

RELEASED

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DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes.

DESIGN NOTE:
Example text for critical design notes.

DESIGN NOTE:
Example text for cautionary design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

Decawave			
Title:	DWM1001		
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DWM1001

(Block Diagram)

Page 3

Page 3

BT Radio

Page 4

SPI1

SPI

DW1000
(UWB)

Page 5

Power supply

Page 6

I2C

I2C

LIS2DH12TR
(Accelerometer)

Page 3

DEBUG/SWD

CORE MCU (nRF52)

SPI2/I2C

SPI2/I2C

SPI2/I2C

Page 3

Edge Pins

UART

UART

UART

NFC

NFC

NFC

GPIO

GPIO

GPIO

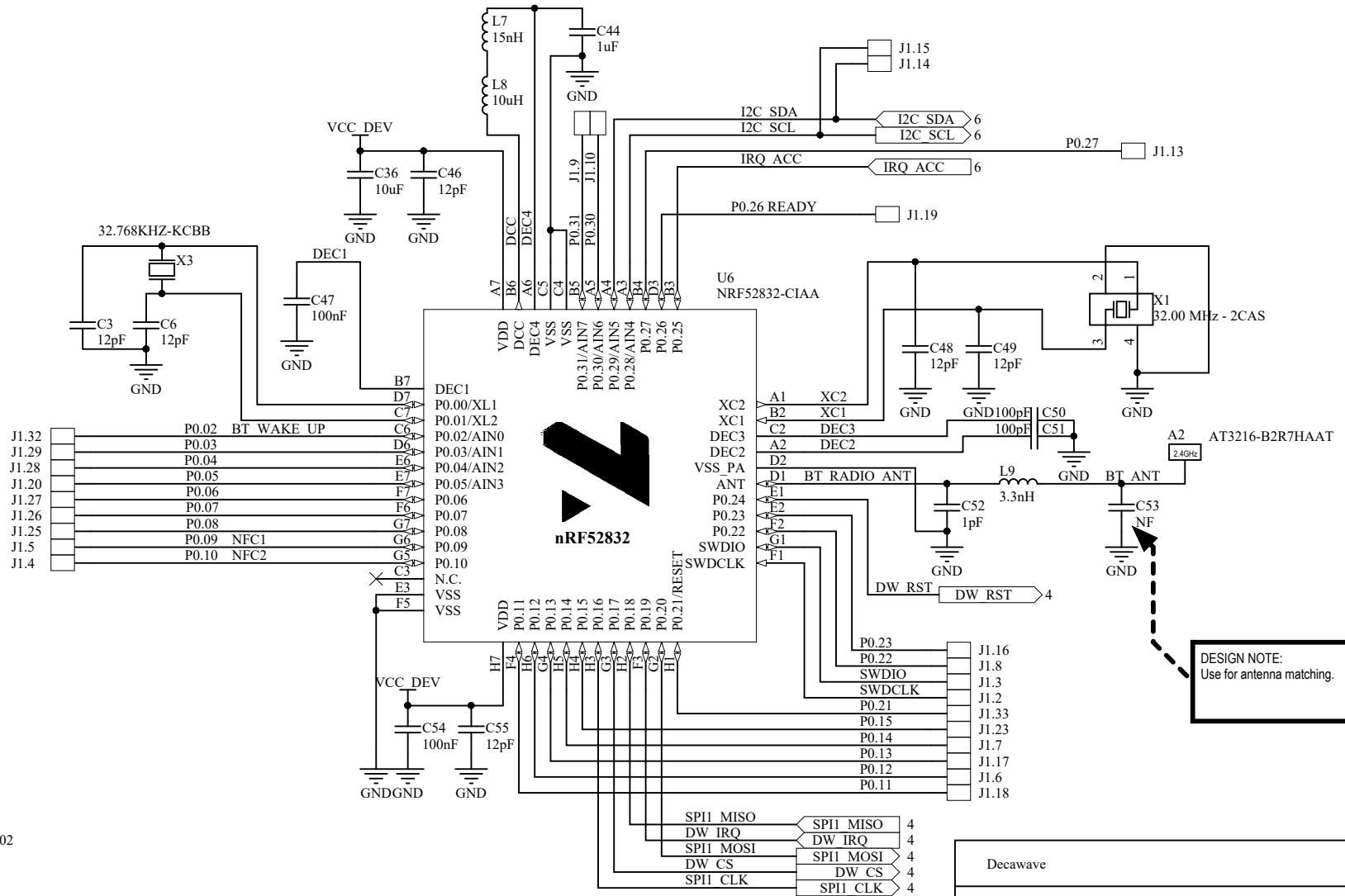
Castellation

J1.1	GND	GND	J1.34
	SWD_CLK	RESETn	
	SWD_DIO	BT_WAKE_UP	
	GPIO_10	GPIO_2	
	GPIO_9	GPIO_3	
	GPIO_12	SPIS_CSn	
	GPIO_14	SPIS_CLK	
	GPIO_22	SPIS_MOSI	
	GPIO_31	SPIS_MISO	
	GPIO_30	SPIO_8	
	GND	GND	
	VCC	GPIO_15	
	GPIO_27	GPIO_0	
	I2C_SDA	GPIO_1	
	I2C_SCL	UART_TX	
	GPIO_23	READY	
J1.17	GPIO_13	UART_RX	J1.18

Castellated pitch : 1.0mm

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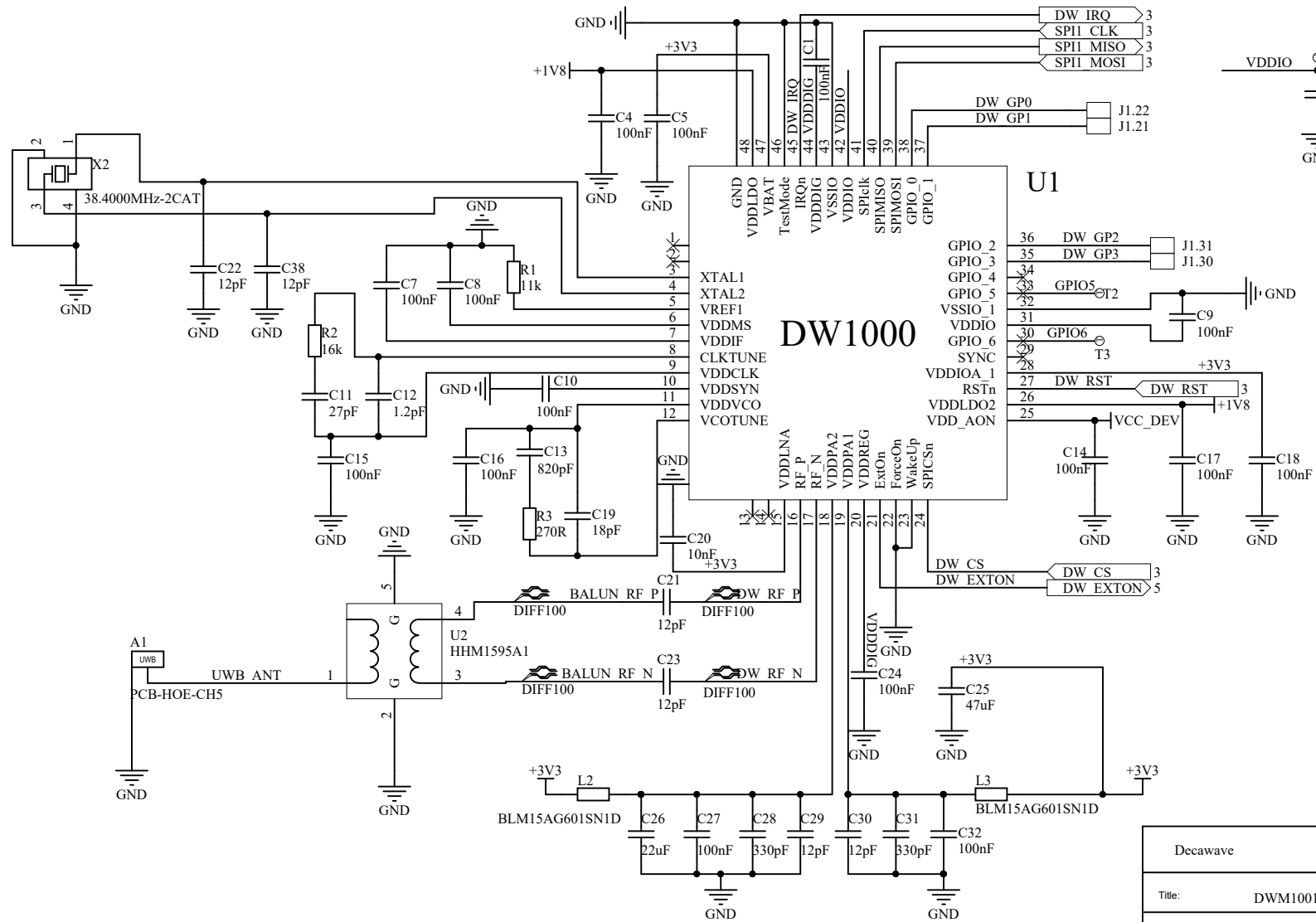
Core MCU



DESIGN NOTE:
Use for antenna matching.

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DW1000

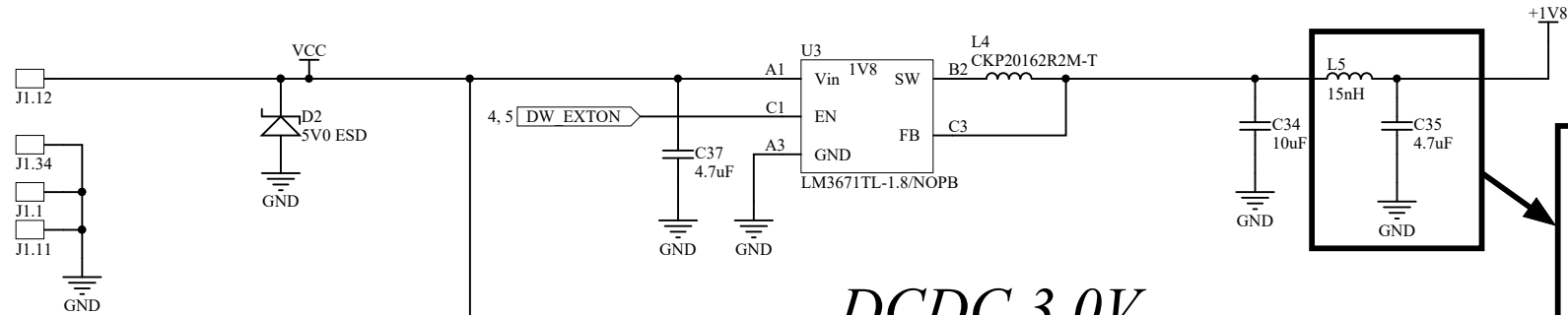


DESIGN NOTE:
Use test point for high voltage OTP programming
Vmin 3.7V Vmax 3.9V

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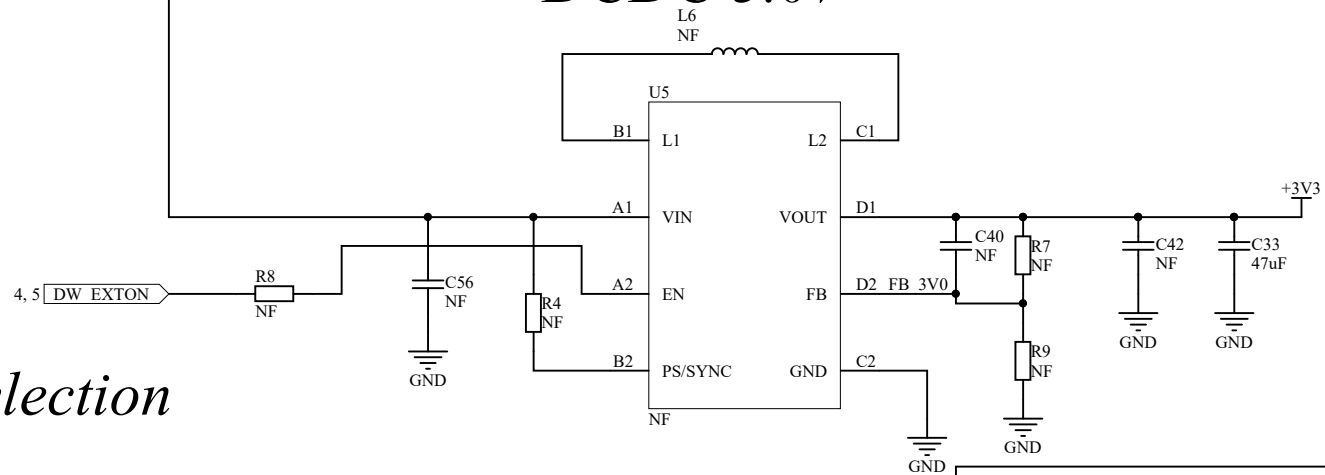
Power supply

DCDC 1.8V

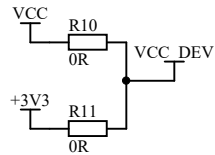


DESIGN NOTE:
 F=2.25Mhz, VconvRipple=60mV,
 VmaxRipple=5mV
<http://www.aimtec.com/site/Aimtec/files/documents/ApplicationNotes/a016e%20-%20reduction%20of%20output%20ripple%20&%20noise.pdf>

DCDC 3.0V



Power supply selection



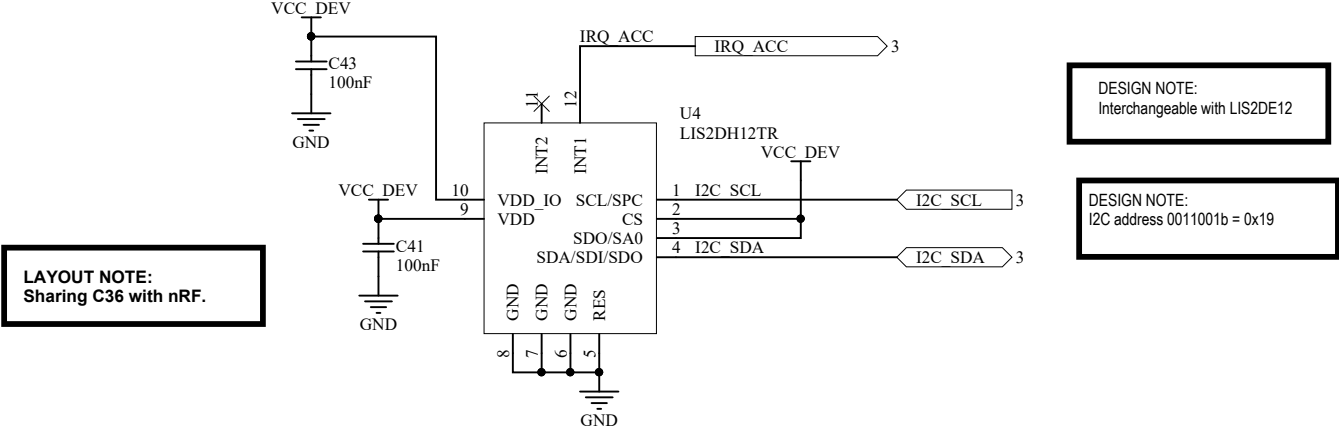
DC-DC 3.3V, U5 is not fitted in production units

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I2C/SPI devices

LIS2DH12

3-Axes Accelerometer



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BOM

Quantity	Part number	Manufacturer	Description	Value	Footprint	Tolerance	Voltage	Power Rating
1	AT3216-B2R7HAAT	ACX	Antenna, Bluetooth					
20	GRM033C81E104KE14D	Murata	Capacitor Non Polarized	0.1UF X6S	c_0201		25V	
12	GRM0335C1E120JA01D	Murata	Capacitor Non Polarized	12PF 25V	c_0201		25V	
1	GRM0335C1E270JA01D	Murata	Capacitor Non Polarized	27PF 25V	c_0201		25V	
1	GRM0335C1E1R2CA01D	Murata	Capacitor Non Polarized	1.2PF 25V	c_0201		25V	
1	GRM033R71E821KA01D	Murata	Capacitor Non Polarized	820PF 25V X7R 0201	c_0201		25V	
1	GRM0335C1H180JA01D	Murata	Capacitor Non Polarized	18PF 50V	c_0201		50V	
1	GRM033R61E103KA12D	Murata	Capacitor Non Polarized	10000PF 25V	c_0201		25V	
1	CL21A226MQQNNNE	SAMSUNG	Capacitor Ceramic	22uF 6.3V X5R	c_0805	+/-20%	6.3V	
1	GRM21BR60J226ME39L	Murata	Capacitor Ceramic	22uF 6.3V X5R	c_0805	+/-20%	6.3V	
2	CL03B331KA3NNNC	SAMSUNG	Capacitor Non Polarized	330PF 25V X7R	c_0201		25V	
2	GRM033R71E331KA01D	Murata	Capacitor Non Polarized	330PF 25V X7R	c_0201		25V	
2	GRM188R60J106ME47D	Murata	Capacitor Ceramic	10uF 6.3V X5R	c_0603	+/-20%	6.3V	
2	CL10A475KQ8NNN#	SamSung	Capacitor Ceramic	4.7uF 6.3V X5R	c_0603	+/-10%	6.3V	
1	GRM155R61A105KE15D	Murata	Capacitor Ceramic	1uF 10V X5R	c_0402	+/-10%	10V	
2	GRM0335C1E101JA01D	Murata	Capacitor Ceramic	100pF 25V C0G	c_0201	+/-5%	25V	
1	GRM0335C1H1R0BA01D	Murata	Capacitor Non Polarized	1PF 50V NP0	c_0201		50V	
1	DF2S6.2CT_L3F	Toshiba	Diode TVS DIODE 5VWM					
2	BLM15AG601SN1D	Murata	Ferrite Bead	600R @100MHZ 300mA	f_0402			
2	HK100515NJ-T	Taiyo Yuden	Inductor	15NH 320MA 460 MOHM				
1	LBMF1608T100K	Taiyo Yuden	Inductor	10UH 80MA 360 MOHM SMD				
1	LQP03TG3N3C02D	Murata	Inductor	3.3NH 400MA 320 MOHM				
1	RC0201FR-0711KL	Yageo	Resistor	11K	r_0201	+/-1%		
1	RC0201FR-0716KL	Yageo	Resistor	16K OHM	r_0201	+/-1%		1/20W
1	RC0201FR-07270RL	Yageo	Resistor	270 OHM	r_0201	+/-1%		1/20W
2	RC0201JR-070RL	Yageo	Resistor	0R	r_0201	+/-5%		
1	DW1000	Decawave	DW1000	IC				
1	HMM1595A1	TDK	Balun	Low Insertion 3-8GHz UWB				
1	LM3671TL-1.8/NOPB	Texas Instruments	DDDC regulator	1.8V 0.6A SYNC 5BGA DSBGA-5				
1	LIS2DH12TR	ST Microelectronics	IC SMD 3-axis accelerometer	IC				
1	NRF52832-CIAA-R	Nordic Semiconductor ASA	IC SMD RF TXRX+MCU BLUETOOTH 50WLCSP	IC				
1	CKP2016 2R2M-T	Taiyo Yuden	inductor	2.2UH 1.2A 110 MOHM				
1	2CAS	Commutek	Crystal SMD	32MHz	8pF	+/-10ppm		
1	2CAT	Commutek	Crystal SMD	38.4MHz	10pF	+/-10ppm		
1	KCBB	Commutek	Crystal SMD	32.768KHz KCBB				
1	RC0201FR-07287KL	Yageo	Resistant	287K OHM	r_0201	+/-1%	1/20W	1/20W
2	GRM188R60J476ME15D	Murata	Capacitor Ceramic	47uF X5R	c_0603	+/-20%	6.3V	

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