	pPlace jumper on header
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	Place jumper on pins 1-2
12		3	Jumper	15-38-1024-ND	Place on: JP1, JP2, JP3
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	BOOTST	0	10-pin connector, male, TH		DNP: Keep vias free of solder
15	Q1, Q2	0	Crystal	Q1: Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Keep vias free of solder
16	R3	1	330 Ω, SMD0805	541-330ATR-ND	
17	R1, R2, R4, R6, R7, R8, R9, R10, R11, R12	2	0 Ω, SMD0805	541-000ATR-ND	DNP: R4, R6, R7, R8, R9, R10, R11, R12
18	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
19	U1	1	Socket: IC357-1004-53N		Manuf.: Yamaichi
20	PCB	1	90 x 82 mm		4 layers
21	Rubber standoff	4		Select appropriate	Apply to corners at bottom side
22	MSP430	2	MSP430F5438IPZ		DNP: Enclosed with kit supplied by TI

B.25 MSP-TS430PZ100B

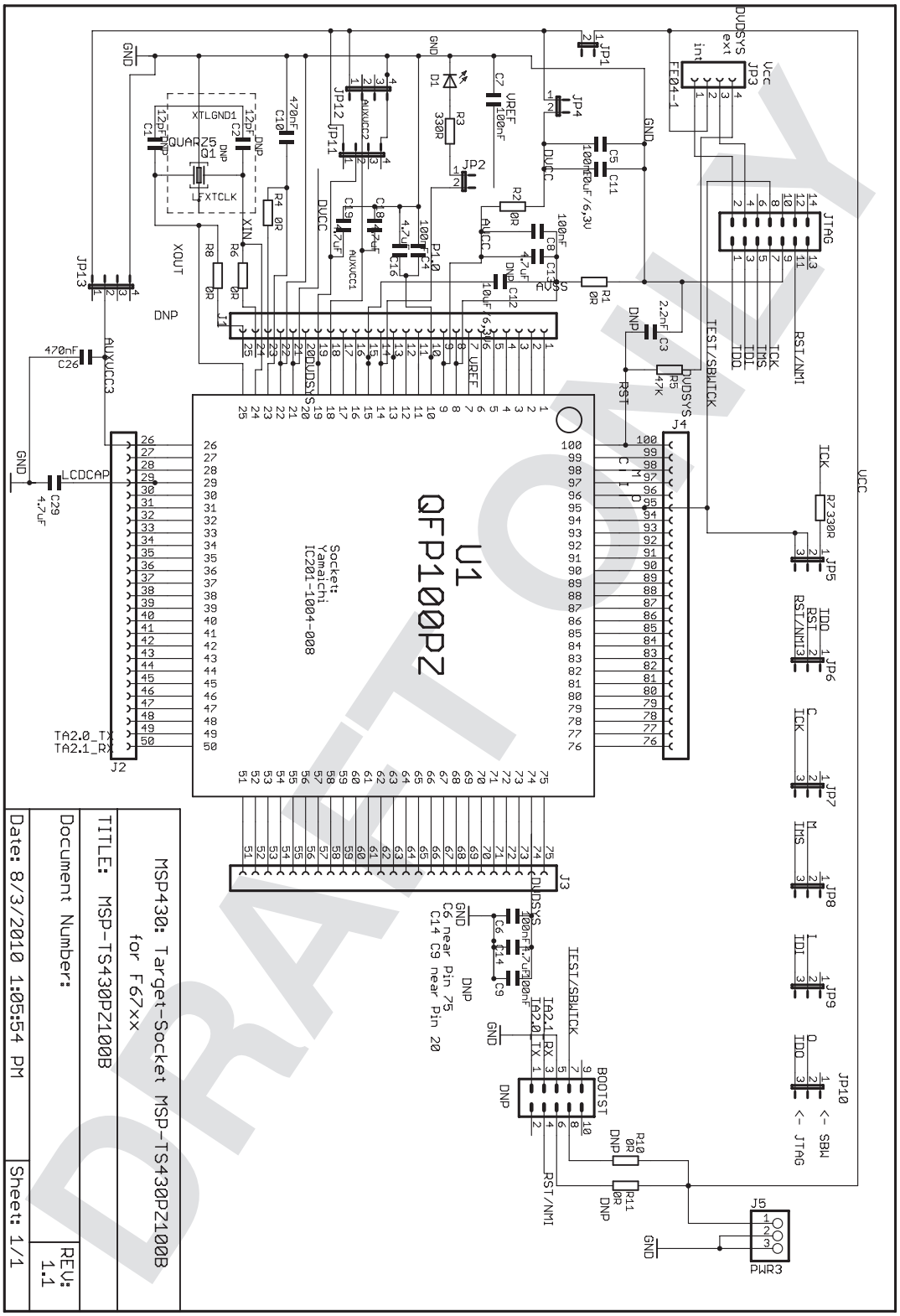


Figure B-49. MSP-TS430PZ100B Target Socket Module, Schematic

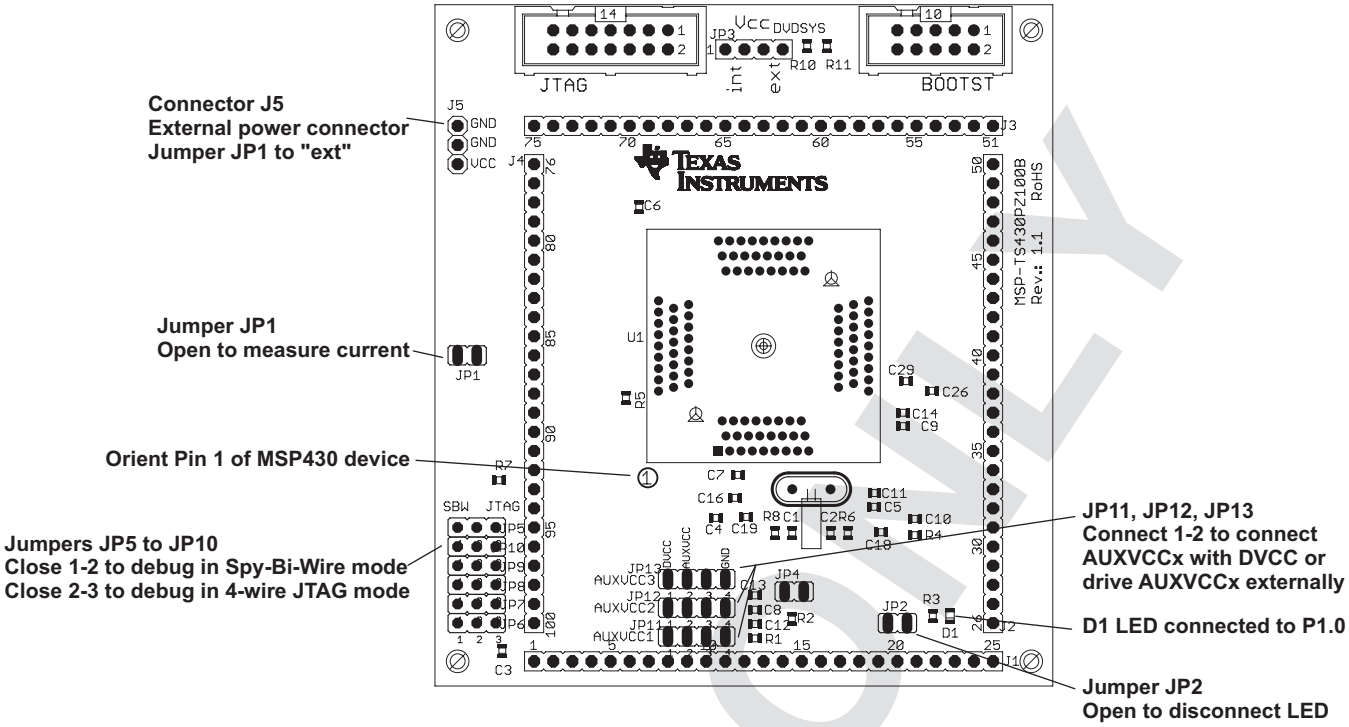


Figure B-50. MSP-TS430PZ100B Target Socket Module, PCB

Table B-26. MSP-TS430PZ100B Bill of Materials

Position	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
2	C4, C5, C6 , C7, C8, C9	6	100nF, SMD0805	311-1245-2-ND	
3	C10, C26	2	470 nF, SMD0805	478-1403-2-ND	
4	C11, C12	1	10 uF / 6.3 V SMD0805		C12 DNP
5	C13, C14, C16, C18, C19, C29	6	4.7 uF SMD0805		
6	D1	1	green LED, SMD0805	P516TR-ND	
7	J1, J2, J3, J4	0	25-pin header, TH	SAM1029-25-ND (Header) SAM1213-25-ND (Receptacle)	DNP: Headers and receptacles enclosed with kit. Keep vias free of solder:
8	J5	1	3-pin header, male, TH		
9	JP3, JP5, JP6, JP7, JP8, JP9, JP10	7	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3 on JP5, JP6, JP7, JP8, JP9, JP10 place jumpers on pins 1-2 on JP3,
10	JP1, JP2, JP4	3	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
11	JP11, JP12, JP13	3	4-pin header, male, TH		place jumper on header 1-2
12		13	Jumper	15-38-1024-ND	See Pos. 9 and Pos. 10 and Pos. 11
15	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
16	BOOTST	0	10-pin connector, male, TH		"DNP Keep vias free of solder"
17	Q1	0	Crystal		DNP: Q1 Keep vias free of solder
21	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
22	R1, R2, R4, R6, R8, R10, R11	2	0 Ohm, SMD0805	541-000ATR-ND	DNP: R4, R6, R8, R10, R11
23	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
24	U1	1	Socket: IC357-1004-53N		Manuf.: Yamaichi
25	PCB	1	90 x 82 mm		2 layers
26	Adhesive plastic feet	4	about 6mm width, 2mm height	for example, 3M Bumpons Part No. SJ-5302	Apply to corners at bottom side
27	MSP430	2	MSP430F6733IPZ		DNP: enclosed with kit, supplied by TI

B.26 MSP-TS430PZ100C

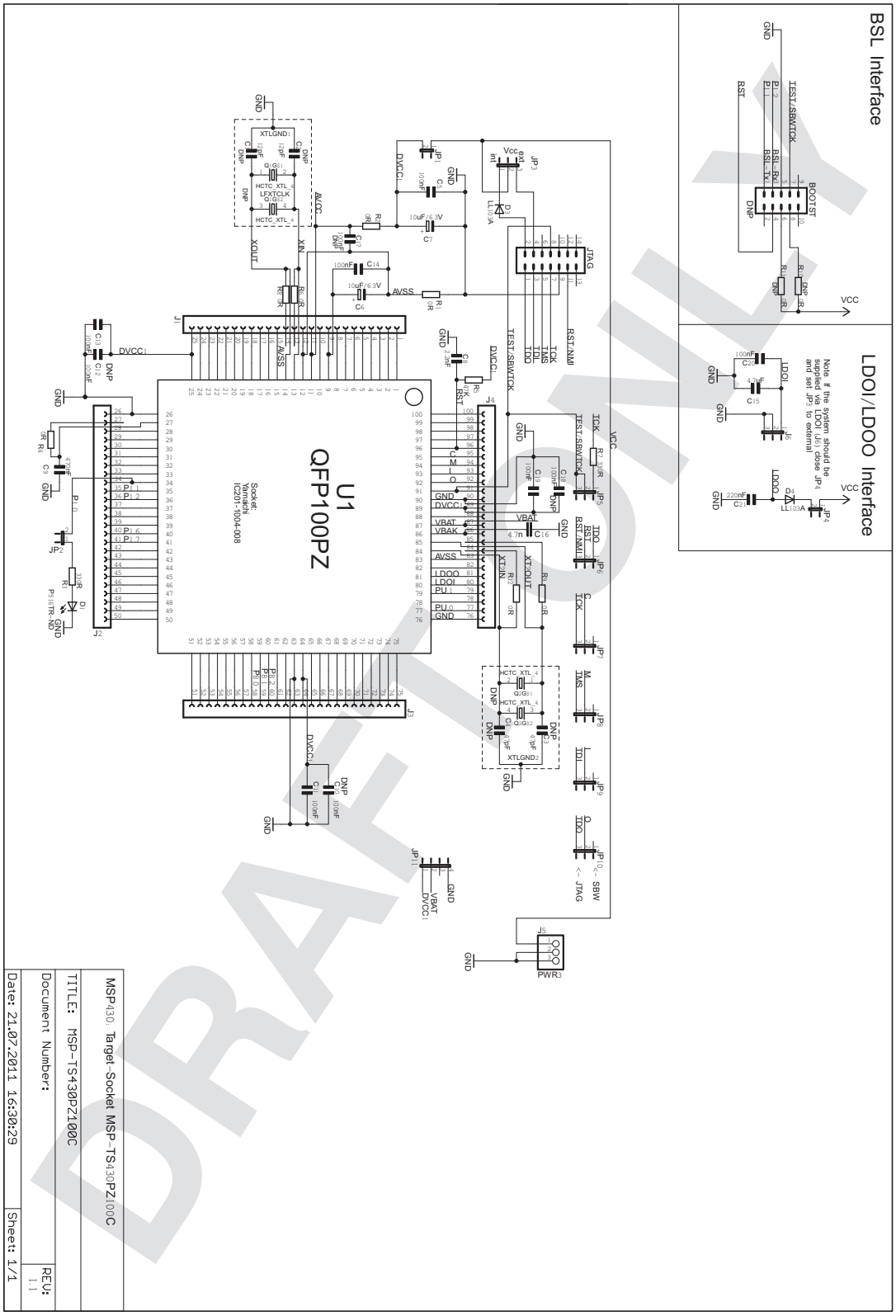


Figure B-51. MSP-TS430PZ100C Target Socket Module, Schematic

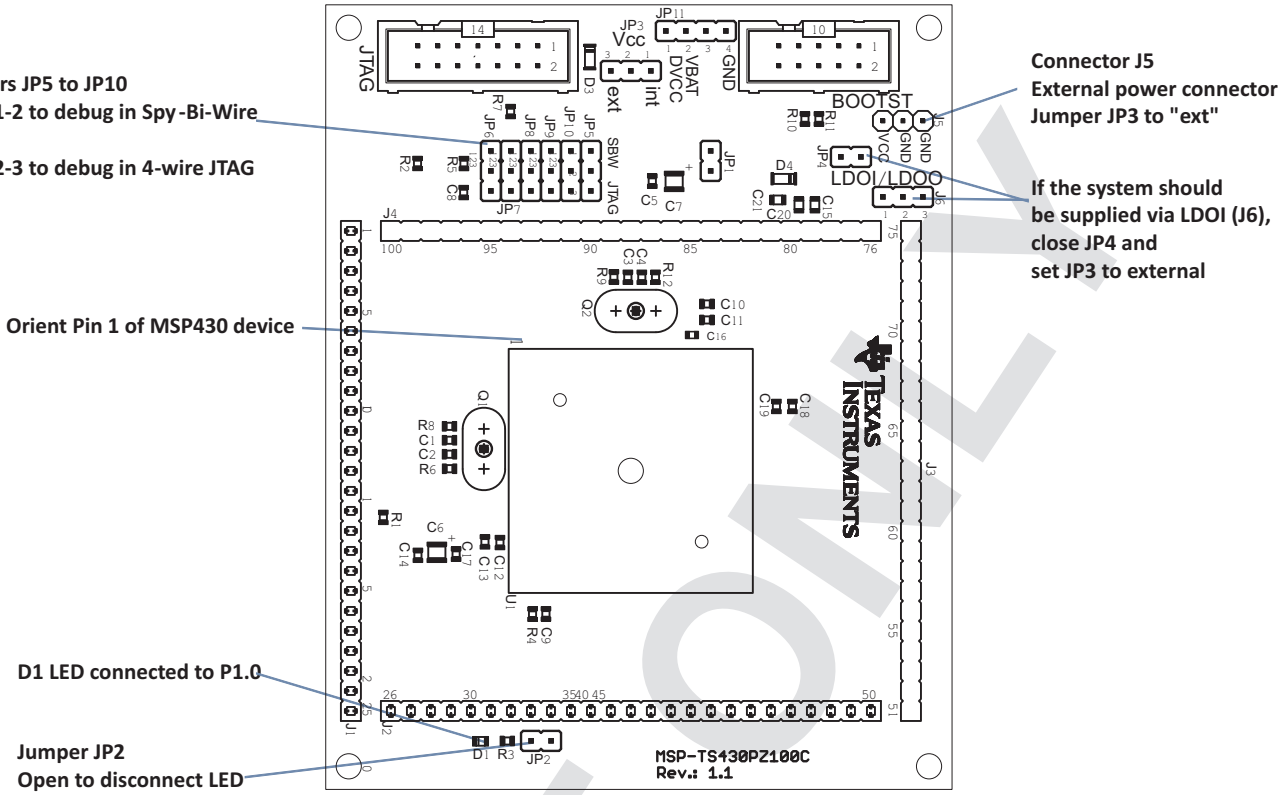


Figure B-52. MSP-TS430PZ100C Target Socket Module, PCB

Table B-27. MSP-TS430PZ100C Bill of Materials

Pos.	Ref Des	Number Per Board	Description	Digi-Key Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP: C1, C2
1.1	C3, C4	2	47pF, SMD0805		DNP: C3, C4
2	C6, C7	2	10uF/6.3V, Tantal Size B	511-1463-2-ND	
3	C5, C11, C13, C14, C19, C20	6	100nF, SMD0805	311-1245-2-ND	
3.1	C10, C12, C18,17	0	100nF, SMD0805	311-1245-2-ND	DNP: C10, C12,C18, C17
4	C8	1	2.2nF, SMD0805	Buerklin 53 D 292	
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	green LED, SMD0805	P516TR-ND	
7	J1, J2, J3, J4	4	25-pin header, TH	SAM1029-25-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder. : Header : Receptacle
7.1		4	25-pin header, TH	SAM1213-25-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder. : Header : Receptacle
8	J5, J6	2	3-pin header, male, TH	SAM1035-03-ND	
9	JP5, JP6, JP7, JP8,JP9, JP10	6	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3
10	JP1, JP2	2	2-pin header, male, TH	SAM1035-02-ND	place jumper on header
10.1	JP4	1	2-pin header, male, TH	SAM1035-02-ND	place jumper on header
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	place jumper on pins 1-2
12		10	Jumper	15-38-1024-ND	Place on: JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	BOOTST	1	10-pin connector, male, TH	HRP10H-ND	DNP, keep vias free of solder
15	Q1	0	Crystal		DNP: Q1 Keep vias free of solder
16	Q2	1	Crystal		DNP: Q2 Keep vias free of solder
17	R3, R7	2	330 Ohm, SMD0805	541-330ATR-ND	
18	R1, R2, R4, R6, R8, R9, R10, R11, R12	3	0 Ohm, SMD0805	541-000ATR-ND	DNP: R6, R8, R9, R10, R11, R12
19	R5	1	47k Ohm, SMD0805	541-47000ATR-ND	
20	U1	1	Socket: IC357-1004-53N		Manuf.: Yamaichi
21	PCB	1	79.5 x 99.5 mm	"MSP-TS430PZ100C" Rev. 1.0	2 layers
22	Rubber stand off	4		Buerklin: 20H1724	apply to corners at bottom side
23	MSP430	2	MSP430F643x		DNP: enclosed with kit. Is supplied by TI.
24	C16	1	4.7 nF SMD0603	Buerklin 53 D 2042	
26	D3, D4	2	LL103A	Buerklin: 24S3406	

Table B-27. MSP-TS430PZ100C Bill of Materials (continued)

Pos.	Ref Des	Number Per Board	Description	Digi-Key Part No.	Comment
27	JP11	1	4-pin header, male, TH	SAM1035-04-ND	place jumper on Pin 1 and Pin 2
28	C15	1	4.7 uF, SMD0805	Buerklin 53 D 2430	
29	C21	1	220nF, SMD0805	Buerklin 53 D 2381	

B.27 MSP-TS430PZ5x100

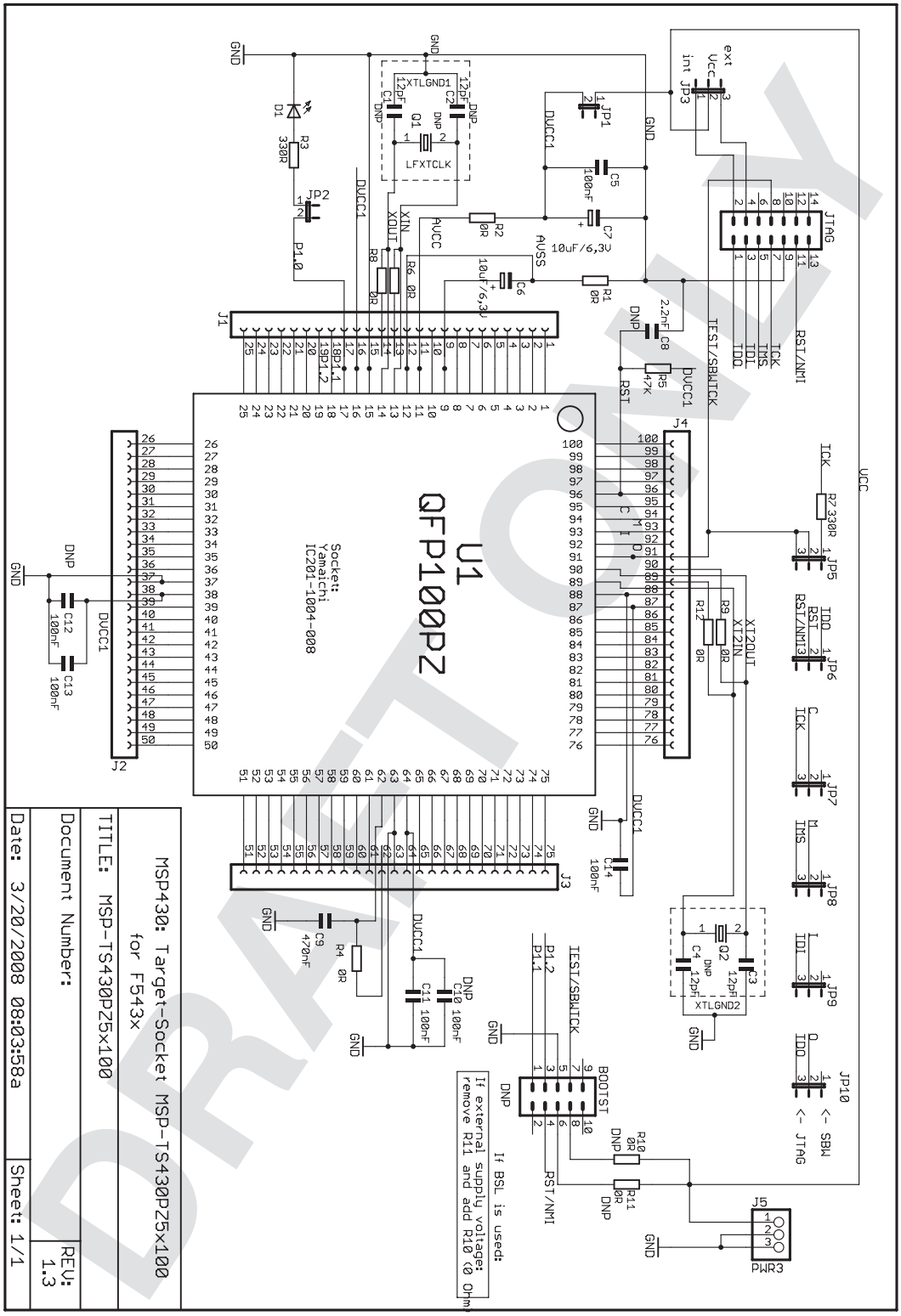


Figure B-53. MSP-TS430PZ5x100 Target Socket Module, Schematic

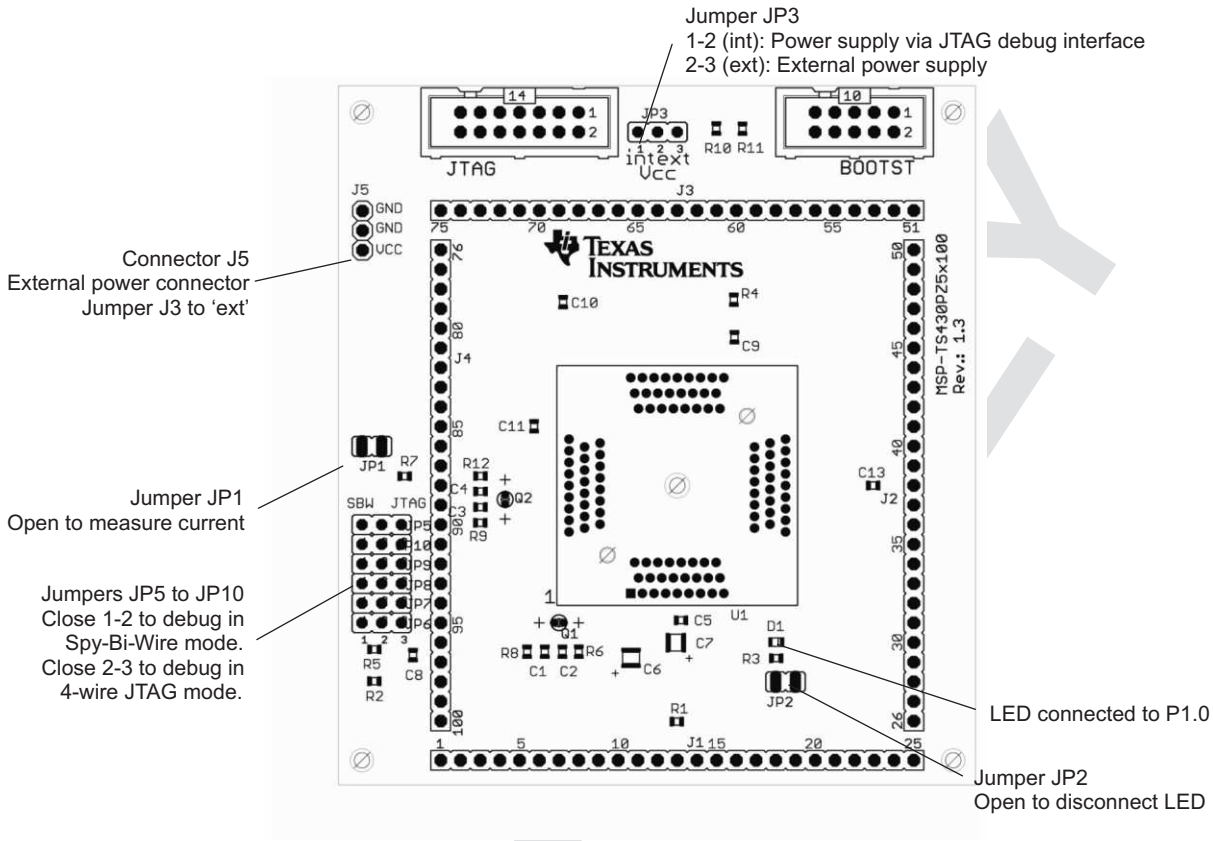


Figure B-54. MSP-TS430PZ5x100 Target Socket Module, PCB

Table B-28. MSP-TS430PZ5x100 Bill of Materials

Pos.	Ref Des	No. per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP
1b	C3, C4		47pF, SMD0805		DNP: Only recommendation. Check your crystal spec.
2	C6, C7	2	10uF/10V, Tantal Size B	511-1463-2-ND	
3	C5, C10, C11, C12,C13, C14	4	100nF, SMD0805	311-1245-2-ND	DNP: C12, C14
4	C8	0	2.2nF, SMD0805		DNP
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	green LED, SMD0805	67-1553-1-ND	
7	J1, J2, J3, J4	0	25-pin header, TH	"SAM1029-25-NDSAM1213-25-ND"	DNP: headers and receptacles enclosed with kit. Keep vias free of solder.: Header: Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
9	JP5, JP6, JP7, JP8,JP9, JP10	6	3-pin header, male, TH	SAM1035-03-ND	Place jumpers on pins 2-3
10	JP1, JP2	2	2-pin header, male, TH	SAM1035-02-ND	Place jumper on header
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	Place jumper on pins 1-2
12		9	Jumper	15-38-1024-ND	Place on JP1, JP2, JP3, JP5, JP6, JP7, JP8, JP9, JP10
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	BOOTST	0	10-pin connector, male, TH		DNP: Keep vias free of solder
15	Q1, Q2	0	Crystal	Q1: Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Keep vias free of solder
16	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
17	R1, R2, R4, R6, R8, R9, R10, R11, R12	3	0 Ω, SMD0805	541-000ATR-ND	DNP: R6, R8, R9, R10, R11, R12
18	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
19	U1	1	Socket: IC357-1004-53N		Manuf.: Yamaichi
20	PCB	1	90 x 82 mm		2 layers
21	Rubber standoff	4		Select appropriate	Apply to corners at bottom side
22	MSP430	2	MSP430F5438IPZ		DNP: Enclosed with kit supplied by TI

B.28 MSP-TS430PZ100USB

Due to the use of diodes in the power chain, the voltage on the MSP430F5xx device is approximately 0.3 V lower than is set by the debugging tool. Set the voltage in the IDE to 0.3 V higher than desired; for example, to run the MCU at 3.0 V, set it to 3.3 V.

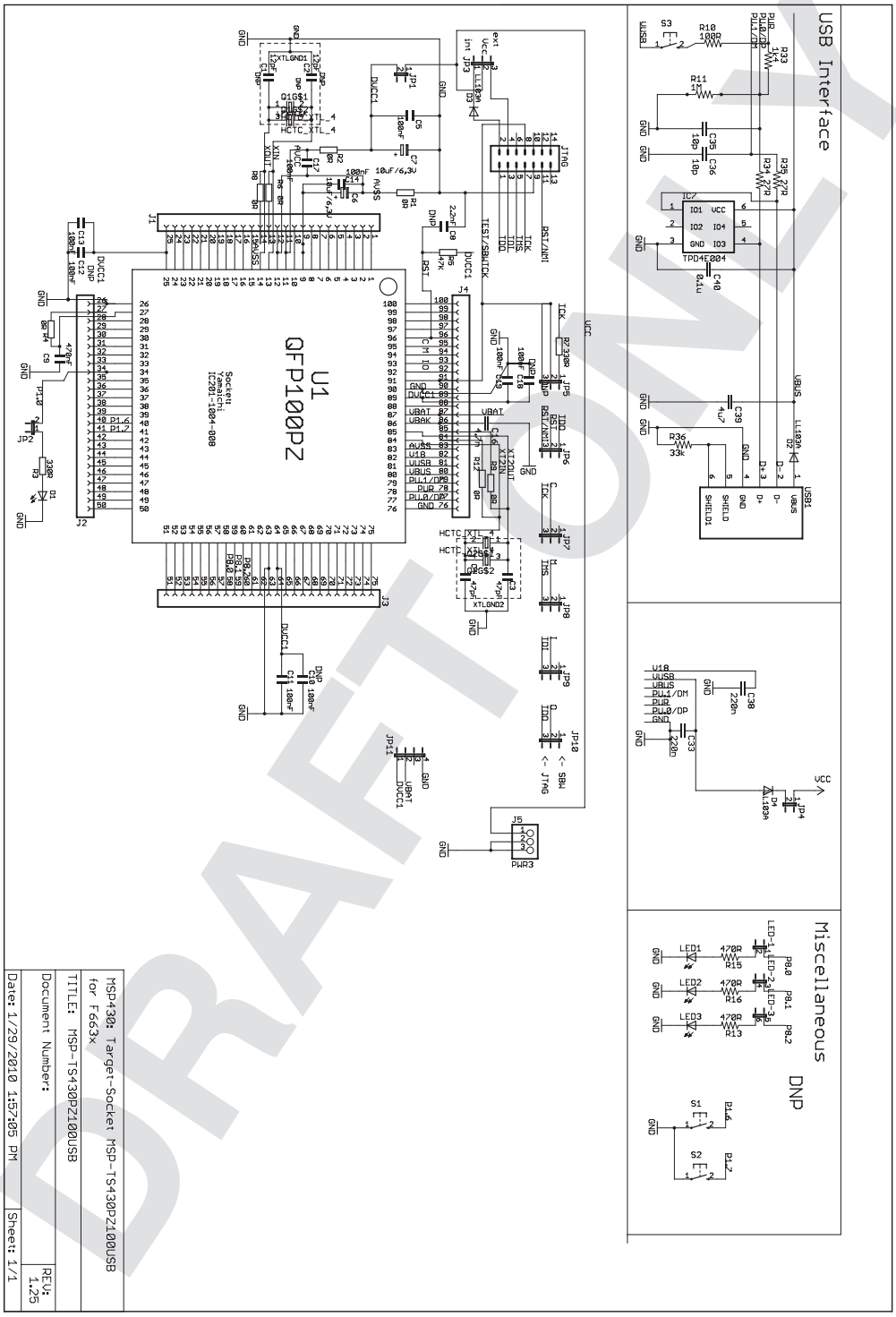


Figure B-55. MSP-TS430PZ100USB Target Socket Module, Schematic

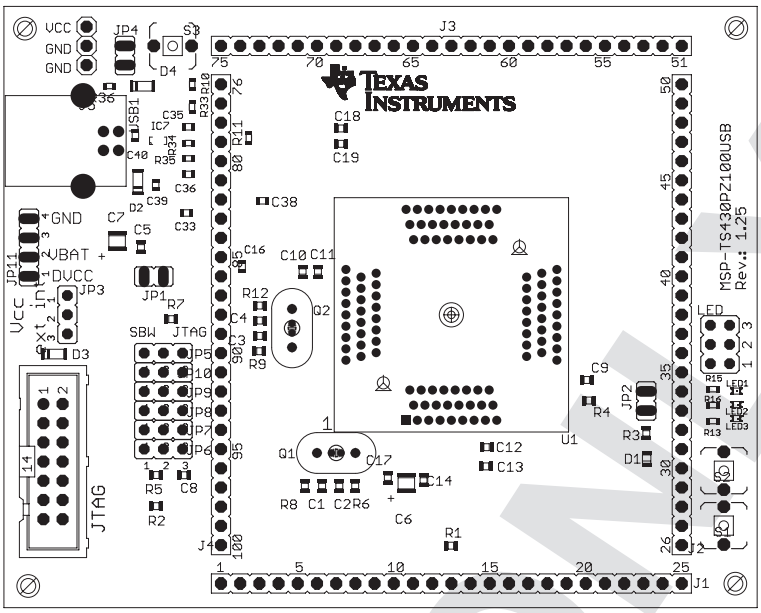


Figure B-56. MSP-TS430PZ100USB Target Socket Module, PCB

Table B-29. MSP-TS430PZ100USB Bill of Materials

Pos.	Ref Des	No. Per Board	Description	DigiKey Part No.	Comment
1	C1, C2	0	12pF, SMD0805		DNP: C1, C2
1.1	C3, C4	2	47pF, SMD0805		
2	C6, C7	2	10uF/6.3V, Tantal Size B	511-1463-2-ND	
3	C5, C11, C13, C14, C19	5	100nF, SMD0805	311-1245-2-ND	
3.1	C10, C12, C18,17	0	100nF, SMD0805	311-1245-2-ND	DNP: C10, C12,C18, C17
4	C8	1	2.2nF, SMD0805		
5	C9	1	470nF, SMD0805	478-1403-2-ND	
6	D1	1	green LED, SMD0805	P516TR-ND	
7	J1, J2, J3, J4	4	25-pin header, TH	SAM1029-25-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder. : Header : Receptacle
7.1		4	25-pin header, TH	SAM1213-25-ND	DNP: headers and receptacles enclosed with kit. Keep vias free of solder. : Header : Receptacle
8	J5	1	3-pin header, male, TH	SAM1035-03-ND	
9	JP5, JP6, JP7, JP8, JP9, JP10	6	3-pin header, male, TH	SAM1035-03-ND	place jumpers on pins 2-3
10	JP1, JP2, JP4	3	2-pin header, male, TH	SAM1035-02-ND	place jumper on header
11	JP3	1	3-pin header, male, TH	SAM1035-03-ND	place jumper on pins 1-2
12		10	Jumper	15-38-1024-ND	Place on: JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10
13	JTAG	1	14-pin connector, male, TH	HRP14H-ND	
14	Q1	0	Crystal	Micro Crystal MS1V-T1K 32.768kHz, C(Load) = 12.5pF	DNP: Q1. Keep vias free of solder
15	Q2	1	Crystal	Q2: 4MHz, Buerklin: 78D134	
16	R3, R7	2	330 Ω, SMD0805	541-330ATR-ND	
17	R1, R2, R4, R6, R8, R9, R12	3	0 Ω, SMD0805	541-000ATR-ND	DNP: R6, R8, R9, R12
18	R10	1	100 Ω, SMD0805	Buerklin: 07E500	
18	R11	1	1M Ω, SMD0603		not existing in Rev 1.0
18	R5	1	47k Ω, SMD0805	541-47000ATR-ND	
19	U1	1	Socket:IC201-1004-008		Manuf.: Yamaichi
20	PCB	1	79 x 77 mm		2 layers
21	Rubber stand off	4		Buerklin: 20H1724	apply to corners at bottom side
22	MSP430	2	MSP430F5529		DNP: enclosed with kit. Is supplied by TI
23	nsulating disk to Q2	1	Insulating disk to Q2	http://www.ettinger.de/Art_Detail.cfm?ART_ARTNUM=70.08.121	
24	C16	1	4.7 nF SMD0603		
27	C33	1	220n SMD0603	Buerklin: 53D2074	
28	C35, C36	2	10p SMD0603	Buerklin: 56D102	

Table B-29. MSP-TS430PZ100USB Bill of Materials (continued)

Pos.	Ref Des	No. Per Board	Description	DigiKey Part No.	Comment
30	C38	1	220n SMD0603	Buerklin: 53D2074	
31	C39	1	4u7 SMD0603	Buerklin: 53D2086	
32	C40	1	0.1u SMD0603	Buerklin: 53D2068	
33	D2, D3, D4	3	LL103A	Buerklin: 24S3406	
34	IC7	1	TPD4E004		Manu: TI
35	LED	0	JP3QE	SAM1032-03-ND	DNP
36	LED1, LED2, LED3	0	LEDCHIPLED_0603	FARNELL: 852-9833	DNP
37	R13, R15, R16	0	470R SMD0603	Buerklin: 07E564	DNP
38	R33	1	1k4 / 1k5 SMD0603	Buerklin: 07E612	
39	R34	1	27R SMD0603	Buerklin: 07E444	
40	R35	1	27R SMD0603	Buerklin: 07E444	
41	R36	1	33k SMD0603	Buerklin: 07E740	
42	S1, S2, S3	1	PB	P12225STB-ND	DNP S1 and S2. (Only S3)
43	USB1	1	USB_RECEPTACLE	FARNELL: 117-7885	
44	JP11	1	4-pin header, male, TH	SAM1035-04-ND	place jumper only on Pin 1

B.29 EM430F5137RF900

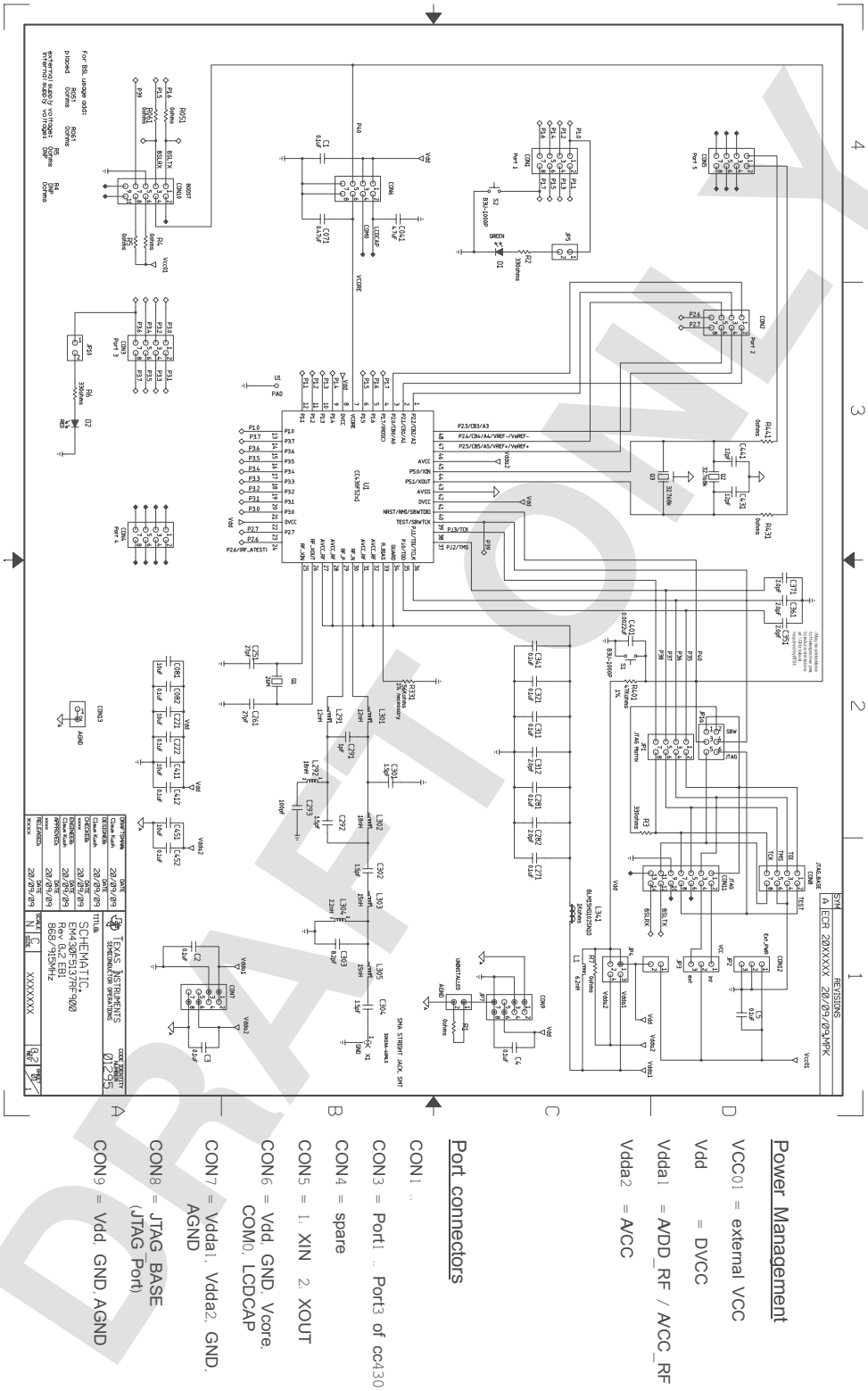


Figure B-57. EM430F5137RF900 Target board, Schematic

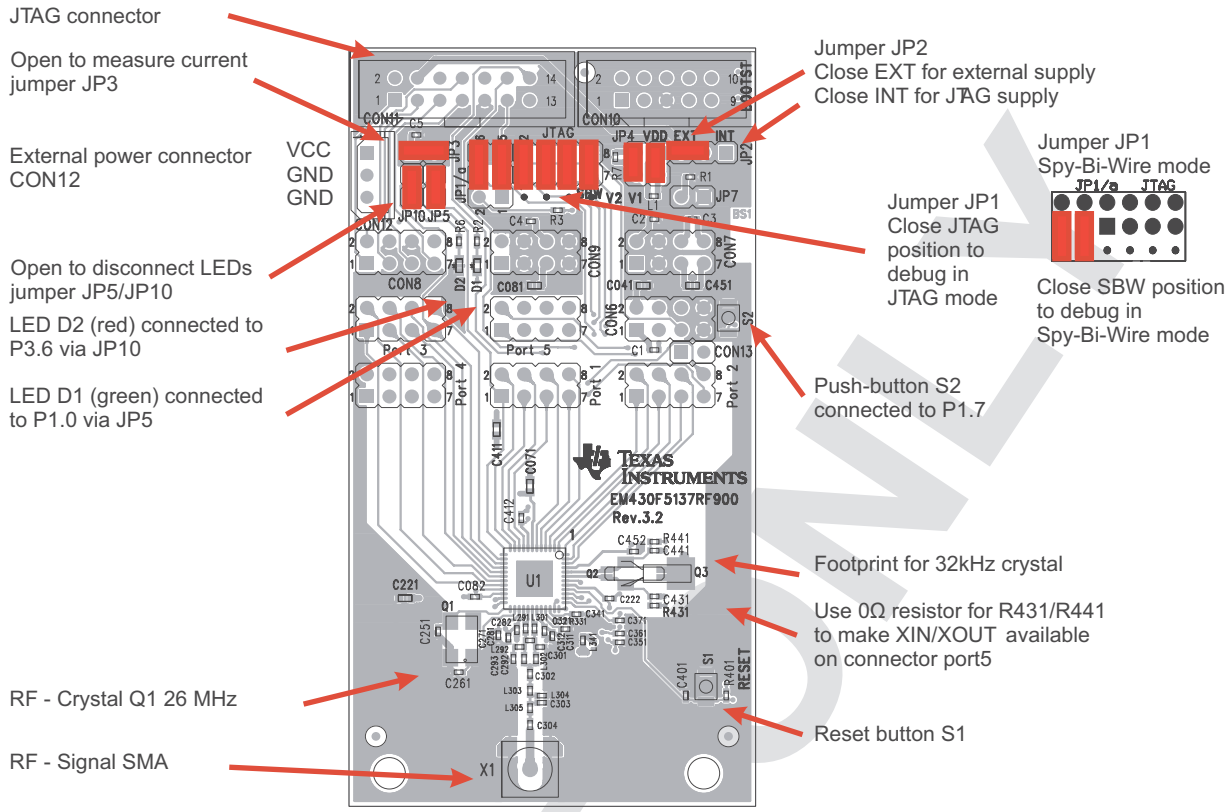


Figure B-58. EM430F5137RF900 Target board, PCB

Table B-30. EM430F5137RF900 Bill of Materials

Item	Reference	No. per Board	Description	Value	Manufacturer's Part Number	Manufacturer	Comment
1	Q1	1	(CUSTOMER SUPPLY) CRYSTAL, SMT, 4P, 26MHz	26M	ASX-531(CS)	AKER ELECTRONIC	
2	C1-C5, C082, C222, C271, C281, C311, C321, C341, C412, C452	14	CAPACITOR, SMT, 0402, CER, 16V, 10%, 0.1uF	0.1uF	0402YC104KAT2A	AVX	
3	C071	1	CAPACITOR, SMT, 0603, CERAMIC, 0.47uF, 16V, 10%, X5R	0.47uF	0603YD474KAT2A	AVX	
4	R401	1	RES0402, 47.0K	47kΩ	CRCW04024702F100	DALE	
5	CON11	1	HEADER, THU, MALE, 14P, 2X7, 25.4x9.2x9.45mm		09 18 514 6323	HARTING	
6	CON10	0	HEADER, THU, MALE, 10P, 2X5, 20.32x9.2x9.45mm		09 18 510 6323	HARTING	DNP
7	D1	1	LED, SMT, 0603, GREEN, 2.1V	active	APT1608MGC	KINGBRIGHT	
8	D2	1	LED, SMT, 0603, RED, 2.0V	active	APT1608EC	KINGBRIGHT	
9	Q3	0	UNINSTALLED CRYSTAL, SMT, 3P, MS1V (Customer Supply)	32.768k	MS1V-T1K (UN)	MICRO CRYSTAL	DNP
10	CON12	1	HEADER, THU, MALE, 3P, 1x3, 9.9x4.9x5.9mm		22-03-5035	MOLEX	
11	C251, C261	2	50V, 5%, 27pF	27pF	GRM36COG270J50	MURATA	
12	L341	1	FERRITE, SMT, 0402, 1.0kΩ, 250mA	1kΩ	BLM15HG102SN1D	MURATA	
13	C293	1	CAPACITOR, SMT, 0402, CERAMIC, 100pF, 50V, 0.25pF, C0G(NP0)	100pF	GRM1555C1H101JZ01	MURATA	
14	L304	1	INDUCTOR, SMT, 0402, 2.2nH, 0.1nH, 220mA, 500MHz	0.0022uH	LQP15MN2N2B02	MURATA	
15	L303, L305	2	INDUCTOR, SMT, 0402, 15nH, 2%, 450mA, 250MHz	0.015uH	LQW15AN15NG00	MURATA	
16	L292, L302	2	INDUCTOR, SMT, 0402, 18nH, 2%, 370mA, 250MHz	0.018uH	LQW15AN18NG00	MURATA	
17	C291	1	CAPACITOR, SMT, 0402, CERAMIC, 1pF, 50V, 0.05pF, C0G(NP0)	1pF	GRM1555C1H1R0WZ01	MURATA	
18	C303	1	CAPACITOR, SMT, 0402, CERAMIC, 8.2pF, 50V, 0.05pF, C0G(NP0)	8.2pF	GRM1555C1H8R2WZ01	MURATA	
19	C292, C301-C302, C304	4	CAPACITOR, SMT, 0402, CERAMIC, 1.5pF, 50V, 0.05pF, C0G(NP0)	1.5pF	GRM1555C1H1R5WZ01	MURATA	
20	L291, L301	2	INDUCTOR, SMT, 0402, 12nH, 2%, 500mA, 250MHz	0.012uH	LQW15AN12NG00	MURATA	
21	C282, C312, C351, C361, C371	5	CAPACITOR, SMT, 0402, CERAMIC, 2pF, 50V, 0.1pF, C0G	2.0pF	GRM1555C1H2R0BZ01	Murata	
22	L1	1	INDUCTOR, SMT, 0402, 6.2nH, 0.1nH, 130mA, 500MHz	6.2nH	LQP15MN6N2B02	Murata	
23	S1-S2	2	ULTRA-SMALL TACTILE SWITCH, SMT, 2P, SPST-NO, 1.2x3x2.5mm, 0.05A, 12V		B3U-1000P	OMRON	
24	R4-R5, R051, R061, R431, R441	0	UNINSTALLED RESISTOR/JUMPER, SMT, 0402, 0Ω, 5%, 1/16W	0Ω	ERJ-2GE0R00X	PANASONIC	DNP

Table B-30. EM430F5137RF900 Bill of Materials (continued)

Item	Reference	No. per Board	Description	Value	Manufacturer's Part Number	Manufacturer	Comment
24a	R7	1	RESISTOR/JUMPER, SMT, 0402, 0 Ω, 5%, 1/16W	0Ω	ERJ-2GE0R00X	PANASONIC	
25	R2-R3, R6	3	RESISTOR, SMT, 0402, THICK FILM, 5%, 1/16W, 330	330Ω	ERJ-2GEJ331	PANASONIC	
26	C431, C441	0	CAPACITOR, SMT, 0402, CER, 12pF, 50V, 5%, NPO	12pF	ECJ-0EC1H120J	PANASONIC	
27	C401	1	CAPACITOR, SMT, 0402, CER, 2200pF, 50V, 10%, X7R	0.0022uF	ECJ-0EB1H222K	PANASONIC	
28	R331	1	RESISTOR, SMT, THICK FILM, 56K, 1/16W, 5%	56kΩ	ERJ-2GEJ563	PANASONIC	
29	C081, C221, C411, C451	4	CAPACITOR, SMT, 0603, CERAMIC, 10uF, 6.3V, 20%, X5R	10uF	ECJ-1VB0J106M	PANASONIC	
30	R1	1	RESISTOR/JUMPER, SMT, 0402, 0 Ω, 5%, 1/16W	0Ω	ERJ-2GE0R00X	PANASONIC	
31	C041	0	UNINSTALLED CAP CERAMIC 4.7UF 6.3V X5R 0603	4.7uF	ECJ-1VB0J475K	Panasonic	DNP
32	X1	1	SMA STRIGHT JACK, SMT		32K10A-40ML5	ROSENBERGER	
33	Q2	0	Crystal, SMT, 32.768 kHz	32.768k	MS3V-T1R	Micro Crystal	DNP
34	U1	1	DUT, SMT, PQFP, RGZ-48, 0.5mmLS, 7.15x7.15x1mm, THRM.PAD		CC430F52x1	TI	
35	JP1	1	Pin Connector 2x4pin		61300821121	WUERTH	
36	CON1-CON9	0	Pin Connector 2x4pin		61300821121	WUERTH	DNP
37	JP2	1	Pin Connector 1x3pin		61300311121	WUERTH	
38	JP3, JP5, JP10	3	Pin Connector 1x2pin		61300211121	WUERTH	
38a	JP7, CON13	0	Pin Connector 1x2pin		61300211121	WUERTH	DNP
39	JP4	1	Pin Connector 2x2pin		61300421121	WUERTH	DNP
40	JP1a	1	Pin Connector 2x3pin		61300621121	WUERTH	

B.30 EM430F6137RF900

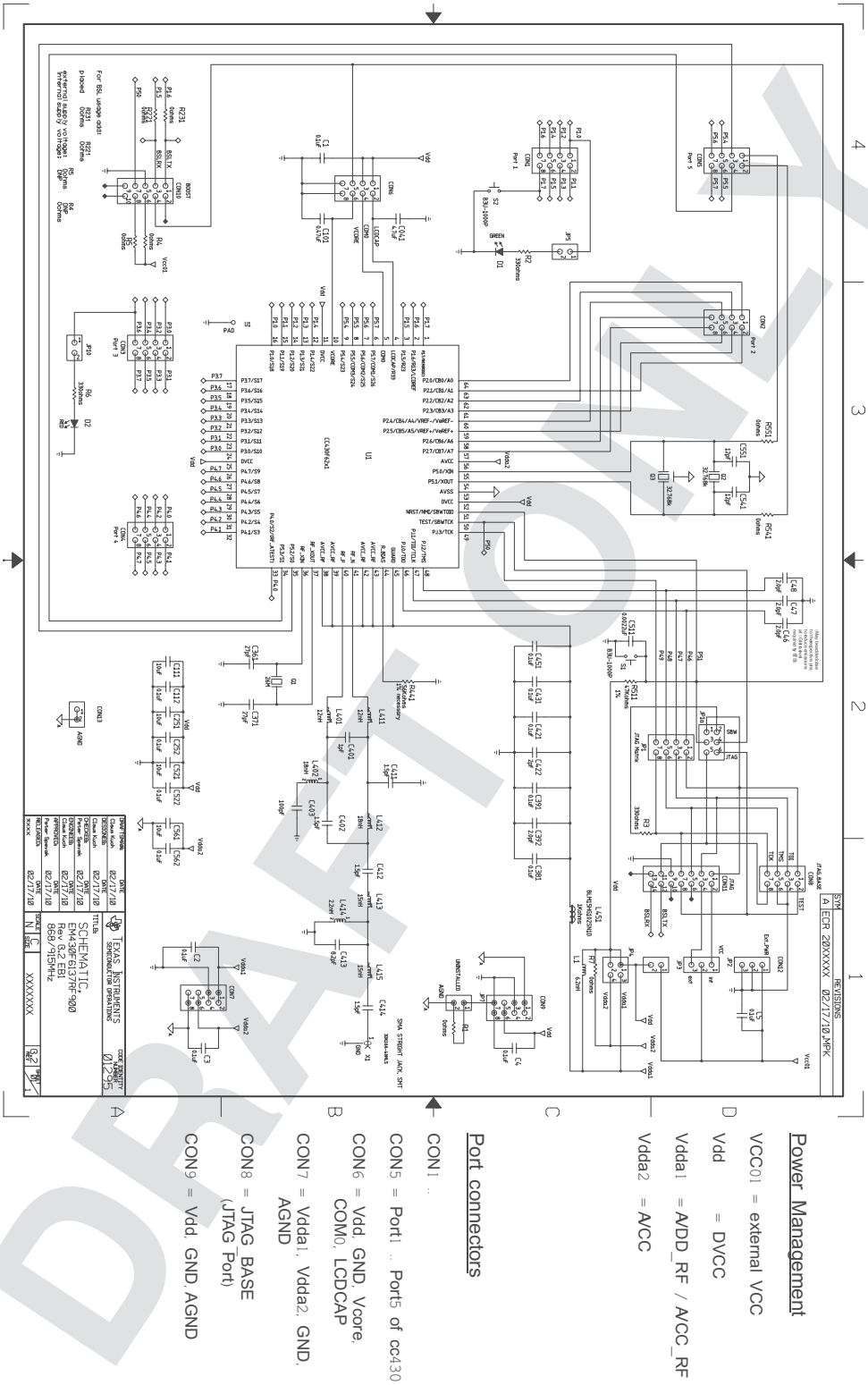


Figure B-59. EM430F6137RF900 Target board, Schematic

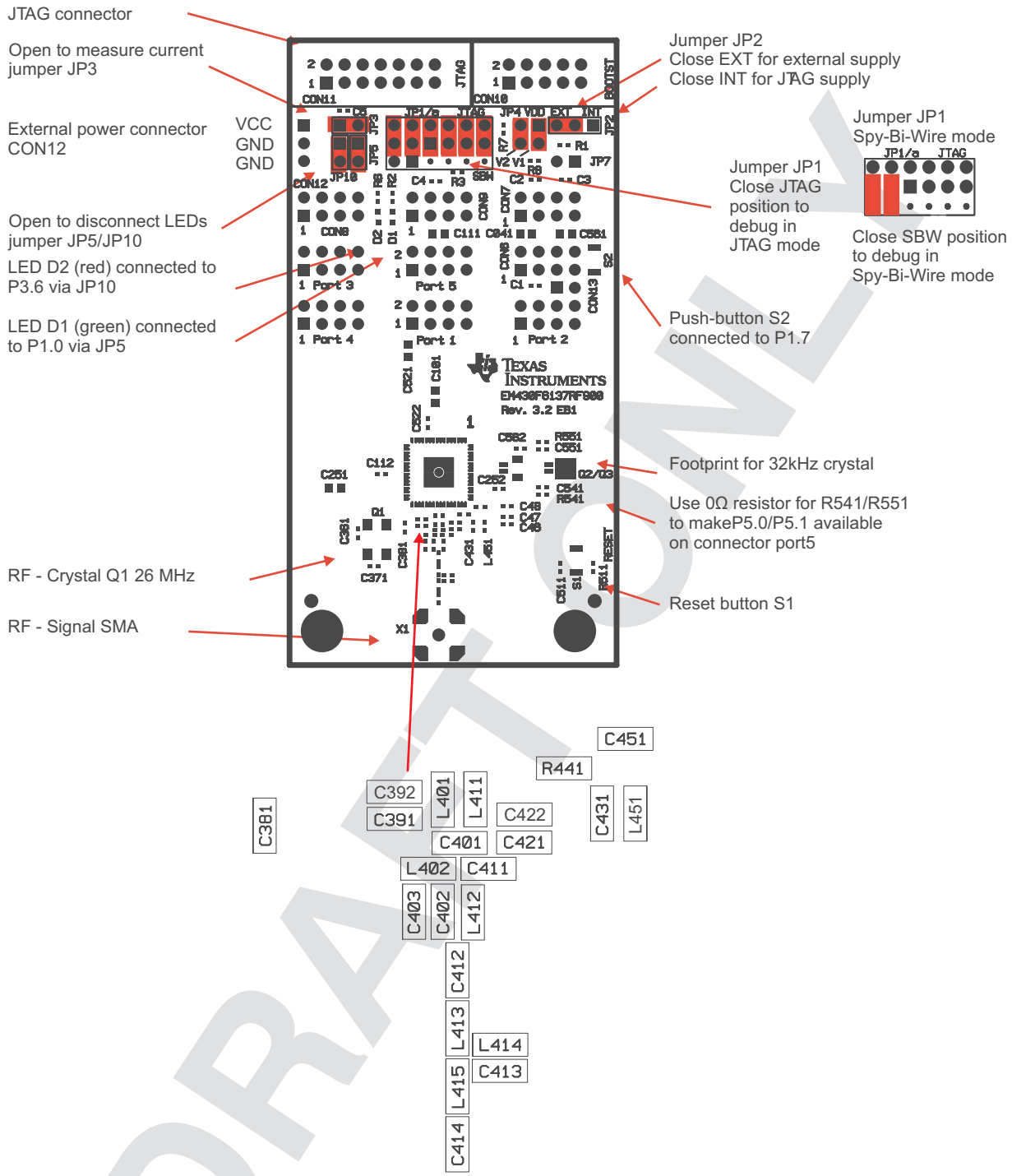


Figure B-60. EM430F6137RF900 Target board, PCB

Table B-31. EM430F6137RF900 Bill of Materials

Pos.	Ref Des	No. per Board	Description	Part No.	Manufacturer
1	Q1	1	(CUSTOMER SUPPLY) CRYSTAL, SMT, 4P, 26MHz	ASX-531(CS)	AKER ELECTRONIC
2	C1-C5, C112, C252, C381, C391, C421, C431, C451, C522, C562	14	CAPACITOR, SMT, 0402, CER, 16V, 10%, 0.1uF	0402YC104KAT2A	AVX
3	C101	1	CAPACITOR, SMT, 0603, CERAMIC, 0.47uF, 16V, 10%, X5R	0603YD474KAT2A	AVX
4	R511	1	RES0402, 47.0K	CRCW04024702F100	DALE
5	CON11	1	HEADER, THU, MALE, 14P, 2X7, 25.4x9.2x9.45mm, 90deg	09 18 514 6323	HARTING
7	D1	1	LED, SMT, 0603, GREEN, 2.1V	APT1608MGC	KINGBRIGHT
8	D2	1	LED, SMT, 0603, RED, 2.0V	APT1608EC	KINGBRIGHT
10	CON12	1	HEADER, THU, MALE, 3P, 1x3, 9.9x4.9x5.9mm	22-03-5035	MOLEX
11	C361, C371	2	50V, ±5%, 27pF	GRM36COG270J50	MURATA
12	L451	1	FERRITE, SMT, 0402, 1.0kΩ, 250mA	BLM15HG102SN1D	MURATA
13	C403	1	CAPACITOR, SMT, 0402, CERAMIC, 100pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H101JZ01	MURATA
14	L414	1	INDUCTOR, SMT, 0402, 2.2nH, ±0.2nH, 1000mA, 250MHz	LQW15AN2N2C10	MURATA
15	L413, L415	2	INDUCTOR, SMT, 0402, 15nH, ±5%, 460mA, 250MHz	LQW15AN15NJ00	MURATA
16	L402, L412	2	INDUCTOR, SMT, 0402, 18nH, ±5%, 370mA, 250MHz	LQW15AN18NJ00	MURATA
17	C401	1	CAPACITOR, SMT, 0402, CER, 1pF, 50V, ±0.25pF, NP0	GJM1555C1H1R0CB01D	MURATA
18	C413	1	CAPACITOR, SMT, 0402, CERAMIC, 8.2pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H8R2CZ01	MURATA
19	C402, C411-C412, C414	4	CAPACITOR, SMT, 0402, CERAMIC, 1.5pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H1R5CZ01	MURATA
20	L401, L411	2	INDUCTOR, SMT, 0402, 12nH, ±5%, 500mA, 250MHz	LQW15AN12NJ00	MURATA
21	C46-C48, C392, C422	5	CAPACITOR, SMT, 0402, CERAMIC, 2.0pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H2R0CZ01	Murata
22	L1	1	INDUCTOR, SMT, 0402, 6.2nH, ±0.1nH, 700mA, 250MHz	LQW15AN6N2D00	Murata
23	S1-S2	2	ULTRA-SMALL TACTILE SWITCH, SMT, 2P, SPST-NO, 1.2x3x2.5mm, 0.05A, 12V	B3U-1000P	OMRON
24	R7	1	RESISTOR/JUMPER, SMT, 0402, 0 Ω, 5%, 1/16W	ERJ-2GE0R00X (UN)	PANASONIC
25	R2-R3, R6	3	RESISTOR, SMT, 0402, THICK FILM, 5%, 1/16W, 330	ERJ-2GEJ331	PANASONIC
27	C511	1	CAPACITOR, SMT, 0402, CER, 2200pF, 50V, 10%, X7R	ECJ-0EB1H222K	PANASONIC
28	C111, C251, C521, C561	4	CAPACITOR, SMT, 0603, CERAMIC, 10uF, 6.3V, 20%, X5R	ECJ-1VB0J106M	PANASONIC
28a	C041	1	CAP CERAMIC 4.7UF 6.3V X5R 0603	ECJ-1VB0J475M	PANASONIC
29	R441	1	RESISTOR, SMT, THICK FILM, 56K, 1/16W, 1%	ERJ-2RKF5602	PANASONIC
30	R1	1	RESISTOR/JUMPER, SMT, 0402, 0 Ω, 5%, 1/16W	ERJ-2GE0R00X	PANASONIC
31	X1	1	SMA STRIGHT JACK, SMT	32K10A-40ML5	ROSENBERGER

Table B-31. EM430F6137RF900 Bill of Materials (continued)

Pos.	Ref Des	No. per Board	Description	Part No.	Manufacturer
33	U1	1	DUT, SMT, PQFP, RGC-64, 0.5mmLS, 9.15x9.15x1mm, THRM.PAD	CC430F6137	TI
34	JP1	1	Pin Connector 2x4pin	61300821121	WUERTH
35	JP2	1	Pin Connector 1x3pin	61300311121	WUERTH
36a	JP3, JP5, JP10	3	Pin Connector 1x2pin	61300211121	WUERTH
38	JP1a	1	Pin Connector 2x3pin	61300621121	WUERTH

B.31 EM430F6147RF900

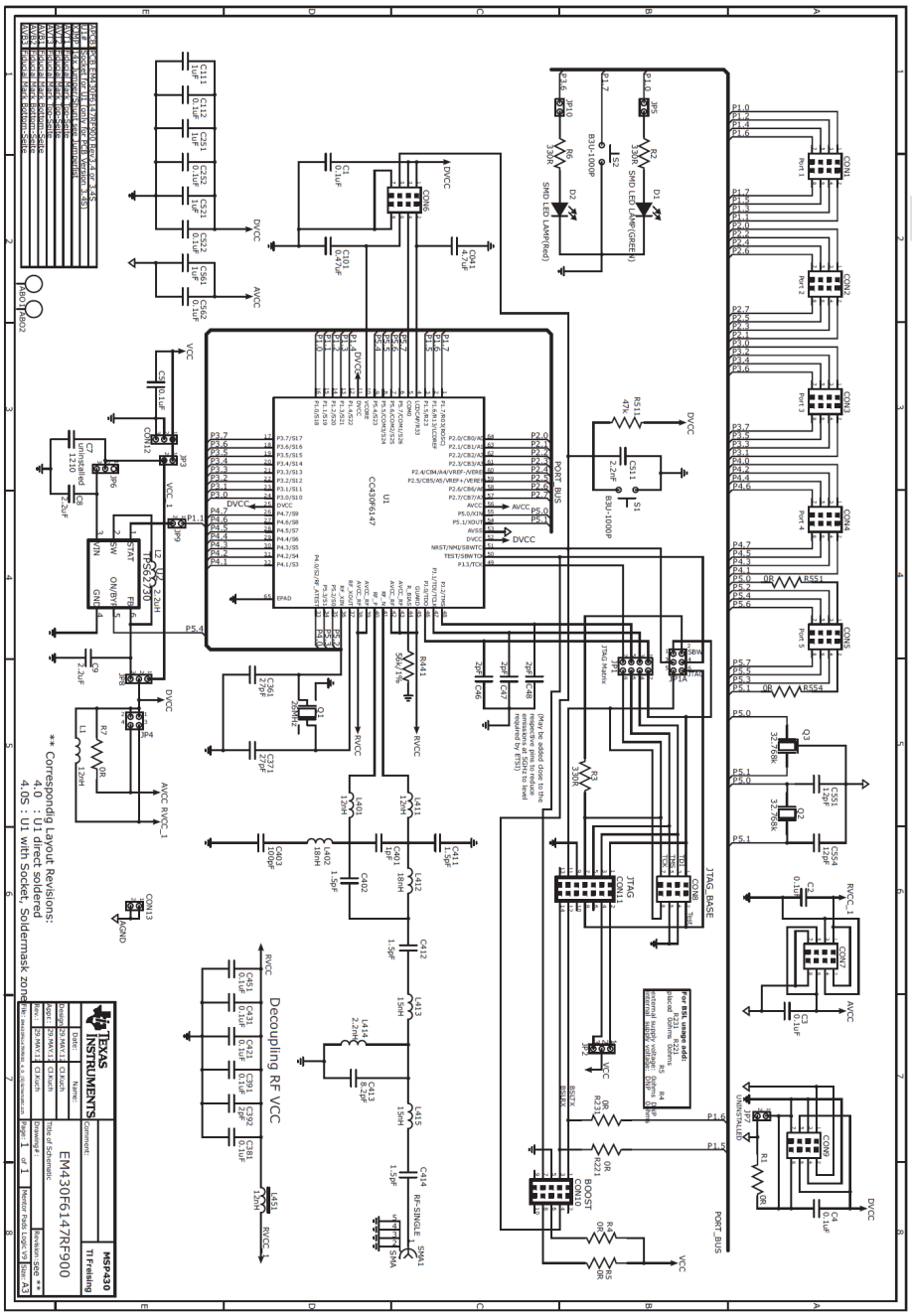


Figure B-61. EM430F6147RF900 Target board, Schematic

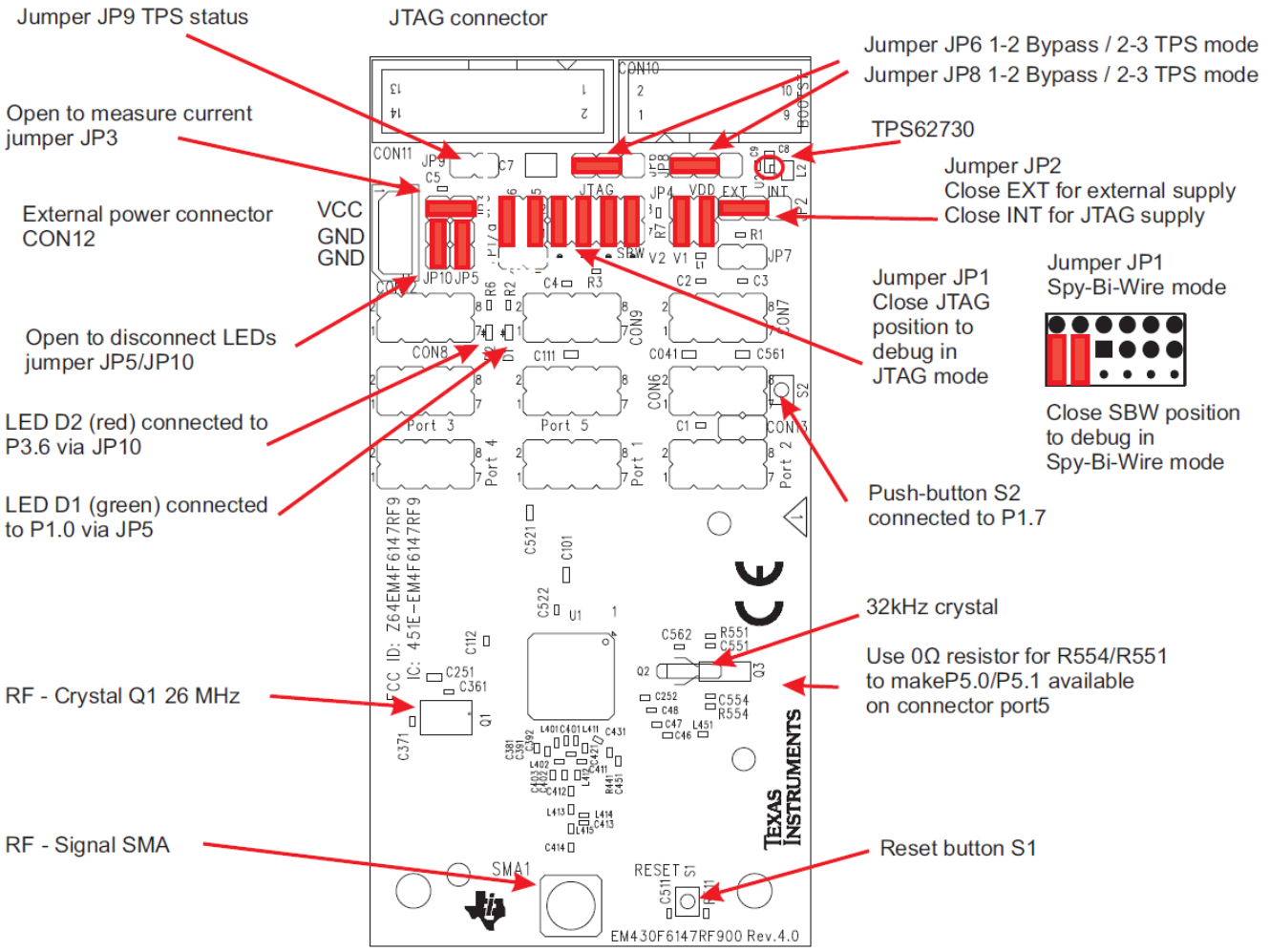


Figure B-62. EM430F6147RF900 Target board, PCB

Table B-32. EM430F6147RF900 Bill of Materials

Pos.	Ref Des	No. per Board	Description	Part No.	Manufacturer
1	Q1	1	(CUSTOMER SUPPLY) CRYSTAL, SMT, 4P, 26MHz	ASX-531(CS)	AKER ELECTRONIC
2	C1-5 C112 C252 C381 C391 C421 C431 C451 C522 C562	14	CAPACITOR, SMT, 0402, CER, 16V, 10%, 0.1uF	0402YC104KAT2A	AVX
3	C101	1	CAPACITOR, SMT, 0603, CERAMIC, 0.47uF, 16V, 10%, X5R	0603YD474KAT2A	AVX
4	R511	1	RES0402, 47.0K	CRCW04024702F100	DALE
5	CON11	1	HEADER, THU, MALE, 14P, 2X7, 25.4x9.2x9.45mm, 90deg	09 18 514 6323	HARTING
7	D1	1	LED, SMT, 0603, GREEN, 2.1V	APT1608MGC	KINGBRIGHT
8	D2	1	LED, SMT, 0603, RED, 2.0V	APT1608EC	KINGBRIGHT
10	CON12	1	HEADER, THU, MALE, 3P, 1x3, 9.9x4.9x5.9mm	22-03-5035	MOLEX
11	C361, C371	2	50V, ±5%, 27pF	GRM36COG270J50	MURATA
12	L451	1	Inductor, SMD, 0402, 12nH, 5%, 370mA	LQW15AN12NJ00	MURATA
13	C403	1	CAPACITOR, SMT, 0402, CERAMIC, 100pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H101JZ01	MURATA
14	L414	1	INDUCTOR, SMT, 0402, 2.2nH, ±0.2nH, 1000mA, 250MHz	LQW15AN2N2C10	MURATA
15	L413	1	Inductor, SMD, 0402, 15nH, 5%, 370mA, 250MHz	LQW15AN15NJ00	MURATA
15	L415	1	INDUCTOR,SMT,0402,15nH,+/-5%,460mA,250MHz	LQW15AN15NJ00	MURATA
16	L402, L412	2	Inductor, SMD, 0402, 18nH, 5%, 460mA, 250MHz	LQW15AN18NJ00	MURATA
17	C401	1	CAPACITOR, SMT, 0402, CER, 1pF, 50V, ±0.25pF, NP0	GJM1555C1H1R0CB01D	MURATA
18	C413	1	CAPACITOR, SMT, 0402, CERAMIC, 8.2pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H8R2CZ01	MURATA
19	C402, C411-C412, C414	4	CAPACITOR, SMT, 0402, CERAMIC, 1.5pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H1R5CZ01	MURATA
20	L1, L401, L411	3	INDUCTOR, SMT, 0402, 12nH, ±5%, 500mA, 250MHz	LQW15AN12NJ00	MURATA
21	C46-C48, C392	4	CAPACITOR, SMT, 0402, CERAMIC, 2.0pF, 50V, ±0.25pF, C0G(NP0)	GRM1555C1H2R0CZ01	MURATA
22	L2	1	Inductor, SMD, 0805, 2.2uH, 20%, 600mA, 50MHz	LQM21PN2R2MC0	MURATA
23	S1-S2	2	ULTRA-SMALL TACTILE SWITCH, SMT, 2P, SPST-NO, 1.2x3x2.5mm, 0.05A, 12V	B3U-1000P	OMRON
24	R1, R7, R551, R554	4	RESISTOR/JUMPER, SMT, 0402, 0 Ω, 5%, 1/16W	ERJ-2GE0R00X (UN)	PANASONIC
25	R2-R3, R6	3	RESISTOR, SMT, 0402, THICK FILM, 5%, 1/16W, 330	ERJ-2GEJ331	PANASONIC
27	C511	1	CAPACITOR, SMT, 0402, CER, 2200pF, 50V, 10%, X7R	ECJ-0EB1H222K	PANASONIC
28	C111, C251, C521, C561	4	CAPACITOR, SMT, 0603, CERAMIC, 1uF, 6.3V, 20%, X5R	ECJ-1VB0J105K	PANASONIC
28a	C041	1	CAP CERAMIC 4.7UF 6.3V X5R 0603	ECJ-1VB0J475M	PANASONIC
29	R441	1	RESISTOR, SMT, THICK FILM, 56K, 1/16W, 1%	ERJ-2RKF5602	PANASONIC
30	X1	1	SMA STRIGHT JACK, SMT	32K10A-40ML5	ROSENBERGER

Table B-32. EM430F6147RF900 Bill of Materials (continued)

Pos.	Ref Des	No. per Board	Description	Part No.	Manufacturer
31	U1	1	DUT, SMT, PQFP, RGC-64, 0.5mmLS, 9.15x9.15x1mm, THRM.PAD	CC430F6147	TI
33	U2	1	IC, Step Down Converter with Bypass Mode for Low Power Wireless	TPS62370	TI
34	JP1	1	Pin Connector 2x4pin	61300821121	WUERTH
35	JP2, JP6, JP8	3	Pin Connector 1x3pin	61300311121	WUERTH
36a	JP3, JP5, JP9, JP10	4	Pin Connector 1x2pin	61300211121	WUERTH
38	JP1a	1	Pin Connector 2x3pin	61300621121	WUERTH
38	C7	1	Capacitor, Ceramic, 1206, 16V, X5R, 20%	GRM31CR61C226ME15L	MURATA
38	C8-9	2	CAP, SMD, Ceramic, 0402, 2.2uF, X5R	GRM155R60J225ME15D	MURATA
38	C041	1	CAP, SMD, Ceramic, 0603, 4.7uF, 16V, 10%, X5R		MURATA

B.32 MSP-FET430PIF

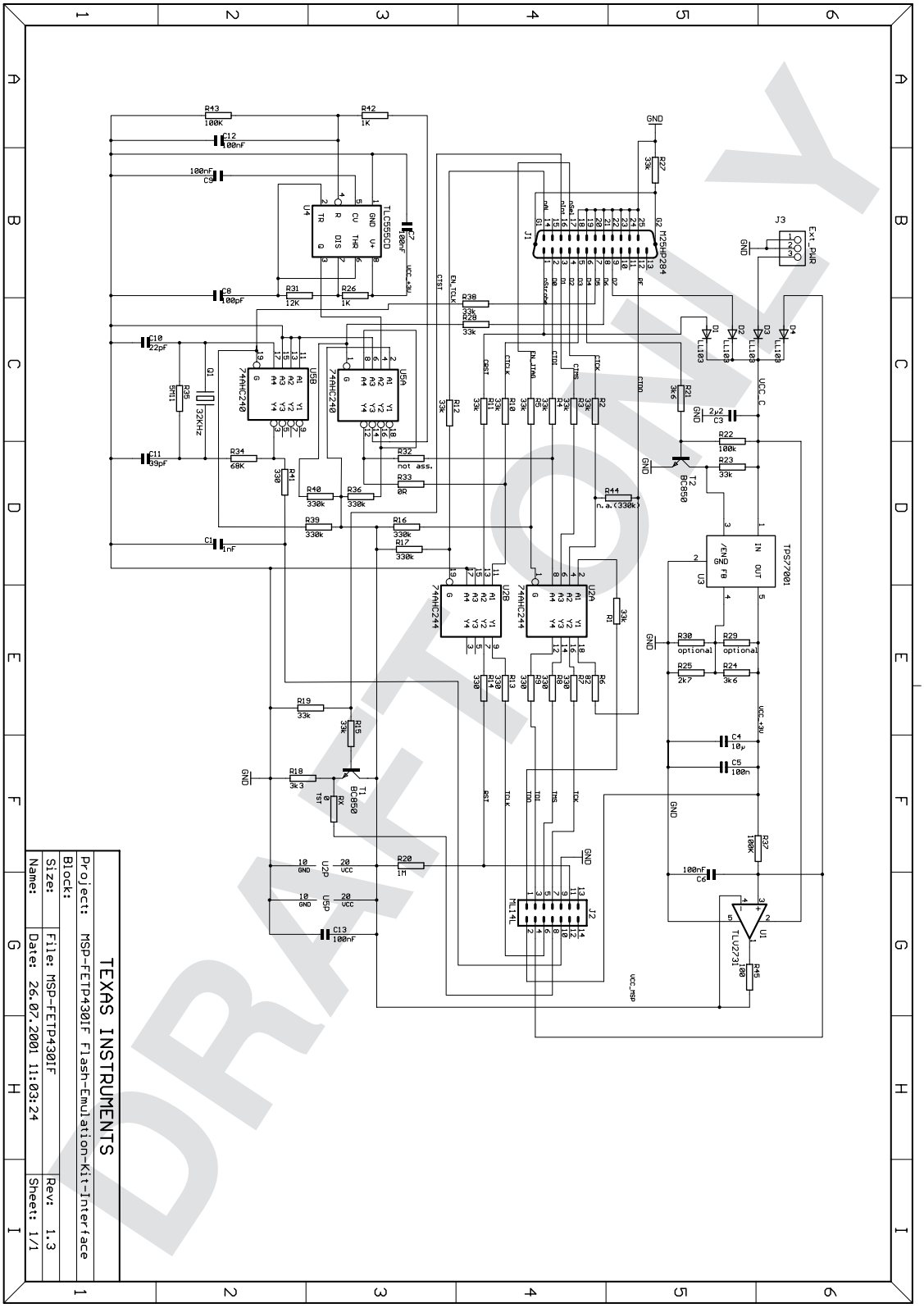


Figure B-63. MSP-FET430PIF FET Interface Module, Schematic

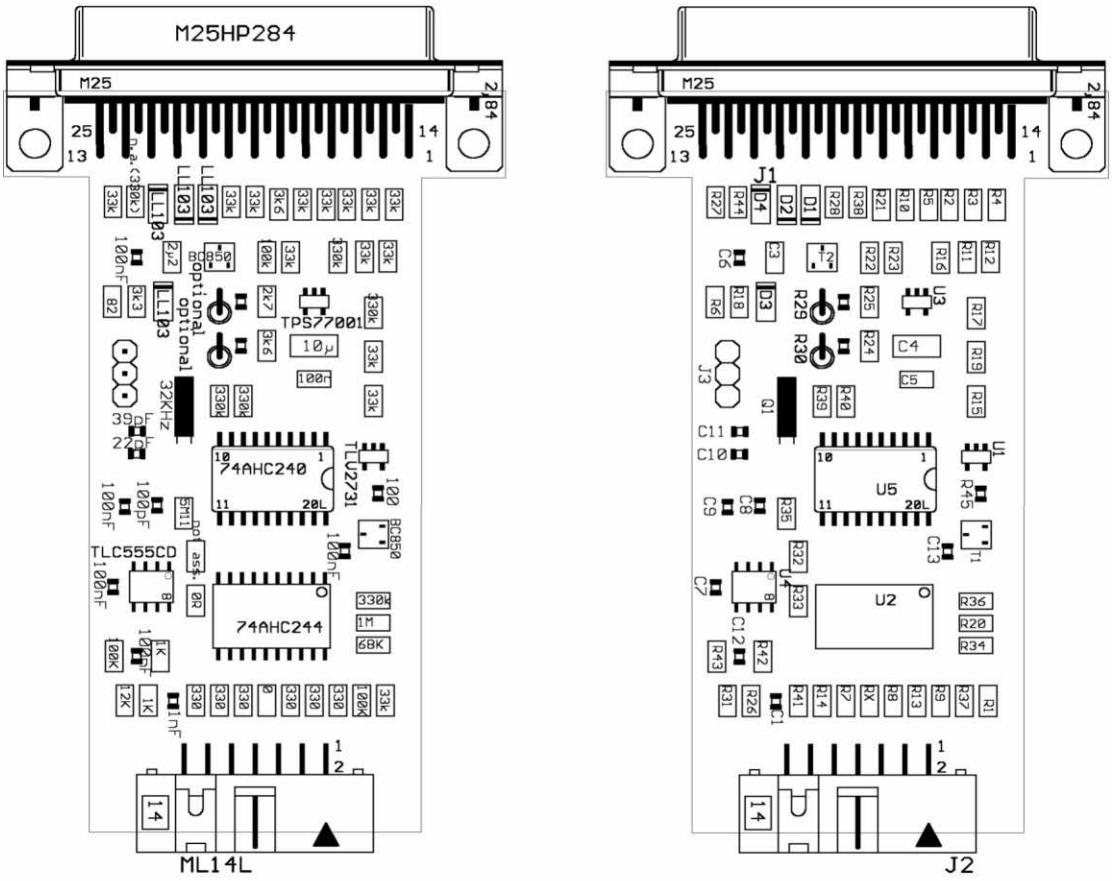


Figure B-64. MSP-FET430PIF FET Interface Module, PCB

B.33 MSP-FET430UIF

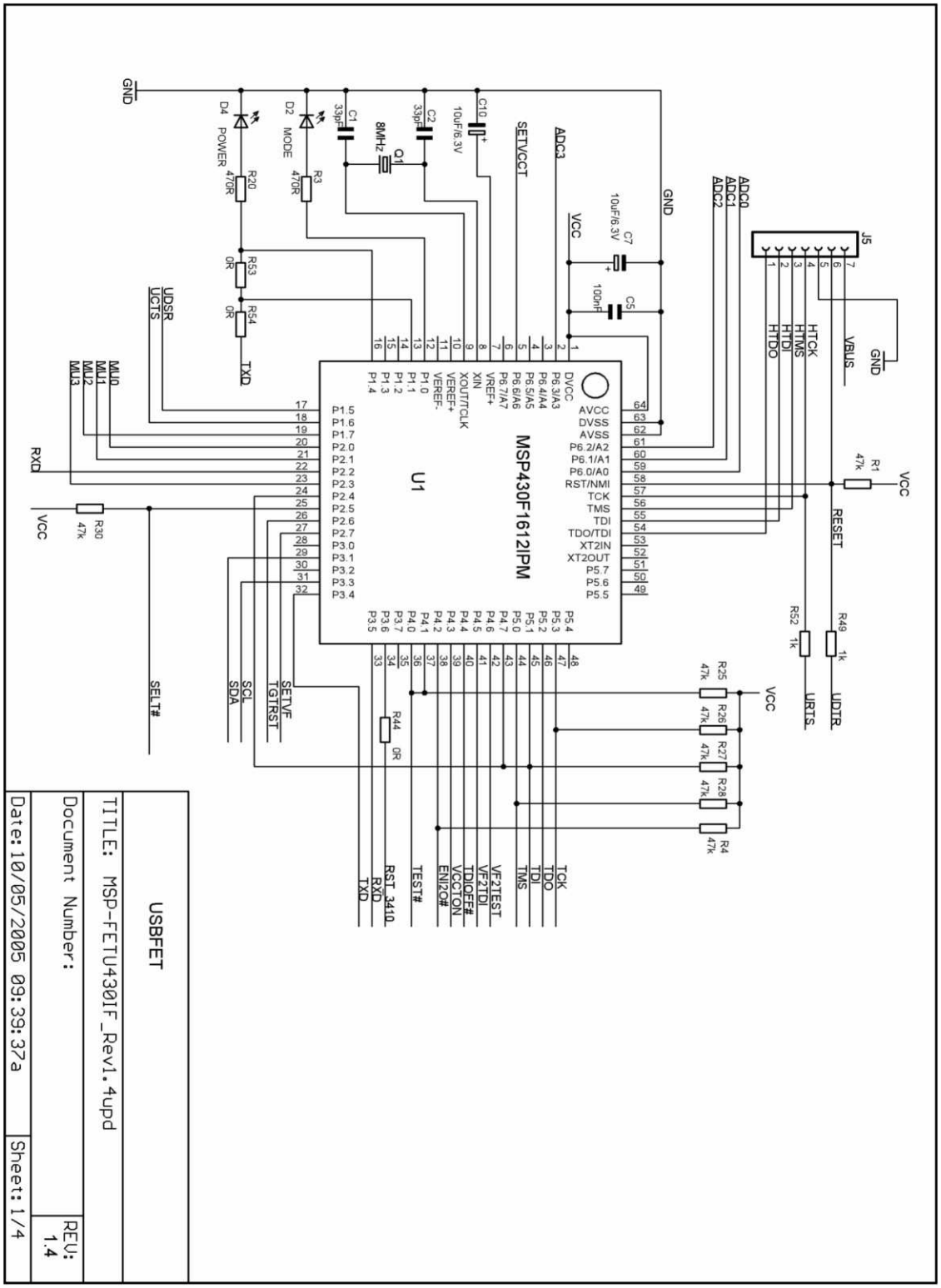


Figure B-65. MSP-FET430UIF USB Interface, Schematic (1 of 4)

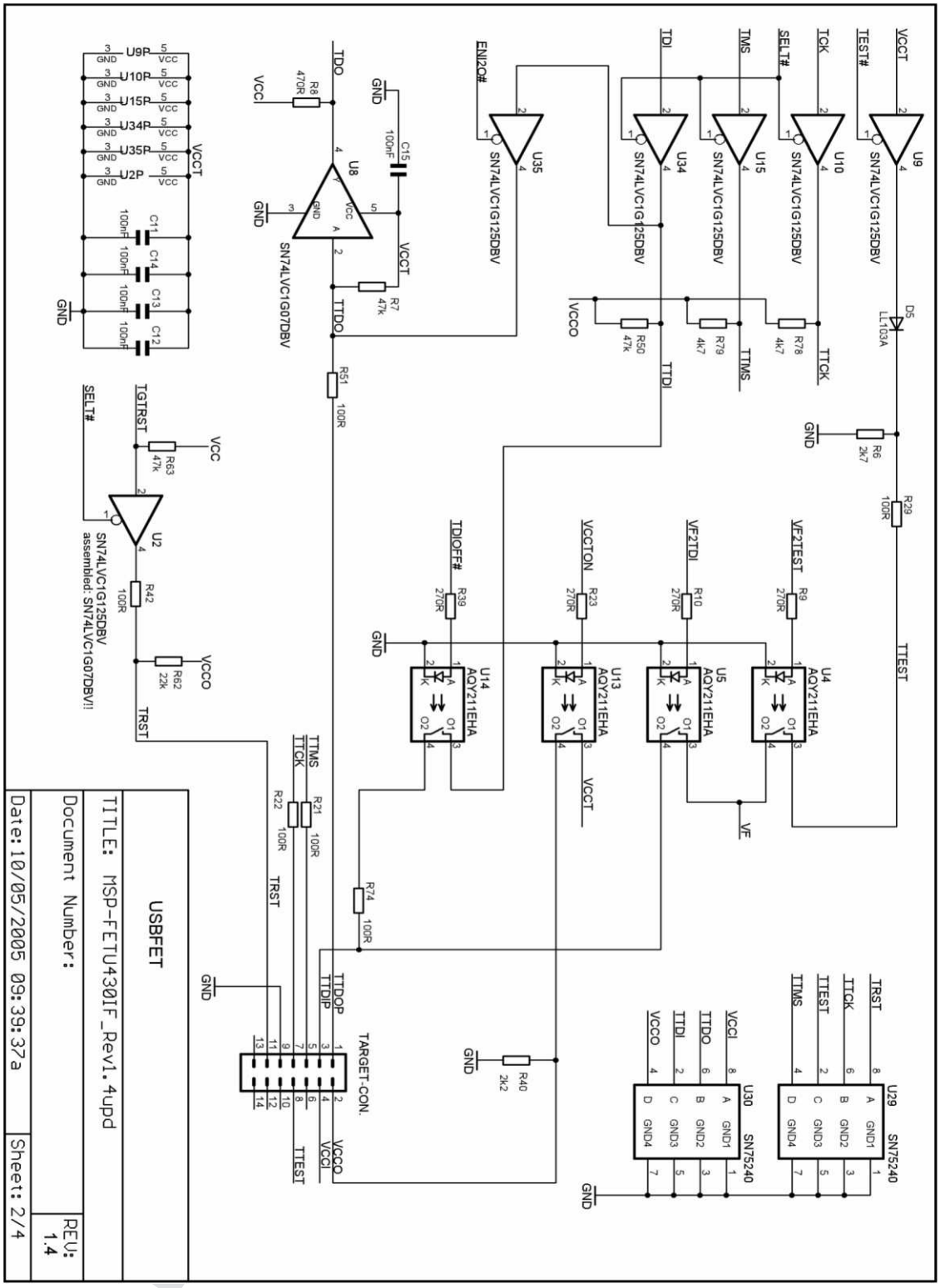


Figure B-66. MSP-FET430UIF USB Interface, Schematic (2 of 4)

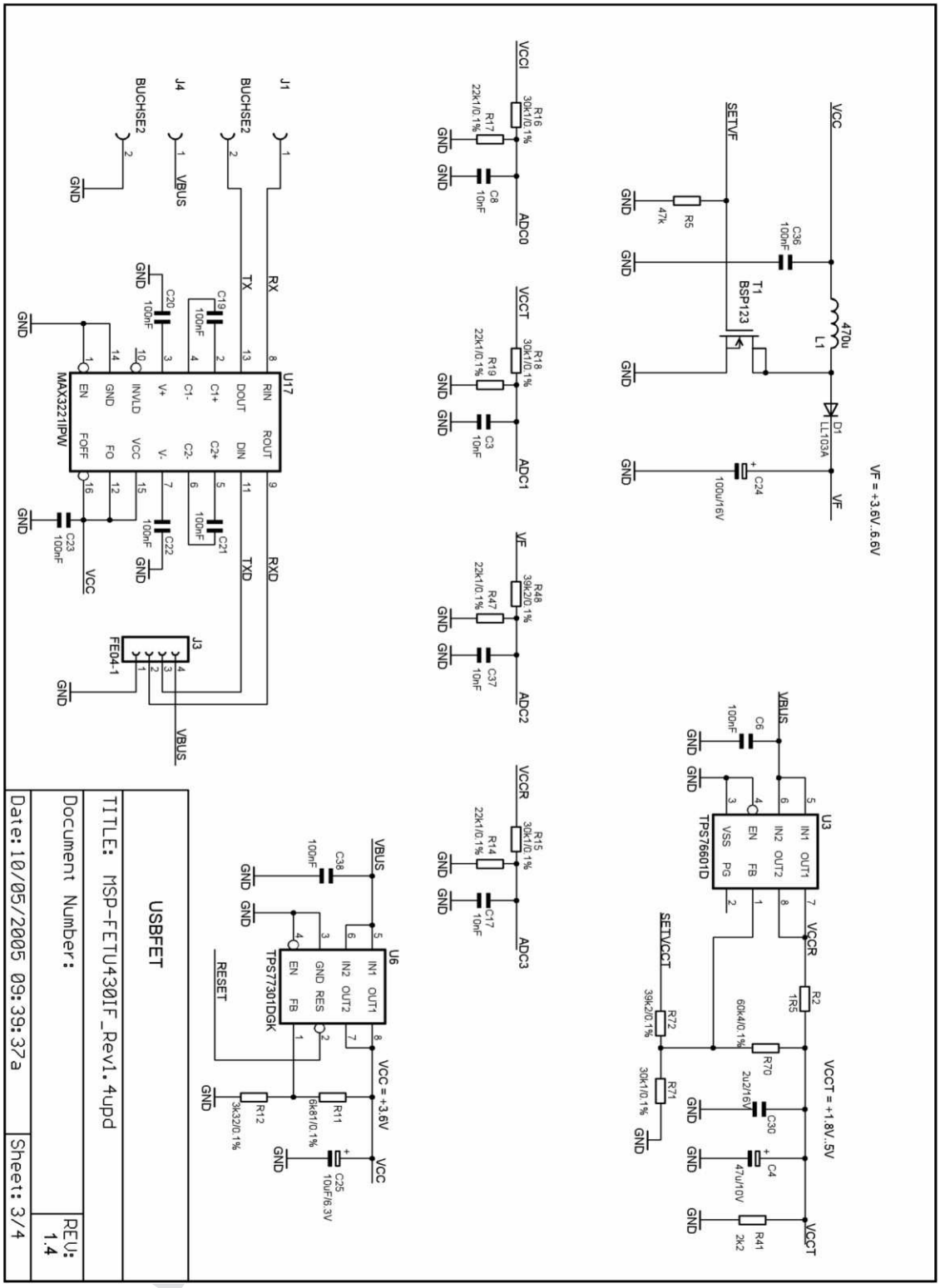


Figure B-67. MSP-FET430UIF USB Interface, Schematic (3 of 4)

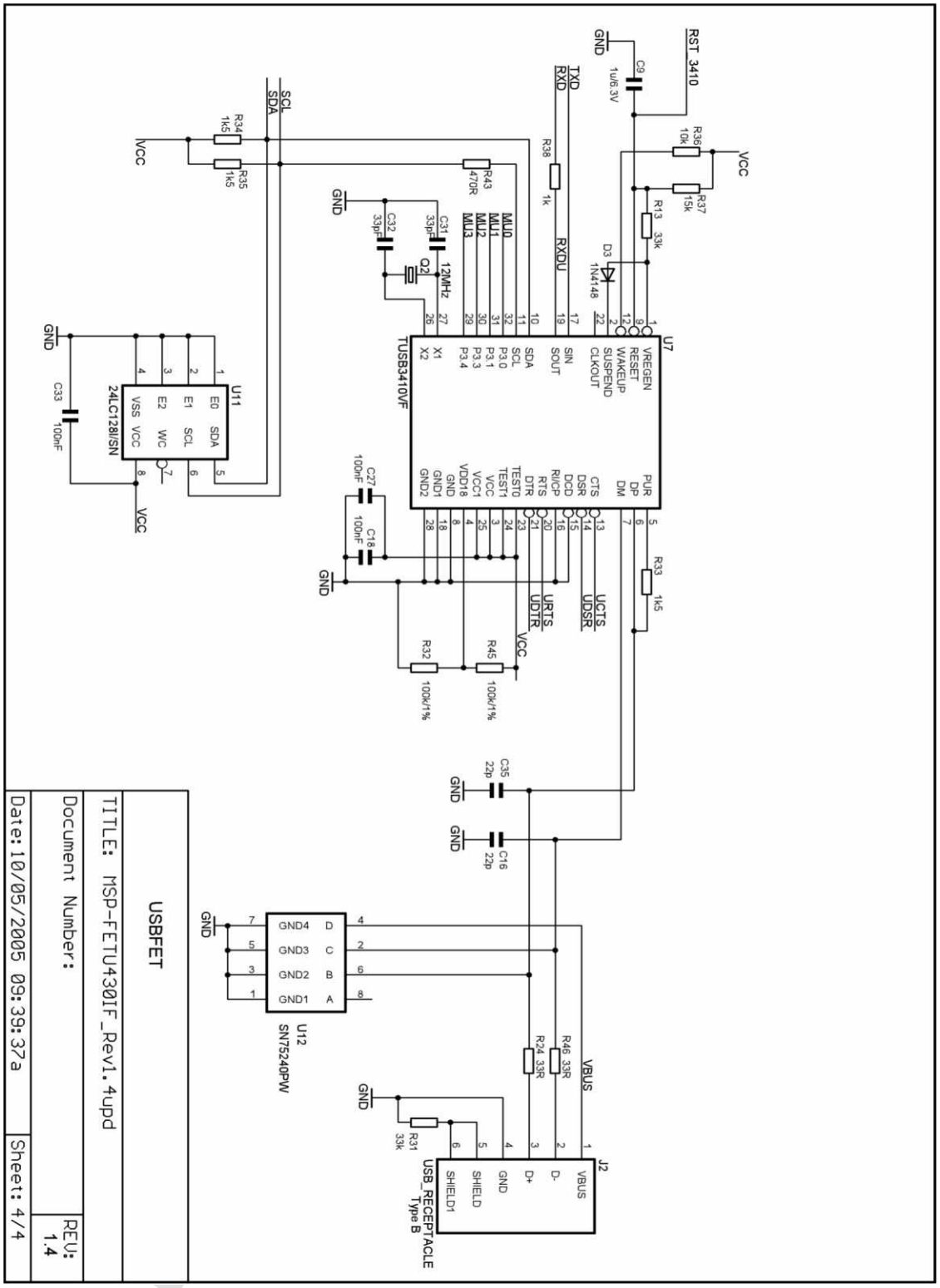


Figure B-68. MSP-FET430UIF USB Interface, Schematic (4 of 4)

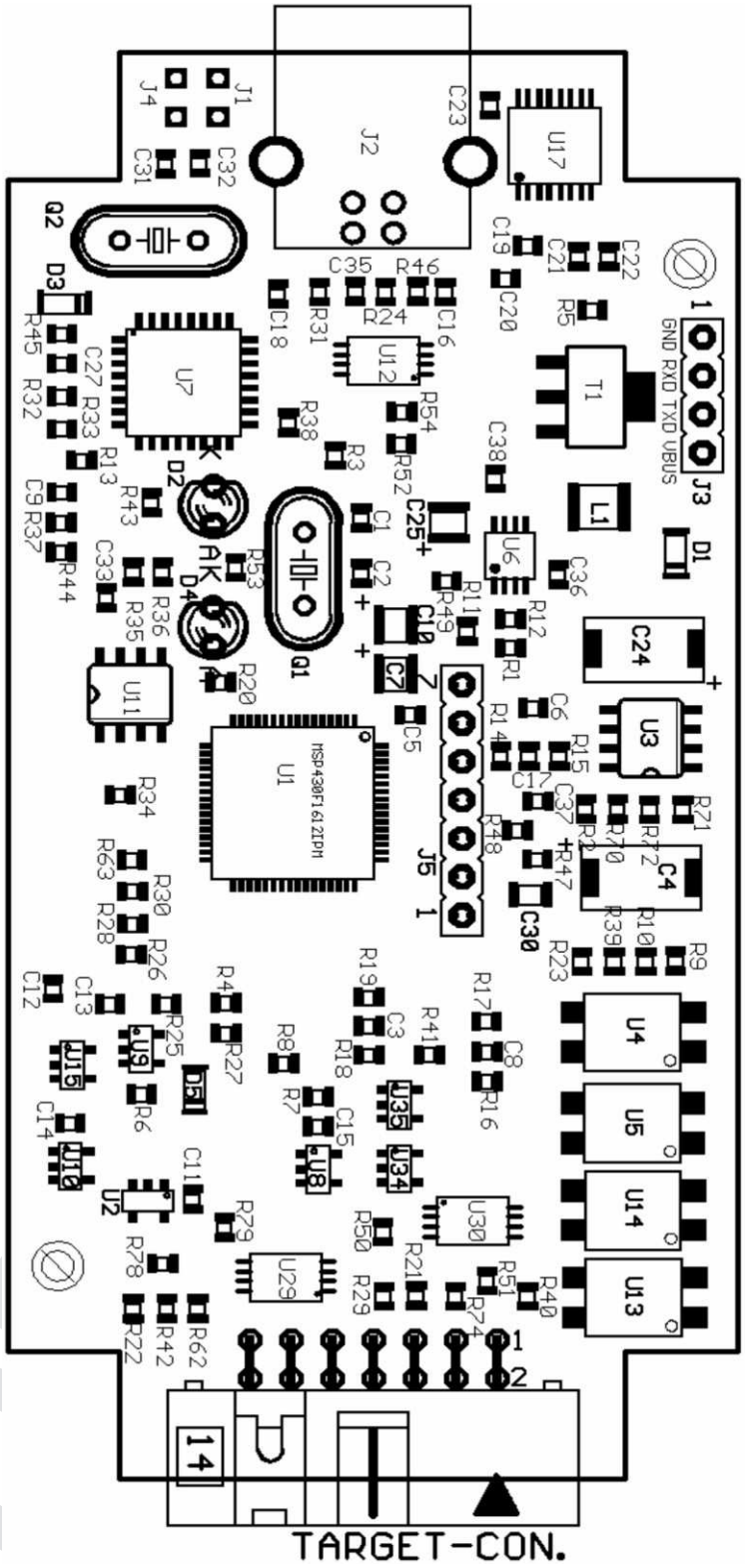


Figure B-69. MSP-FET430UIF USB Interface, PCB

B.33.1 MSP-FET430UIF Revision History

Revision 1.3

- Initial released hardware version

Assembly change on 1.3 (May 2005)

- R29, R51, R42, R21, R22, R74: value changed from 330R to 100R

Changes 1.3 to 1.4 (Aug 2005)

- J5: VBUS and RESET additionally connected
- R29, R51, R42, R21, R22, R74: value changed from 330R to 100R
- U1, U7: F1612 can reset TUSB3410; R44 = 0R added
- TARGET-CON.: pins 6, 10, 12, 13, 14 disconnected from GND
- Firmware-upgrade option through BSL: R49, R52, R53, R54 added; R49, R52 are currently DNP
- Pullups on TCK and TMS: R78, R79 added
- U2: Changed from SN74LVC1G125DBV to SN74LVC1G07DBV

NOTE: Using a locally powered target board with hardware revision 1.4

Using an MSP-FET430UIF interface hardware revision 1.4 with populated R62 in conjunction with a locally powered target board is not possible. In this case, the target device RESET signal is pulled down by the FET tool. It is recommended to remove R62 to eliminate this restriction. This component is located close to the 14-pin connector on the MSP-FET430UIF PCB. See the schematic and PCB drawings in this document for the exact location of this component.

Assembly change on 1.4 (January 2006)

- R62: not populated

Hardware Installation Guide

This section describes the hardware installation process of the following USB debug interfaces on a PC running Windows XP:

- MSP-FET430UIF
- eZ430-F2013
- eZ430-RF2500
- eZ430-Chronos
- eZ430-RF2780
- eZ430-RF2560
- MSP-WDSxx "Metawatch"
- LaunchPad (MSP-EXP430G2)
- MSP-EXP430FR5739
- MSP-EXP430F5529

The installation procedure for other supported versions of Windows is very similar and, therefore, not shown here.

Topic **Page**

C.1 Hardware Installation

Table C-1 shows the USB VIDs and PIDs used in MSP430 tools.

Table C-1. USB VIDs and PIDs Used in MSP430 Tools

Tool	USB VID	USB PID	INF File Name
eZ430-F2013	0x0451	0xF430	usbuart3410.inf
eZ430-RF2500	0x0451	0xF432	430CDC.inf
eZ430-RF2780	0x0451	0xF432	430CDC.inf
eZ430-RF2560	0x0451	0xF432	430CDC.inf
MSP-WDSxx "Metawatch"	0x0451	0xF432	430CDC.inf
eZ430-Chronos	0x0451	0xF432	430CDC.inf
MSP-FET430UIF(1)	0x2047	0x0010	msp430tools.inf
LaunchPad (MSP-EXP430G2)	0x0451	0xF432	430CDC.inf
MSP-EXP430FR5739	0x0451	0xF432	430CDC.inf
MSP-EXP430F5529	0x0451	0xF432	430CDC.inf

(1) The older MSP-FET430UIF used with IAR versions before v5.20.x and CCS versions before v5.1 has VID 0x0451 and PID 0xF430. With the firmware update, it is updated to the 0x2047 and 0x0010, respectively.

1. Before connecting of the USB Debug Interface with a USB cable to a USB port of the PC the one of IDEs (CCS or IAR) should be installed. The IDE installation isntalls also drivers for USB Debug Interfaces without user interaction. After IDE installation the USB Debug Interface can be connected and will be ready to work within few seconds.
2. The driver can be also installed manually. After plug in the USB Debug Interface to USB port of the PC the Hardware Wizard starts automatically and opens the "Found New Hardware Wizard" window.
3. Select "Install from a list or specific location (Advanced)" (see Figure C-1).

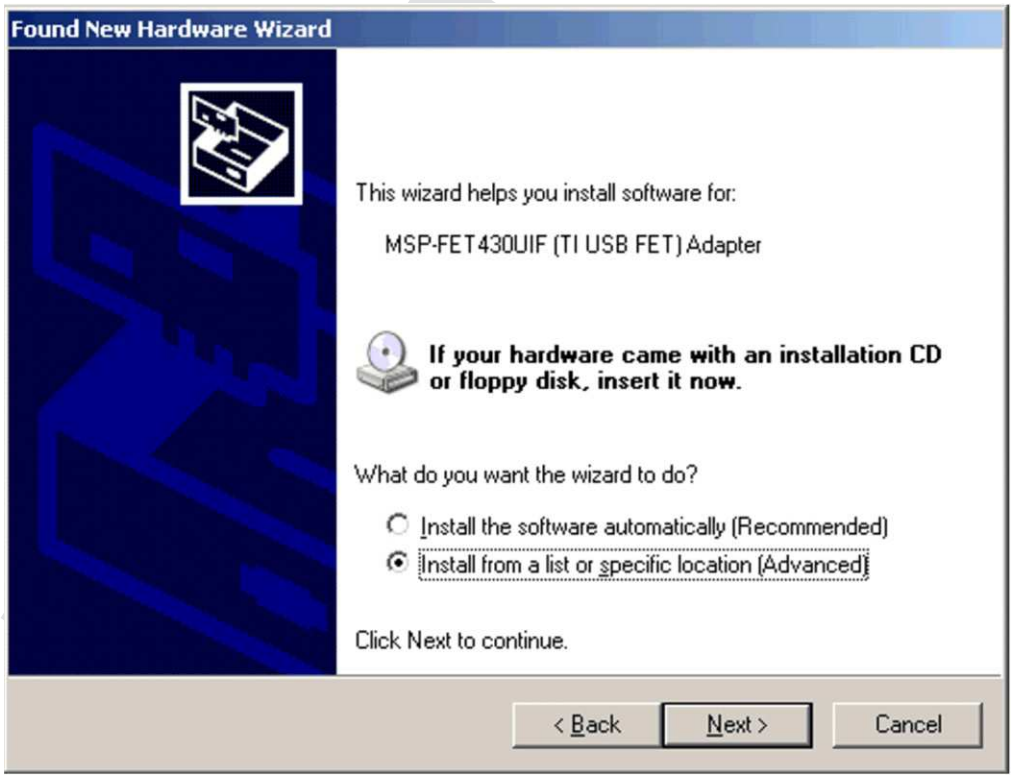


Figure C-1. Windows XP Hardware Wizard

4. Browse to the folder where the driver information files are located (see Figure C-2).
   For CCS, the default folder is: c:\ti\ccsv5\ccs_base\emulation\drivers\msp430\USB_CDC, or
   c:\ti\ccsv5\ccs_base\emulation\drivers\msp430\USB_FET_XP_XX, or
   c:\ti\ccsv5\ccs_base\emulation\drivers\msp430\USB_eZ-RF depending of firmware version of the tool.
   For IAR Embedded Workbench, the default folder is: <Installation Root>\Embedded Workbench x.x\ 430\drivers\TIUSBFET\eZ430-UART, or
   <Installation Root>\Embedded Workbench x.x\ 430\drivers\<Win_OS>.

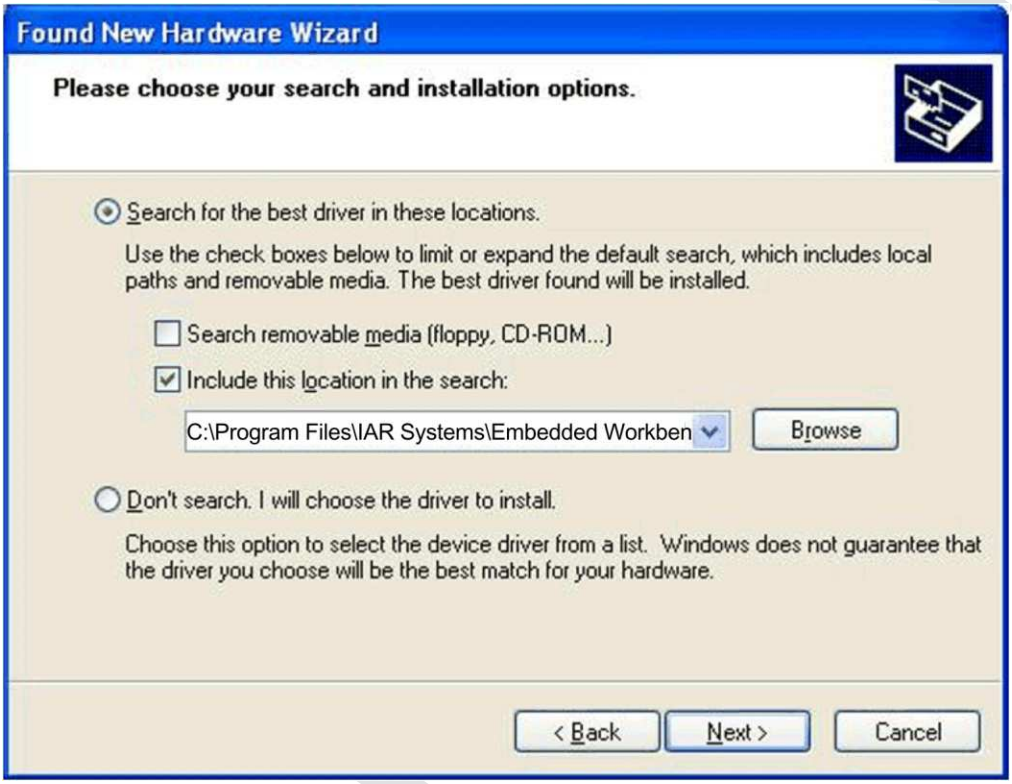


Figure C-2. Windows XP Driver Location Selection Folder

5. The Wizard generates a message that an appropriate driver has been found.

6. The wizard installs the driver files.
7. The wizard shows a message that it has finished the installation of the software USB Debug Interface.
8. The USB debug interface is installed and ready to use. The Device Manager lists a new entry as shown in Figure C-3, Figure C-4, or Figure C-5.

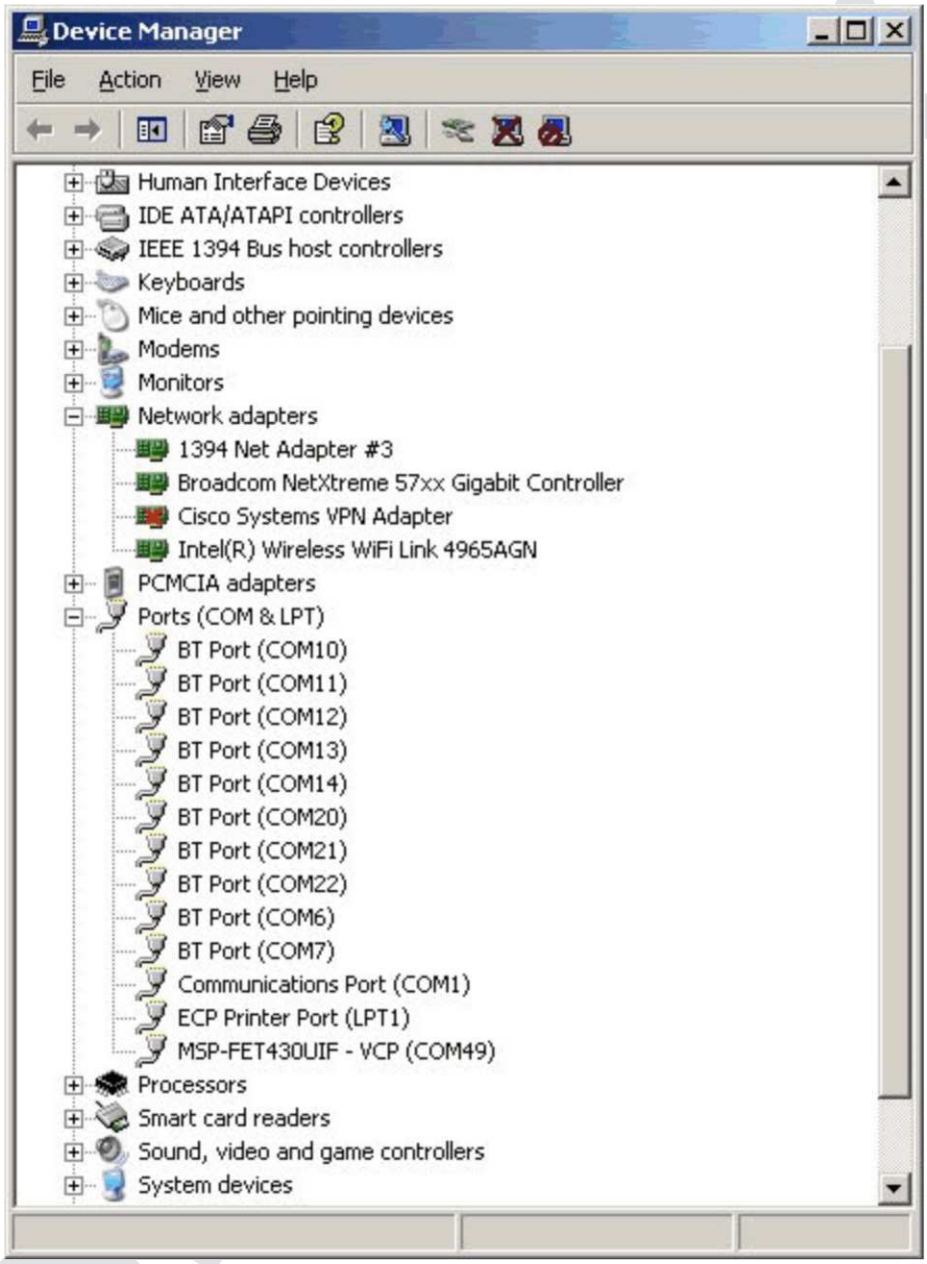


Figure C-3. Device Manager Using USB Debug Interface using VID/PID 0x2047/0x0010

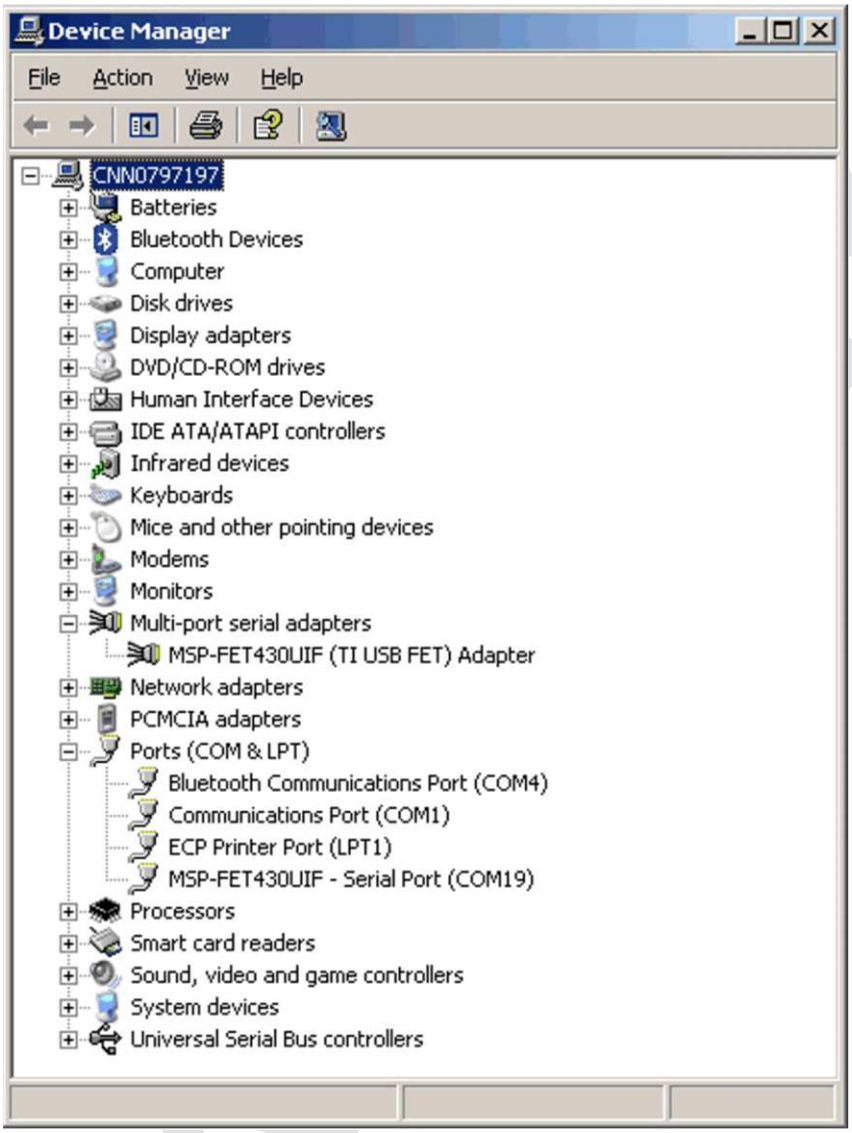


Figure C-4. Device Manager Using USB Debug Interface with VID/PID 0x0451/0xF430

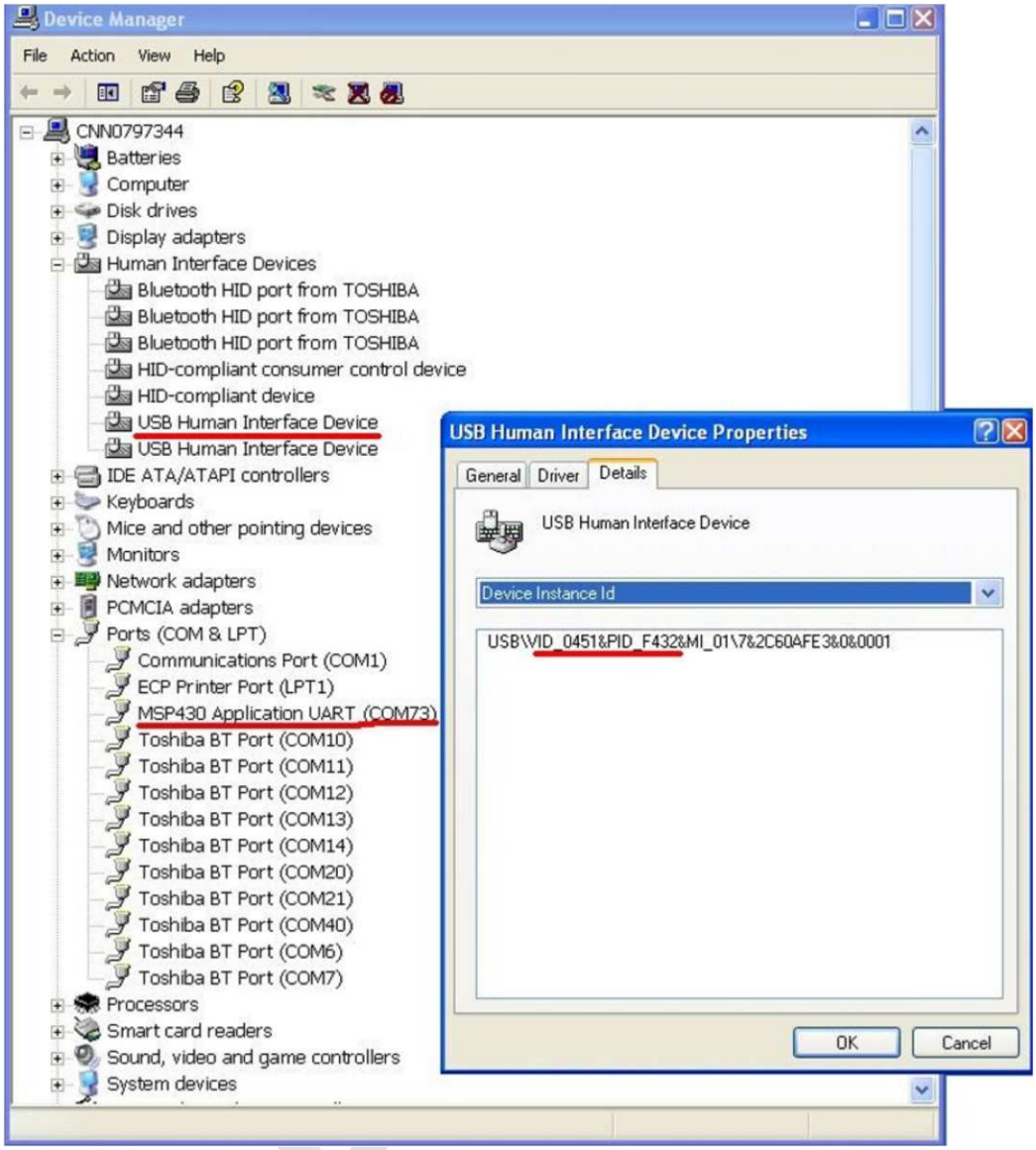


Figure C-5. Device Manager Using USB Debug Interface with VID/PID 0x0451/0xF432

Document Revision History

Version	Changes
SLAU278	Initial release
SLAU278A	Updated USB driver installation according to CCE v3.1 SR1 and CCS v4.
SLAU278B	Added information about MSP-FET430U80USB, MSP-TS430PN80USB, and eZ430-Chronos.
SLAU278C	Added bills of materials and updated some PCBs in Appendix B. Added information about MSP-TS430DA38, MSP-TS430DL48, MSP-TS430PW14, MSP-TS430PW28.
SLAU278D	Added information about MSP-TS430L092, MSP-TS430RSB40, MSP-TS430RGC64USB, MSP-TS430PZ100USB, MSP-FET430F5137RF900
SLAU278E	Added jumper information for MSP-TS430L092 PCBs to Appendix B. Added new supported devices in Chapter 1.
SLAU278F	Added information about MSP-TS430PW24, MSP-TS430PW28A, MSP-TS430RHA40A, MSP-TS430RGZ48B, MSP-TS430RGC64B, MSP-TS430PN80A, and MSP-TS430PZ100B. Updated MSP-TS430RSB40 schematics
SLAU278G	Added information for MSP-TS430PZ100C
SLAU278H	Added information for MSP-TS430D8 and MSP-TS430RGC64C
SLAU278I	Updated Table 1-1. Replaced Figure 2-2. Added Figure 2-3. Replaced Figure B-35 and Figure B-63. Added Table C-1. Editorial changes throughout.
SLAU278J	Added EM430F6147RF900 Section B.31.

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

RF EMISSION TESTING

All MSP-TS430XXX kits and kits listed below have been tested for compliance with Part 15 of the FCC and Canadian ICES-003 rules. See REGULATORY COMPLIANCE INFORMATION for details on compliance with these rules. All other kits described in this document either have not been tested or have the statement in their documentation, which is listed in Related Documentation From Texas Instruments.

MSP-FET430UIF

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Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement for Class A EVM devices

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Interference Statement for Class B EVM devices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For EVMs annotated as IC – INDUSTRY CANADA Compliant

This Class A or B digital apparatus complies with Canadian ICES-003.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Concerning EVMs including radio transmitters

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concerning EVMs including detachable antennas

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

~

Cet appareil numérique de la classe A ou B est conforme à la norme NMB-003 du Canada.

Les changements ou les modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actionner l'équipement.

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Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Important Notice for Users of this Product in Japan

This development kit is NOT certified as Confirming to Technical Regulations of Radio Law of Japan!

If you use this product in Japan, you are required by Radio Law of Japan to follow the instructions below with respect to this product:

1. Use this product in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use this product only after you obtained the license of Test Radio Station as provided in Radio Law of Japan with respect to this product, or
3. Use of this product only after you obtained the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to this product. Also, please do not transfer this product, unless you give the same notice above to the transferee. Please note that if you could not follow the instructions above, you will be subject to penalties of Radio Law of Japan.

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1. You have unique knowledge concerning Federal, State and local regulatory requirements (including but not limited to Food and Drug Administration regulations, if applicable) which relate to your products and which relate to your use (and/or that of your employees, affiliates, contractors or designees) of the EVM for evaluation, testing and other purposes.
2. You have full and exclusive responsibility to assure the safety and compliance of your products with all such laws and other applicable regulatory requirements, and also to assure the safety of any activities to be conducted by you and/or your employees, affiliates, contractors or designees, using the EVM. Further, you are responsible to assure that any interfaces (electronic and/or mechanical) between the EVM and any human body are designed with suitable isolation and means to safely limit accessible leakage currents to minimize the risk of electrical shock hazard.
3. You will employ reasonable safeguards to ensure that your use of the EVM will not result in any property damage, injury or death, even if the EVM should fail to perform as described or expected.
4. You will take care of proper disposal and recycling of the EVM's electronic components and packing materials.

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