

SEMTECH		LoRa		SX1276MB1LAS - BOM			BOM # V1a
02.09.2014		EMr		Version e311V02a - 915MHz on RF_HF and 433MHz on RF_LF			SCH # e311V02a
							PCB # e311V02a
RefDes	MPN	Geom	Value	Qty	Description	Manufacturer	
<b>IC</b>							
U1	SX1276IMLTRT	TQFN-28 6x6mm	SX1276	1	137MHz to 1020MHz Low Power Long Range Transceiver	Semtech	
U2	PE4259	SC-70	-	1	PE4259 - 10MHz to 3GHz SPDT RF Switch	Peregrine Semi	
U3	NC7SZ04P5X	SC-70-5	-	1	NC7SZ04 TinyLogic UHS Inverter	Fairchild Semi	
U4	CRCW06030000Z0EA	0603	0R	1	Thick Film Resistor ±5%, 1/10W (No SAW filter populated)	Vishay/Dale	
U5	PE4259	SC-70	-	1	PE4259 - 10MHz to 3GHz SPDT RF Switch	Peregrine Semi	
U6	CRCW06030000Z0EA	0603	0R	1	Thick Film Resistor ±5%, 1/10W (No SAW filter populated)	Vishay/Dale	
<b>Resistors</b>							
R1	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
R2	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
R3	CRCW06030000Z0EA	0603	0R	1	Thick Film Resistor ±5%, 1/10W	Vishay/Dale	
R4	EXB-N8V101JX	EXB28V	100R	1	SMD Resistor Array Resistors (4x), ±5%, 31mW	Panasonic - ECG	
R5	EXB-N8V101JX	EXB28V	100R	1	SMD Resistor Array Resistors (4x), ±5%, 31mW	Panasonic - ECG	
R6	CRCW06030000Z0EA	0603	0R	1	Thick Film Resistor ±5%, 1/10W	Vishay/Dale	
R7	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
R10	CRCW04021K00JNED	0402	1k	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
R13	EXB-N8V101JX	EXB28V	100R	1	SMD Resistor Array Resistors (4x), ±5%, 31mW	Panasonic - ECG	
R14	CRCW0402100RJNED	0402	100R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
R16	CRCW0402100RJNED	0402	100R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
<b>Capacitors</b>							
C1	GRM1555C1H150JA01D	0402	15pF	1	Multilayer ceramic capacitors C0G ±5%, 50V for Rakon Crystal (18pF for NDK)	Murata	
C2	GRM1555C1H150JA01D	0402	15pF	1	Multilayer ceramic capacitors C0G ±5%, 50V for Rakon Crystal (18pF for NDK)	Murata	
C3	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C4	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C5	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C6	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C7	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C8	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C9	GRM1555C1H220JZ01D	0402	22pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C10	GRM1555C1H8R2CZ01D	0402	8.2pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C11	GRM1555C1H6R8CA01D	0402	6.8pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C13	GRM1555C1H3R3CZ01D	0402	3.3pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C17	GRM1555C1H3R3CZ01D	0402	3.3pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C18	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C19	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C20	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C21	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C22	GRM155R71H102JA01D	0402	1nF	1	Multilayer ceramic capacitors X7R ±5%, 50V	Murata	
C23	GRM21BR60J226ME39L	0805	22uF	1	Multilayer ceramic capacitors X5R ±20%, 6.3V	Murata	
C24	GRM188R61A105KA61D	0603	1uF	1	Multilayer ceramic capacitors X5R ±10%, 10V	Murata	
C25	GRM155R71H102JA01D	0402	1nF	1	Multilayer ceramic capacitors X7R ±5%, 50V	Murata	
C26	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C27	GRM155R71C104KA88D	0402	100nF	1	Multilayer ceramic capacitors X7R ±10%, 16V	Murata	
C28	LOG15HS15NJ02D	0402	15nH	1	Multilayer Inductor ±5%	Murata	
C29	GRM1555C1H47C7A01D	0402	4.7pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C30	GRM1555C1H6R8CA01D	0402	6.8pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C31	GRM1555C1H2R7CZ01D	0402	2.7pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C32	GRM1555C1H6R8CA01D	0402	6.8pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
C35	GRM155R71E103KA01D	0402	10nF	1	Multilayer ceramic capacitors X7R ±10%, 25V	Murata	
C36	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C38	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C39	GRM1555C1H470JZ01D	0402	47pF	1	Multilayer ceramic capacitors C0G ±5%, 50V	Murata	
C43	GRM155R71H102JA01D	0402	1nF	1	Multilayer ceramic capacitors X7R ±5%, 50V	Murata	
C44	GRM188R61A105KA61D	0603	1uF	1	Multilayer ceramic capacitors X5R ±10%, 10V	Murata	
C45	GRM155R71H102JA01D	0402	1nF	1	Multilayer ceramic capacitors X7R ±5%, 50V	Murata	
C50	GRM188R61A105KA61D	0603	1uF	1	Multilayer ceramic capacitors X5R ±10%, 10V	Murata	
<b>Inductors &amp; Ferrites</b>							
L1	LOG15HS82NJ02D	0402	82nH	1	Multilayer Inductor ±5%	Murata	
L2	LQW15AN33NJ00D	0402	33nH	1	Wirewound Inductor ±5%	Murata	
L3	LQW15AN1N5C00D	0402	1.5nH	1	Wirewound Inductor ±0.2nH	Murata	
L4	LQW15AN5N6C10D	0402	5.6nH	1	Wirewound Inductor ±0.2nH	Murata	
L5	LQW15AN5N6C10D	0402	5.6nH	1	Wirewound Inductor ±0.2nH	Murata	
L6	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
L7	LOG15HS10NJ02D	0402	10nH	1	Multilayer Inductor ±5%	Murata	
L8	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
L9	LQW15HS12NJ02D	0402	12nH	1	Multilayer Inductor ±5%	Murata	
L10	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
L11	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
L12	GRM1555C1H47C7Z01D	0402	4.7pF	1	Multilayer ceramic capacitors C0G ±0.25pF, 50V	Murata	
L13	LOG15HS18NJ02D	0402	18nH	1	Multilayer Inductor ±5%	Murata	
L14	CRCW04020000Z0ED	0402	0R	1	Thick Film Resistor ±5%, 1/16W	Vishay/Dale	
<b>Crystal (or other referenced vendors)</b>							
Q1	FTR5092-A2	QESM07 3.2x2.5mm	32.000MHz	1	Crystal unit Rakon; Tol. ±10ppm, Cload=10pF, G-Sensitivity=2ppb/G max (populated)	Rakon	
or	EXS00A-CS00131	NX2520SA 2.5x2.0mm	32.000MHz	0	Crystal unit NDK; Tol. ±10ppm, Cload=10pF, G-Sensitivity=2ppb/G max	NDK	
or	S0197-X-002-3	QESM07 3.2x2.5mm	32.000MHz	0	Crystal unit Taitien; Tol. ±10ppm, Cload=10pF, G-Sensitivity=2ppb/G max	Taitien	
<b>Connectors and others (or P/N equivalent)</b>							
ANT_HF	142-0711-821	SMA End Launch	50 Ohms	1	SMA End launch jack receptacle for PCB mount	Emerson Network Power	
ANT_LF	142-0711-821	SMA End Launch	50 Ohms	1	SMA End launch jack receptacle for PCB mount	Emerson Network Power	
J1	68000-108HLF	Header 1x8	8 pins	1	8 Pins - Through hole single row male connector, <b>Bottom side</b>	FCI	
J2	68000-110HLF	Header 1x10	10 pins	1	10 Pins - Through hole single row male connector, <b>Bottom side</b>	FCI	
J3	68000-108HLF	Header 1x8	8 pins	1	8 Pins - Through hole single row male connector, <b>Bottom side</b>	FCI	
J4	68000-106HLF	Header 1x6	6 pins	1	6 Pins - Through hole single row male connector, <b>Bottom side</b>	FCI	
<b>Additional or optional components</b>							
-	BMIS-205-F	Shield	-	0	Standard Surface Mount Shield in two parts with BMIS-205-C cover	Laird Technologies	