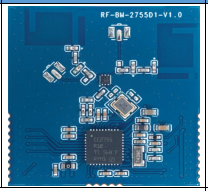
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TI CC2340R5 Multi-Protocol Modules											
Part Number	**RF-BM-2340A1**	**RF-BM-2340A1I**	**RF-BM-2340B1**	**RF-BM-2340B1I**	**RF-BM-2340A2**	**RF-BM-2340A2I**	**RF-BM-2340C2**	**RF-BM-2340T1**	**RF-BM-2340T2**	**RF-BM-2340T3**	**RF-BM-2340B2**
Photo											
IC	CC2340R52										CC2340R53
RAM	36 kB										64 kB
Flash	512 kB										
Max. TX Power	+8 dBm										
Core	48 MHz ARM® Cortex®-M0+										
Receiving Sensitivity	-102 dBm for 125 kbps LE Coded PHY -96.5 dBm for BLE 1 Mbps										
Working Temperature	-40 ℃ ~ +85 ℃										
Storage Temperature	-40 ℃ ~ +125 ℃										
Protocols	BLE5.3, ZigBee, SimpleLink™ TI 15.4-stack, Proprietary systems										
Application	ESL, Medical Electronics, Intelligent Vehicle, Consumer Electronics, IoT Industry 4., Logistics, Smart Home, Smart City, Smart Buildings										
Power Supply	GLDO mode: 1.71 V ~ 3.8 V, 3.3 V is recommended		DCDC mode: 2.2 V ~ 3.8 V, 3.3 V is recommended GLDO mode: 1.71 V ~ 3.8 V, 3.3 V is recommended Remark: When set to DCDC mode, if the supply voltage is lower than 2.2 V, it will automatically switch to GLDO mode.								
Transmission Range @ open-air	200 m @ 1M PHY	475 m @ 1M PHY (external PCB antenna)	175 m @ 1M PHY	340 m @ 1M PHY (external PCB antenna)	200 m @ 1M PHY	330 m @ 1M PHY (external PCB antenna)	80 m @ 1M PHY	150 m @ 1M PHY	90 m @ 1M PHY	130 m @ 1M PHY	175 m @ 1M PHY
Antenna	PCB/RF ANT interface	IPEX/RF ANT interface	PCB	IPEX/RF ANT interface	PCB	IPEX/RF ANT interface	Chip/RF ANT interface	PCB/RF ANT interface	Chip/RF ANT interface	PCB	PCB
Dimension (mm)	11.6 x 16.5 x 2.3	11.6 x 16.5 x 2.3	15.55 x 22.5 x 2.35	15.55 x 22.5 x 2.35	11.2 x 16.6 x 2.25	11.2 x 15.2 x 2.25	8.0 x 8.0 x 1.7	12.0 x 15.8 x 2.0	12.0 x 15.8 x 2.0	15.0 x 15.0 x 2.0	15.55 x 22.5 x 2.35
GPIO	12	12	24	24	12	12	12	14	14	11	24
UART Protocol	BLE 5.0 Master-slave (5 connections), ZigBee (coordinator, router,	BLE 5.0 Master-slave (5 connections), ZigBee (coordinator, router,	BLE 5.0 Master-slave (5 connections), ZigBee (coordinator, router,	BLE 5.0 Master-slave (5 connections), ZigBee (coordinator, router,	BLE 5.0 Master-slave (5 connections at most)	BLE 5.0 Master-slave (5 connections at most)	BLE 5.0 Master-slave (5 connections at most)	BLE 5.0 Master-slave (5 connections at most)	BLE 5.0 Master-slave (5 connections at most)	BLE 5.0 Master-slave (5 connections at most)	N/A
Certificates	BQB, FCC FCC. SRRC, NCC	BQB	BQB, FCC, IC, SRRC, CE, RoHS	BQB	BQB	BQB	BQB	BQB	BQB	BQB	BQB

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TI SimpleLink Series Multi-Protocol Modules (Table 1)									
Part Number	**RF-TI1354P1**	**RF-TI1352P2**	**RF-TI1352P1**	**RF-TI1352B1**	**RF-BM-2755B1I**	**RF-BM-2755B1**	**RF-BM-2755D1**	**RF-BM-2755P1I**	**RF-BM-2755P1**
Photo									
IC	CC1354P10	CC1352P7	CC1352P	CC1352R	CC2755R10			CC2755P10	
Protocols	Thread, ZigBee, Matter, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, Matter, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Bluetooth ® 6.0 Low Energy for Channel Sounding, Matter, ZigBee ® 3.0, Proprietary, Multi-Protocol			Bluetooth ® 6.0 Low Energy for Channel Sounding, Matter, ZigBee ® 3.0, Proprietary, Multi-Protocol	
Frequency	800 MHz ~ 928 MHz, 2.4 GHz	800 MHz ~ 928 MHz, 2.4 GHz	800 MHz ~ 928 MHz, 2.4 GHz	800 MH ~ 928 MH, 2.4 GHz	2360 MHz ~ 2500 MHz			2360 MHz ~ 2500 MHz	
Max. TX Power	+20 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+20 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+14 dBm @ Sub-1 GHz +20 dBm @ 2.4 GHz	+14 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+10 dBm			+20 dBm	
Receiving Sensitivity	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @ 50 Kbps Sub-1G –104 dBm @125 kbps LE Coded PHY	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @ 50 Kbps Sub-1G –104 dBm @125 kbps LE Coded PHY	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @Sub-1G (50 Kbps) –105 dBm @125 kbps LE Coded PHY	–121 dBm @Sub G (Long-Range Mode) –110 dBm @Sub G (50 Kbps) –105 dBm @125 kbps LE Coded PHY	-103.5 dBm sensitivity @ 125 kbps GFSK -97.0 dBm sensitivity @ 1 Mbps GFSK -103.0 dBm sensitivity @ IEEE 802.15.4(2.4 GHz)			-103.5 dBm sensitivity @ 125 kbps GFSK -97.0 dBm sensitivity @ 1 Mbps GFSK -103.0 dBm sensitivity @ IEEE 802.15.4(2.4 GHz)	
RAM	256 kB	152 kB	88 kB	88 kB	32 kB			32 kB	
Flash	1024 kB	704 kB	352 kB	352 kB	1 MB			1 MB	
GPIO	24	24	23	28	21	21	21	21	21
Antenna	IPEX/RF ANT interface	IPEX/RF ANT interface	RF ANT interface	IPEX/RF ANT interface	IPEX/RF ANT interface	PCB	Dual PCB	IPEX/RF ANT interface	PCB
Transmission Range	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	400 m @ 1M PHY (external PCB antenna) 600 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 400 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	270 m @ 1M PHY (external PCB antenna) 420 m @ LE Coded PHY (external PCB antenna) 600 m @ 802.15.4 (external PCB antenna)	220 m @ 1M PHY 360 m @ LE Coded PHY 470 m @ 802.15.4	300 m @ 1M PHY	380 m @ 1M PHY (external PCB antenna) 570 m @ LE Coded PHY (external PCB antenna) 800 m @ 802.15.4 (external PCB antenna)	360 m @ 1M PHY 500 m @ LE Coded PHY 600 m @ 802.15.4
Dimension (mm)	26.5 x 16.9 x 2.1	26.5 x 16.8 x 2.2	25.0 x 16.4 x 2.2	26.5 x 16.8 x 2.2	15.55 x 22.5 x 2.35	15.55 x 22.5 x 2.35	32.5 x 32 x 1.8	15.55 x 22.5 x 2.35	15.55 x 22.5 x 2.35
UART Protocol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Certifications	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Core	48 MHz ARM® Cortex®-M4F								
Power Supply	1.8 V ~ 3.8 V, recommend to 3.3 V								
Working Temperature	-40 ℃ ~ +85 ℃								
Storage Temperature	-40 ℃ ~ +125 ℃								
Application	Smart grid, industrial monitoring and control, Smart agriculture, sensor control, Wireless M-Bus, energy-harvesting								

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TI SimpleLink Series Multi-Protocol Modules (Table 2)									
Part Number	**RF-BM-2652P4I**	**RF-BM-2652P4**	**RF-BM-2652P3**	**RF-BM-2652P2I**	**RF-BM-2652P2**	**RF-BM-2652P1**	**RF-BM-2652B2**	**RF-BM-2652B1**	**RF-BM-2651B1**
Photo									
IC	CC2652P7		CC2652P				CC2652R7	CC2652R	CC2651R3
Protocols	Matter, Thread, ZigBee, Matter, BLE5.3, IEEE 802.15.4, 6LoWPAN, proprietary systems, SimpleLink™ TI 15.4 stack (2.4 GHz)		Thread, ZigBee, BLE5.3, IEEE 802.15.4, 6LoWPAN, proprietary systems, SimpleLink™ TI 15.4 stack (2.4 GHz)				Thread, ZigBee, BLE5.3, IEEE 802.15.4, 6LoWPAN, proprietary systems, SimpleLink™ TI 15.4 stack (2.4 GHz)	Thread, ZigBee, BLE5.3, IEEE 802.15.4, 6LoWPAN, proprietary systems, SimpleLink™ TI 15.4 stack (2.4 GHz)	ZigBee, BLE5.3, SimpleLink™ TI 15.4-stack, Proprietary systems
Frequency	2.4 GHz		2.4 GHz				2.4 GHz	2.4 GHz	2.4 GHz
Max. TX Power	+20 dBm		+20 dBm				+5 dBm	+5 dBm	+5 dBm
Receiving Sensitivity	-99 dBm @ 802.15.4 (2.4 GHz) -104 dBm @ 125 kbps BLE Coded PHY		-100 dBm @ 802.15.4 (2.4 GHz) -105 dBm @ 125 kbps BLE Coded PHY				-99 dBm @ 802.15.4 (2.4 GHz) -104 dBm @ 125 kbps BLE Coded PHY	-100 dBm @ 802.15.4 (2.4 GHz) -105 dBm @ 125 kbps BLE Coded PHY	-100 dBm @ 802.15.4 (2.4 GHz) -104 dBm @ 125 kbps BLE Coded PHY
RAM	152 kB		88 kB				152 kB	88 kB	40 kB
Flash	704 kB		352 kB + 1 MB	352 kB	352 kB	352 kB	704 kB	352 kB	352 kB
GPIO	23	23	11	23	23	23	31	31	23
Antenna	IPEX/RF ANT interface	PCB	PCB	IPEX/RF ANT interface	PCB	RF ANT interface	PCB	PCB	PCB
Transmission Range	380 m @ 1M PHY (external PCB antenna) 570 m @ LE Coded PHY (external PCB antenna) 800 m @ 802.15.4 (external PCB antenna)	260 m @ 1M PHY 420 m @ LE Coded PHY 500 m @ 802.15.4	370 m @ 1M PHY 500 m @ LE Coded PHY 600 m @ 802.15.4	380 m @ 1M PHY (external PCB antenna) 570 m @ LE Coded PHY (external PCB antenna) 800 m @ 802.15.4 (external PCB antenna)	360 m @ 1M PHY 500 m @ LE Coded PHY 600 m @ 802.15.4	380 m @ 1M PHY (external PCB antenna) 570 m @ LE Coded PHY (external PCB antenna) 800 m @ 802.15.4 (external PCB antenna)	200 m @ 1M PHY 330 m @LE Coded PHY 350 m @ 802.15.4	200 m @ 1M PHY 330 m @LE Coded PHY 350 m @ 802.15.4	140 m @ 1M PHY 260 m @LE Coded PHY 280 m @ 802.15.4
Dimension (mm)	30.0 x 16.4 x 2.2	30.0 x 16.4 x 2.2	24.0 x 16.0 x 2.1	30.0 x 16.4 x 2.2	30.0 x 16.4 x 2.2	25.0 x 16.4 x 2.2	23.5 x 17.0 x 2.2	23.5 x 17.0 x 2.2	22.5 x 15.55 x 2.3
UART Protocol	N/A	N/A	N/A	BLE 5.0 Master-Slave	BLE 5.0 Master-Slave	N/A	N/A	BLE 5.0 Master-Slave	N/A
Certifications	N/A	FCC (BLE, ZIgBee, Thread)	FCC and CE (BLE, ZIgBee)	With RF-star extrenal PCB antenna, FCC and CE (BLE, ZIgBee, Thread)	FCC and CE (BLE, ZIgBee, Thread)	N/A	CE (BLE)	N/A	N/A
Core	48 MHz ARM® Cortex®-M4F								
Power Supply	1.8 V ~ 3.8 V, recommend to 3.3 V								
Working Temperature	-40 ℃ ~ +85 ℃								
Storage Temperature	-40 ℃ ~ +125 ℃								
Application	Smart home gateway, building automation, Home automation, fire alarm control panel (FACP), Smoke and heat detector, asset tracking, Smart grid, wireless sensor networks, Access control, IP network camera								

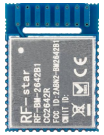
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TI-Based Automotive BLE Modules		
Part Number	**RF-BM-2642QB1I**	**RF-BM-2340QA2**
Photo		
IC	CC2642R-Q1	CC2340R5-Q1
Core	48 MHz ARM® Cortex®-M4	48 MHz ARM® Cortex®-M0+
RAM	80 kB + 8 kB	36 kB
Flash	352 kB	512 kB
Max. TX Power	+5 dBm	+8 dBm
Power Supply	1.8 V ~ 3.63 V, recommend to 3.3 V	DCDC mode: 2.2 V ~ 3.8 V, 3.3 V is recommended GLDO mode: 1.71 V ~ 3.8 V, 3.3 V is recommended Remark: When set to DCDC mode, if the supply voltage is lower than 2.2 V, it will automatically switch to GLDO mode.
Protocols	BLE5.3	BLE5.3, ZigBee, SimpleLink™ TI 15.4-stack, Proprietary systems
Receiving Sensitivity	-105 dBm for 125 kbps LE Coded PHY -97 dBm for BLE 1 Mbps	-102 dBm for 125 kbps LE Coded PHY -96 dBm for BLE 1 Mbps
Transmission Range	External PCB antenna 230 m @ 1M PHY 340 m @ LE Coded PHY	200 m @ 1M PHY
Antenna	IPEX/RF ANT interface	PCB
Dimension (mm)	21.5 x 17.0 x 2.2	11.2 x 16.6 x 2.1
GPIO	31	13
Certifications	N/A	N/A
UART Protocol	BLE 5.0 Master-slave (8 connction at most)	BLE 5.0 Master-slave (5 connction at most)
Working Temperature	-40 ℃ ~ +105 ℃	
Storage Temperature	-40 ℃ ~ +125 ℃	
Application	Passive entry passive start (PEPS), PaaK (Phone as a Key), remote keyless entry (RKE), ADAS(Advanced driver assistance systems), Telematics control unit (TCU), TPMS(Tire Pressure Monitor System), car sharing, piloted parking, cable replacement	

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TI CC264x Series BLE Modules								
Part Number	**RF-BM-2642B1**	**RF-BM-2642B2**	**RF-BM-4044B2**	**RF-BM-4044B3**	**RF-BM-4044B4**	**RF-BM-4044B5**	**RF-BM-4077B1**	**RF-BM-4077B1L**
Photo								
IC	CC2642R		CC2640R2FRSM				CC2640R2FRGZ	CC2640R2LRGZ
Protocols	BLE5.3, Bluetooth Mesh, AoA/AoD, BLE 2M, BLE Long Range		BLE5.3, AoA/AoD, BLE 2M, BLE Long Range				BLE5.3, BLE 2M, BLE Long Range	
UART Protocol	BLE 5.0 Master-slave (8 connction at most)		Master/Slave				Master/Slave	
Max. TX Power	5 dBm		2 dBm				5 dBm	
Receiving Sensitivity	-97 dBm @ BLE 1M PHY -105 dBm @ 125 kbps LE Coded PHY		-97 dBm @ BLE 1M PHY -103 dBm @ 125 kbps LE Coded PHY				-97 dBm @ BLE 1M PHY -103 dBm @ 125 kbps LE Coded PHY	
GPIO	31	31	10	10	10	10	31	31
Antenna	PCB	PCB	PCB	IPEX	Chip/RF ANT interface	Chip/RF ANT interface	PCB	PCB
Transmission Range	110 m @ 1M PHY 160 m @ LE Coded PHY	130 m @ 1M PHY 230 m @ LE Coded PHY	260 m @ 1M PHY 320 m @ LE Coded PHY	External PCB antenna 320 m @ 1M PHY 400 m @ LE Coded PHY	Chip Antenna 80 m @ 1M PHY 110 m @ LE Coded PHY	Chip Antenna 80 m @ 1M PHY 110 m @ LE Coded PHY	150 m @ 1M PHY 280 m @ LE Coded PHY	150 m @ 1M PHY 280 m @ LE Coded PHY
Dimension (mm)	23.5 x 17.0 x 2.2	23.5 x 17.0 x 2.2	16.6 x 11.2 x 1.7	15.2 x 11.2 x 2.1	8.0 x 8.0 x 1.5	10.5 x 8.5 x 2.0	23.5 x 17.0 x 1.7	23.5 x 17.0 x 1.7
Certifications	FCC, IC, CE	N/A	FCC, SRRC	N/A	N/A	N/A	N/A	N/A
Core	48 MHz ARM® Cortex®-M4F		48 MHz ARM® Cortex®-M3					
RAM	88 kB		28 kB					
Flash	352 kB		128 kB					
Working Temperature	-40 ℃ ~ +85 ℃							
Storage Temperature	-40 ℃ ~ +125 ℃							
Power Supply	1.8 V ~ 3.8 V, recommend to 3.3 V							
Functions	High anti-interference performance							

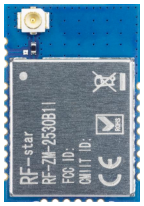
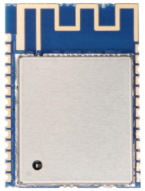
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TI CC254x Series BLE Modules							
Part Number	**RF-BM-S01**	**RF-BM-S02**	**RF-BM-S02I**	**RF-CC2540A1**	**RF-BM-S01A**	**RF-BM-S02A**	**RF-BMPA-2541B1**
Photo							
IC	C2540				CC2541		CC2541, CC2592
Max. TX Power	+4 dBm				0 dBm		+19 dBm
Receiving Sensitivity	-94 dBm				-94 dBm		-94 dBm
GPIO	19	13	13	19	19	13	19
Transmission Range	140 m	130 m	190 m (external PCB antenna)	70 m	110 m	100 m	260 m
Antenna	PCB/RF ANT interface	PCB	IPEX	PCB	PCB/RF ANT interface	PCB	PCB/IPEX/RF ANT interface
Dimension (mm)	17.4 x 13.7 x 1.7	15.2 x 11.2 x 1.7	15.2 x 11.2 x 2.1	24.1 x 15.2 x 1.7	17.4 x 13.7 x 1.7	15.2 x 11.2 x 1.7	31.4 x 13.7 x 2.1
Core	8051						
RAM	8 KB						
Flash	256 KB						
Protocols	BLE4.2						
Power Supply	2.0 V ~ 3.6 V, recommend to 3.3 V						
Working Temperature	-40 ℃ ~ +85 ℃						
Storage Temperature	-40 ℃ ~ +125 ℃						
UART Protocol	UART Master/Slave, Direct-driven						
Functions	Smart toy, consumer electronics, medical electronics						

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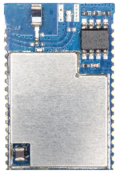
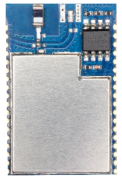
TI CC2530 Series ZigBee Modules					
Part Number	**RF-ZM-2530P1I**	**RF-ZM-2530P1**	**RF-ZM-2530B1I**	**RF-ZM-2530B1**	**WE1005**
Photo					
IC	CC2530, CC2952		CC2530		
Max. TX Power	+21 dBm		+4.5 dBm		
Receiving Sensitivity	-100 dBm		-97 dBm		
GPIO	17	17	17	17	19
Antenna	IPEX	PCB	IPEX	PCB	PCB
Transmission Range	1000 m (external glue stick antenna)	800 m	300 m (external glue stick antenna)	200 m	200 m
Dimension (mm)	25.5 x 16.3 x 2.2	25.5 x 16.3 x 2.1	22.3 x 15.3 x 2.2	22.3 x 15.3 x 2.1	22.0 x 16.0 x 2.3
Core	8051				
RAM	8 kB				
Flash	256 kB				
Protocols	ZigBee, IEEE 802.15.4, RF4CE				
Power Supply	2.0 V ~ 3.6 V, recommend to 3.3 V				
Working Temperature	-40 ℃ ~ +85 ℃				
Storage Temperature	-40 ℃ ~ +125 ℃				
Functions	Longer transmission range, Zigbee network processor, home automation				

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TI CC13xx Series Sub-1G Modules								
Part Number	**RF-TI1354P1**	**RF-TI1352P2**	**RF-TI1352P1**	**RF-TI1352B1**	**RF-SM-1277B2**	**RF-SM-1277B1**	**RF-SM-1077B2**	**RF-SM-1077B1**
Photo								
IC	CC1354P10	CC1352P7	CC1352P	CC1352R	CC1312R		CC1310R	
Core	48 MHz ARM® Cortex®-M4F	48 MHz ARM® Cortex®-M4F	48 MHz ARM® Cortex®-M4F	48 MHz ARM® Cortex®-M4F	48 MHz ARM® Cortex®-M4F		48 MHz ARM® Cortex®-M3	
RAM	256 kB	152 kB	88 kB	88 kB	88 kB		28 kB	
Flash	1024 kB	704 kB	352 kB	352 kB	352 kB		128 kB	
Receiving Sensitivity	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @ 50 Kbps Sub-1G –104 dBm @125 kbps LE Coded PHY	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @ 50 Kbps Sub-1G –104 dBm @125 kbps LE Coded PHY	–121 dBm @Sub-1G (Long-Range Mode) –110 dBm @Sub-1G (50 Kbps) –105 dBm @125 kbps LE Coded PHY	–121 dBm @Sub G (Long-Range Mode) –110 dBm @Sub G (50 Kbps) –105 dBm @125 kbps LE Coded PHY	–121 dBm @ Sub-1 GHz (Long-Range Mode) –110 dBm @ Sub-1 GHz (50 kbps)		–114 dBm @ Sub-1 GHz (Long-Range Mode) –110 dBm @ Sub-1 GHz (50 kbps)	
Protocols	Thread, ZigBee, Matter, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, Matter, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	Thread, ZigBee, BLE5.3, IEEE 802.15.4g, 6LoWPAN, MIOTY, Wireless M-Bus, Wi-SUN, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4-Stack (Sub-1 GHz)	IEEE 802.15.4g, IPv6-enabled smart objects(6LoWPAN),MIOTY®, Wireless M-Bus(T, S, C mode), Wi-SUN®, KNX RF, Amazon Sidewalk, proprietary systems, SimpleLink™ TI 15.4 stack (Sub-1 GHz)		IEEE 802.15.4g, Wireless M-Bus (T, S, C mode), 6LoWPAN, MIOTY, SimpleLink™ TI 15.4 stack (Sub-1 GHz)	
Frequency	800 MHz ~ 928 MHz, 2.4 GHz	800 MHz ~ 928 MHz, 2.4 GHz	800 MHz ~ 928 MHz, 2.4 GHz	800 MHz ~ 928 MH, 2.4 GHz	431 MHz ~ 527 MHz	779 MHz ~ 930 MHz	431 MHz ~ 527 MHz	779 MHz ~ 930 MHz
Max. TX Power	+20 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+20 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+14 dBm @ Sub-1 GHz +20 dBm @ 2.4 GHz	+14 dBm @ Sub-1 GHz +5 dBm @ 2.4 GHz	+13 dBm	+14 dBm	+15 dBm	+14 dBm
GPIO	24	24	23	28	30	30	30	30
Antenna	IPEX/RF ANT interface	IPEX/RF ANT interface	ANT RF interface	IPEX/ANT RF interface	IPEX/ANT RF interface	IPEX/ANT RF interface	IPEX/ANT RF interface	IPEX/ANT RF interface
Transmission Range	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	400 m @ 1M PHY (external PCB antenna) 600 m @ LE Coded PHY (external PCB antenna) 900 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	120 m @ 1M PHY (external PCB antenna) 180 m @ LE Coded PHY (external PCB antenna) 400 m @ 802.15.4 (external glue stick antenna) 1200 m @ Sub-1G (external glue stick antenna)	1000 m (external glue stick antenna)	1000 m (external glue stick antenna)	1000 m (external glue stick antenna)	1000 m (external glue stick antenna)
Dimension (mm)	26.5 x 16.8 x 2.2	26.5 x 16.8 x 2.2	25.0 x 16.4 x 2.2	26.5 x 16.8 x 2.2	26.0 x 18.0 x 2.3	26.0 x 18.0 x 2.3	26.0 x 18.0 x 2.3	26.0 x 18.0 x 2.3
Power Supply	1.8 V ~ 3.8 V, recommend to 3.3 V							
Working Temperature	-40 ℃ ~ +85 ℃							
Storage Temperature	-40 ℃ ~ +125 ℃							
Functions	Wireless M-Bus, energy-harvesting, smart agriculture, sensor control, sSmart grid, industrial monitoring and control							

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TI CC32xx Series Wi-Fi Modules							
Part Number	**RF-WM-3235B1S**	**RF-WM-3235A1S**	**RF-WM-3235B1**	**RF-WM-3235A1**	**RF-WM-3220B1**	**RF-WM-3200B3**	**RF-WM-3200B1**
Photo							
IC	CC3235S	CC3235S	CC3235SF	CC3235SF	CC3220SF	CC3200	CC3200
Antenna	Pad	PCB/Pad	Pad	PCB/Pad	Chip/IPEX/Pad	Pad	Chip/IPEX/Pad
Flash	4 MB (Module Embedded)	4 MB (Module Embedded)	1 MB (IC Embedded) 4 MB (Module Embedded)	1 MB (IC Embedded) 4 MB (Module Embedded)	1 MB(IC Embedded) 4 MB (Module Embedded)	1 MB (Module Embedded)	1 MB (Module Embedded)
Transmission Range	200 m (external PCB antenna)	150 m	200 m (external PCB antenna)	150 m	100 m (Chip antenna)	200 m (external PCB antenna)	100 m (Chip antenna)
Dimension (mm)	20.5 x 17.5 x 1.7	25.0 x 20.5 x 2.3	20.5 x 17.5 x 1.7	25 x 20.5 x 2.3	31.0 x 20.0 x 2.3	20.5 x 17.5 x 2.3	31.0 x 20.0 x 2.3
Functions	Compatible with TI CC3232MODS	Compatible with TI CC3232MODAS	Compatible with TI CC3232MODSF	Compatible with TI CC3232MODASF	Multiple antenna output modes	Compatible with TI CC3200MOD	Lower power consmption, Support AT commands
Protocols	802.11 a/b/g/n: 2.4 GHz and 5 GHz				802.11 b/g/n: 2.4 GHz	802.11 b/g/n: 2.4 GHz	
Frequency	Shutdown: 1 μA Hibernate: 4.5 μA Low-power deep sleep (LPDS): 120 μA Idle connected (MCU in LPDS): 710 μA RX traffic (MCU active): 59 mA TX traffice (MCU active): 223 mA				Shutdown: 1 μA Hibernate: 4.5 μA Low-power deep sleep (LPDS): 135 μA Idle connected (MCU in LPDS): 710 μA RX traffic (MCU active): 59 mA TX traffice (MCU active): 223 mA	Hibernate: 4.0 μA Low-power deep sleep (LPDS): 250 μA Idle connected (MCU in LPDS): 825 μA RX traffic (MCU active): 59 mA TX traffice (MCU active): 229 mA	
Max. TX Power	+18.0 dBm @ 2.4 GHz (1 DSSS) +18.1 dBm @ 5 GHz (6 OFDM)				+18 dBm @ 1 DSSS +14.5 dBm @ 54 OFDM	+18.0 dBm @ 1 DSSS +14.5 dBm @ 54 OFDM	
Receiving Sensitivity	-96 dBm @2.4 GHz (1 DSSS) -92 dBm @5 GHz (6 OFDM)				-96 dBm @ 1 DSSS -74.0 dBm @ 54 OFDM	-95.7 dBm @ 1 DSSS -74.0 dBm @ 54 OFDM	
Security	WEP, WPA™/ WPA2™ PSK, WPA2 Enterprise, WPA3™ Personal, Crypto Engine: (AES, DES, SHA/MD5, CRC)				WPA2 Personal and Enterprise Security: WEP, WPA™/ WPA2™ PSK, WPA2 Enterprise (802.1x), Crypto Engine: AES, DES, 3DES, SHA2, MD5, CRC, and Checksum; Secure Sockets (SSLv3, TLS1.0, TLS1.1, TLS1.2)	Crypto Engine: AES, DES, and 3DES, SHA2 and MD5, CRC and Checksum	
Peripheral	PWM, UART, I2S, I2C, SPI, SD, ADC, 8-bit parallel interface				PWM, UART, I2S, I2C, SPI, SD, ADC, 8-bit parallel interface	PWM, McASP, UART, I2S, I2C, SPI, SD/MMC, ADC, 8-bit parallel camera interface	
Core	80 MHz ARM® Cortex®-M4						
RAM	256 kB						
GPIO	27						
Power Supply	2.7 V ~ 3.6 V, recommend to 3.3 V						
Working Temperature	-40 ℃ ~ +85 ℃						
Storage Temperature	-45 ℃ ~ +125 ℃						

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