Wi-Fi Equipment Front-End Solutions

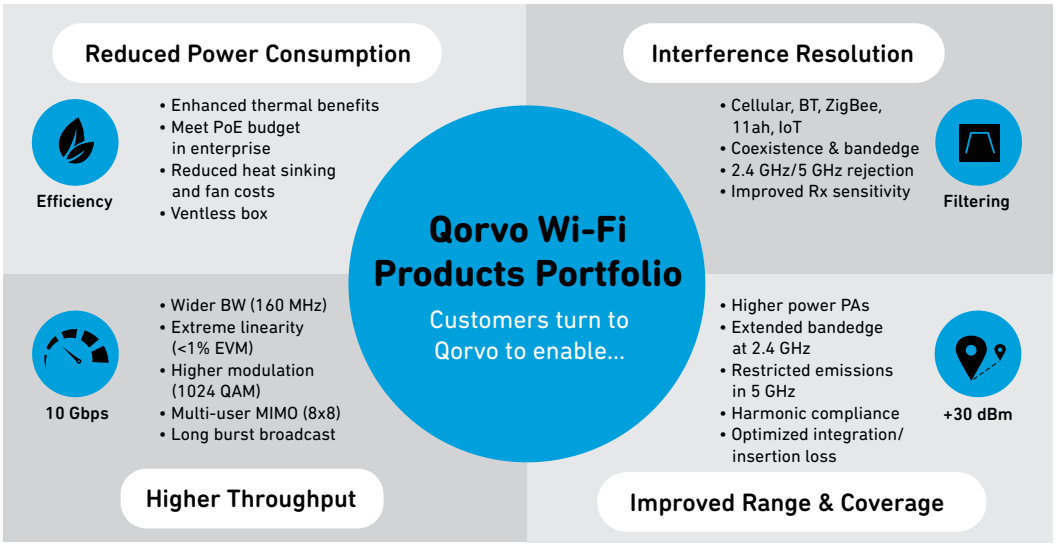
High Linearity and Low Power Consumption Devices for Wi-Fi Applications

qorvo®

all around you

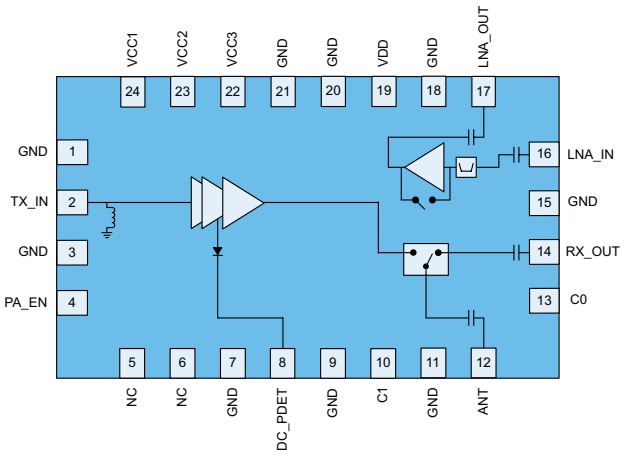
Leveraging Qorvo Technologies for Wi-Fi

Qorvo® continues to grow a portfolio of leading products for Wi-Fi equipment including customer premise equipment (CPE), enterprise systems and internet of things (IoT) applications. Using a mix of Qorvo technological strengths, we focus on reducing power consumption and interference resolution while maintaining high throughput and coverage. Today our products enable up 802.11ac Wave 2 features which include 1024 QAM modulation schemes and 160 MHz bandwidth channels. For tomorrow, our products already perform well against the proposed requirements for 802.11ax systems.

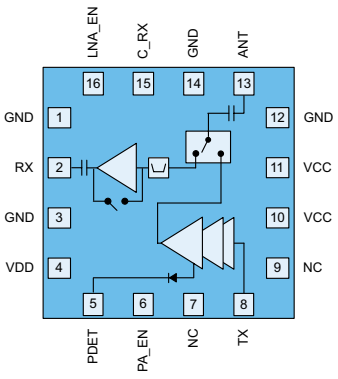


5 GHz Front-End Modules

Functions	11ac P_{OUT} (dBm)	11ac EVM (dB)	11ac I_{CC} (mA)	11n P_{OUT} (dBm)	11n EVM (dB)	11n I_{CC} (mA)	Gain (dB)	V_{CC} (V)	Rx Gain (dB)	Noise Figure (dB)	Bypass Loss (dB)	2.4 GHz Rej (dB)	Package	Size (mm)	Part Number
PA + SW + LNA	23	-35	280	24	-30	315	32	5	16	2	6.5	25	QFN	5x3	QPF4519
PA + SW + LNA	20.5	-35	175	21	-30	180	32	5	14	2.5	5	15	Lam	3x3	RFFM4558
PA + SW + LNA	20	-35	175	21	-30	180	32	5	14	2.3	5	15	Lam	3x3	RFFM4552
PA + SW + LNA	17.5	-35	155	18.5	-30	160	30	3.3	14.5	2.5	6	15	Lam	2.5x2.5	QPF4538
PA + SW + LNA	17	-35	210	18	-30	215	28	3.3	12.5	2.5	5	45	Lam	2.3x2.3	QPF8538
PA + SW + LNA	17	-35	260	18	-30	290	30	3.3	14	2.5	6	15	Lam	3x3	RFFM4551
PA + SW + LNA	17.5	-35	225	19	-30	250	28	3.3	13	2.5	3	–	Lam	2.3x2.3	RFFM8528P
PA + SW + LNA	18	-35	230	19.5	-30	275	28	3.3	12	2.5	8	–	Lam	3x3	RFFM4501F
PA + SW + LNA	17	-35	245	–	-30	–	28	3.3	12.5	2.5	8	–	Lam	3x3	RFFM4501E
PA + SW + LNA	16 17	-35	220	17 21	-30	225 290	28	3.3 5	12.5	2.5	8	–	Lam	3x3	RFFM4501
PA + SW + LNA	18	-35	225	19	-30	240	28	3.6	14	2.5	–	–	QFN	2.5x2.5	RFFM8511
PA + SW + LNA	17.5	-35	220	19.5	-30	260	28	3.3	12	2.5	–	–	QFN	2.5x2.5	RFFM8505



QPF4519



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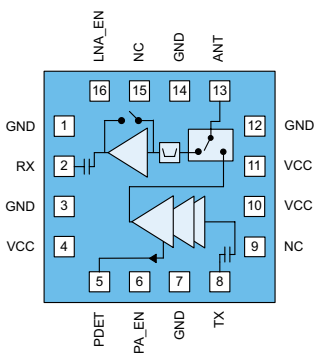
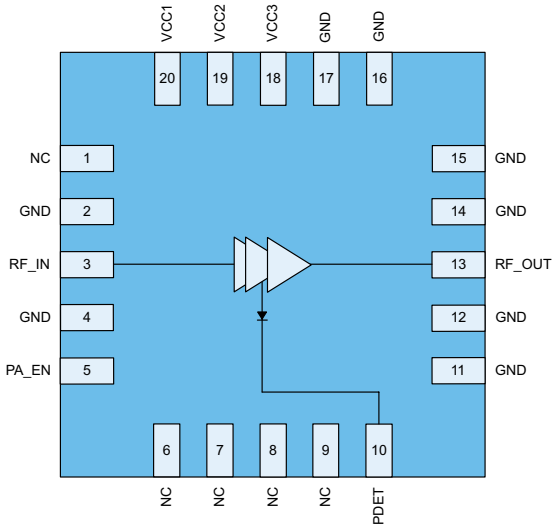


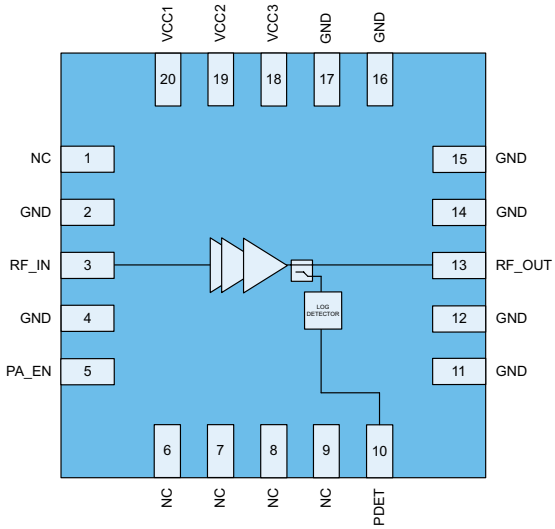
QPF8538

5 GHz Power Amplifiers

11ac P_{OUT} (dBm)	11ac EVM (dB)	11ac I_{CC} (mA)	11n P_{OUT} (dBm)	11n EVM (dB)	11n I_{CC} (mA)	Gain (dB)	Output P1dB (dBm)	Voltage (V)	Detector	Package	Size (mm)	Part Number
23	-35	285	25	-30	335	33	33	5	DC	QFN	4x4	RFPA5542
21	-35	275	22	-30	295	32	30	3.3	DC	QFN	4x4	RFPA5532
23	-35	295	25	-30	345	33	33	5	Log DC	QFN	4x4	RFPA5562
21	-35	275	22	-30	295	32	30	3.3	Log DC	QFN	4x4	RFPA5552
23 19	-35	285 210	25 20	-30	335 220	33 33	33 29	5 3.3	DC	QFN	4x4	RFPA5522
23	-35	275	25	-30	325	–	33	5	DC	QFN	4x4	RFPA5512
21	-35	300	23.5	-30	–	32	–	5	DC	QFN	4x4	TQP5523
25	-35	600	26	-30	–	32	–	5	DC	QFN	4x4	TQP5525



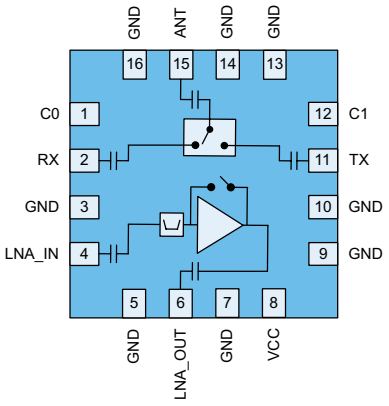
RFPA5542



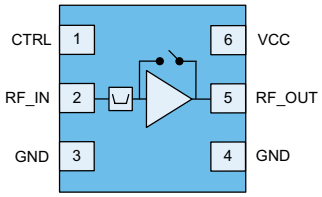
RFPA5562

5 GHz Rx Solutions

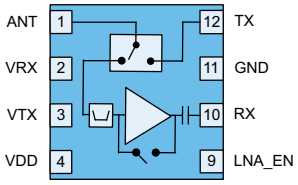
Functions	Rx Gain (dB)	Noise Figure (dB)	I_{DD} (mA)	Bypass Loss (dB)	2.4 GHz Rej (dB)	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Input IP3 (dBm)	Package	Size (mm)	Part Number
SW + LNA	13.5	1.7	19	5	29	0.5	40	-2	10	QFN	2.3x2.3	RFFM4554
SW + LNA	13	2.6	13	6	15	0.6	35	-5	–	DFN	1.5x1.5	RFFM4555
SW + LNA	12	2.5	10	7	-	0.6	–	–	–	DFN	1.5x1.5	RFFM8550
LNA + Bypass	16	1.6	15	6	-28	–	–	-8	6	DFN	1.6x1.6	RFFM4527
SPDT	–	–	–	–	–	0.85	25.5	38	55	DFN	2x2	RFSW8000
SPDT	–	–	–	–	–	0.65	26	34	60	Lam	1.5x1.86	RFSW8009
SPDT	–	–	–	–	–	0.8	23	29	–	QFN	1x1.075	RFSW8008



RFFM4554



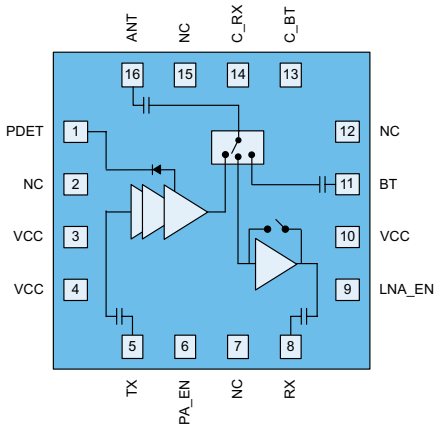
RFFM4527



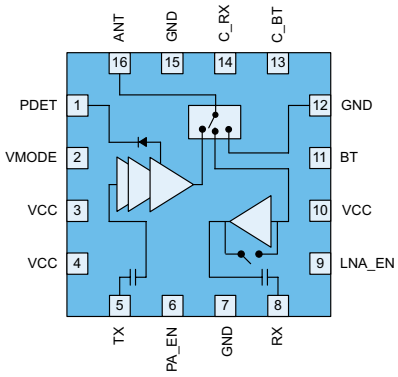
RFFM4555

2 GHz Front-End Modules

Functions	11ac P_{OUT} (dBm)	11ac EVM (dB)	11ac I_{CC} (mA)	11n P_{OUT} (dBm)	11n EVM (dB)	11n I_{CC} (mA)	Gain (dB)	V_{CC} (V)	Rx Gain (dB)	Noise Figure (dB)	I_{CC} (mA)	Bypass Loss (dB)	Input P1dB (dBm)	Package	Size (mm)	Part Number
PA + SP3T + LNA	21	-35	230	22	-30	250	29	5	15	2.5	13	7	-5	Lam	3x3	RFFM4252
PA + SP3T + LNA	17	-35	195	19	-30	230	27	3.3	13	2.3	10	7.5	-2	Lam	3x3	RFFM4203
PA + SP3T + LNA	18	-35	210	21.5	-30	260	29	3.3	15	2.5	13	7	-5	Lam	3x3	RFFM4251
PA + SW + LNA + SW	18.5	-35	220	20	-30	235	29	3.3	13	2	9.5	5	-5	Lam	2.3x2.3	QPF8248
PA + SW + LNA + SW	17.5	-35	185	19	-30	205	28	3.3	15	2.4	9	2	-5	QFN	2.3x2.3	RFFM8228P
PA + SP3T + LNA	17.5	-35	185	19	-30	200	27	3.3	15	2.5	10	–	-4	QFN	2.5x2.5	RFFM4211
PA + SP3T + LNA	18	-35	175	19	-30	185	27	3.3	12	2.5	10	6	-4	QFN	2.5x2.5	RFFM8211
PA + SP3T + LNA	18	-35	225	20	-30	240	26	3.6	10.5	2.5	10	6	-4	QFN	2.5x2.5	RFFM8205P



RFFM4252



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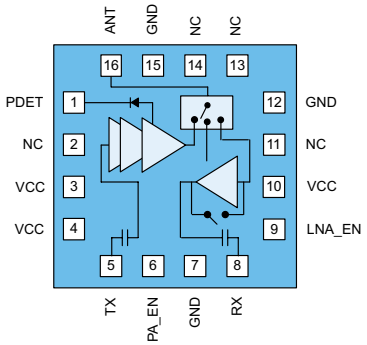


QPF8248

2 GHz Bandedge Filtering

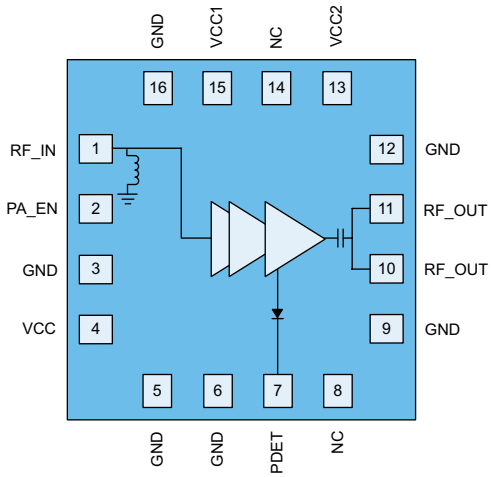
Function	Channel	Size (mm)	Part Number
2.4 GHz Bandedge	1-11	1.1x0.9	885136
2.4 GHz Bandedge	1-12	1.7x1.3	885135
2.4 GHz Bandedge	1-11	1.7x1.3	885070

Wi-Fi/LTE Coexistence Filtering

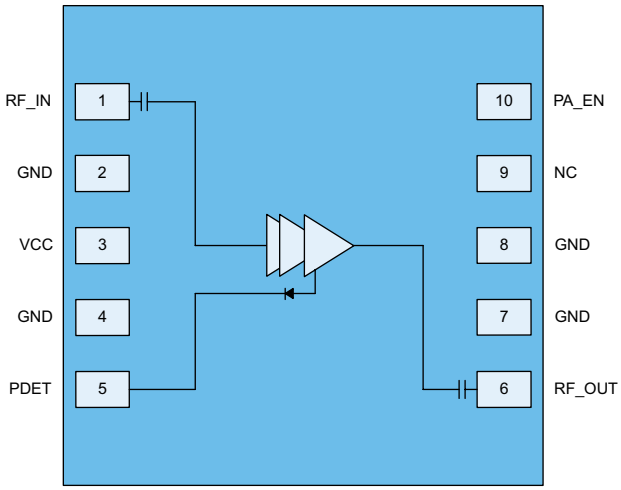
Function	High Rej Band	Size (mm)	Part Number
2.4 GHz Wi-Fi/LTE CoExist	B30/B38/B7/B41	1.1x0.9	885128
2.4 GHz Wi-Fi/LTE CoExist	B38/B40	1.4x1.2	885062
2.4 GHz Wi-Fi/LTE CoExist	B7/B41	1.4x1.2	885071

2 GHz Power Amplifiers

11ac P_{OUT} (dBm)	11ac EVM (dB)	11ac I_{CC} (mA)	11n P_{OUT} (dBm)	11n EVM (dB)	11n I_{CC} (mA)	Gain (dB)	Output P1dB (dBm)	Voltage (V)	Package	Size (mm)	Part Number
24	-35	335	25	-30	365	32	32	5	Lam	3x3	QPA5219
26	-35	470	28	-30	590	40	34	5	Lam	4x4	RFPA5208
–	–	–	29	-30	875	33.5	35	5	Lam	7x7	RFPA5201E



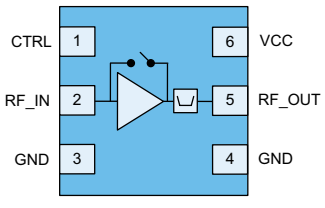
QPA5219



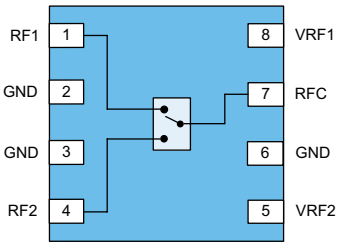
RFPA5208

2.4 GHz Rx Solutions

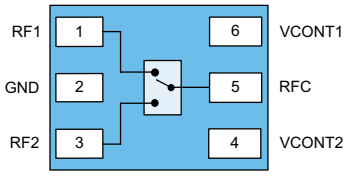
Functions	Gain (dB)	Noise Figure (dB)	I_{DD} (mA)	Bypass Loss (dB)	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Input IP3 (dBm)	Package	Size (mm)	Part Number
LNA + Bypass	15	1.3	9	6	–	–	–	–	QFN	1.6x1.6	RFFM4227
SW + LNA	13	2.3	9	7	0.6	35	30	–	QFN	1.75x1.75	RFFM8250
SPDT	–	–	–	–	0.55	29	40	59	DFN	2x2	RFSW8000
SPDT	–	–	–	–	0.45	28	34	60	Lam	1.5x1.86	RFSW8009
SP3T	–	–	–	–	0.5	27	29	–	DFN	1.5x1.5	RFSW8001
SPDT	–	–	–	–	0.4	27	29	–	QFN	1 x 1.075	RFSW8008



RFFM4227



RFSW8000



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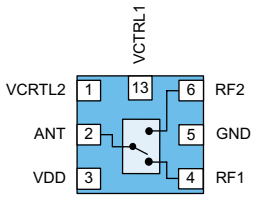
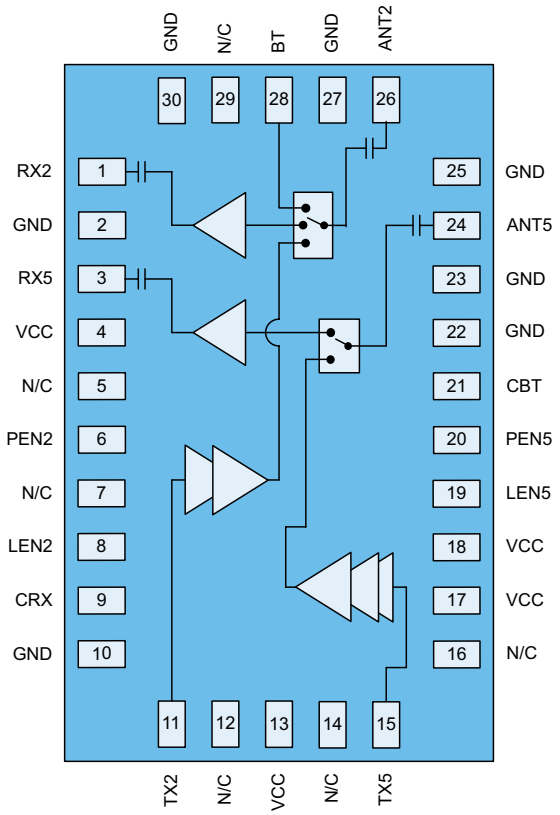


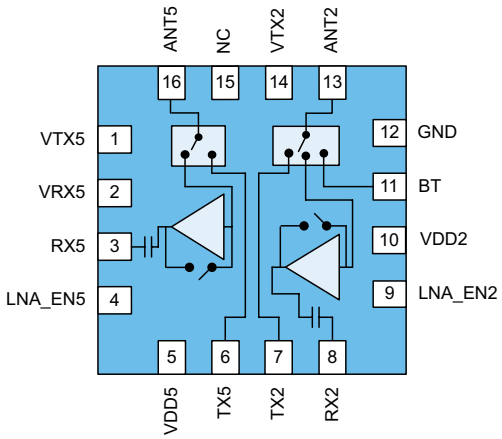
RFSW8008

Dualband Front-End Modules

Functions	Frequency (GHz)	11n P_{OUT} (dBm)	11n EVM (dB)	11n I_{CC} (mA)	Gain (dB)	V_{CC} (V)	Rx Gain (dB)	Noise Figure (dB)	Bypass Loss (dB)	Insertion Loss (dB)	Package	Size (mm)	Part Number
(PA+SW+LNA) x 2	2.4 5	18.5 17.5	-30	-30	24 28	3.3	12 14	2 2.5	–	–	Lam	3.2x5.2	RFFM8800
(SW+LNA) x 2	2.4 5	–	–	–	–	3.6	12 14	2.2 2.3	5 7	0.6 0.8	QFN	2.3x2.3	RFFM8850P



RFFM8800



RFFM8850

Qorvo Wi-Fi Enable MSC11 & Wave 2 Now

Our Wi-Fi components enable the future of Wi-FI today with leading performance capability in MCS11 (1024QAM) and 160 MHz bandwidths already. As leading chipset manufacturers upgrade feature sets in their components, our parts are ready for the challenge.

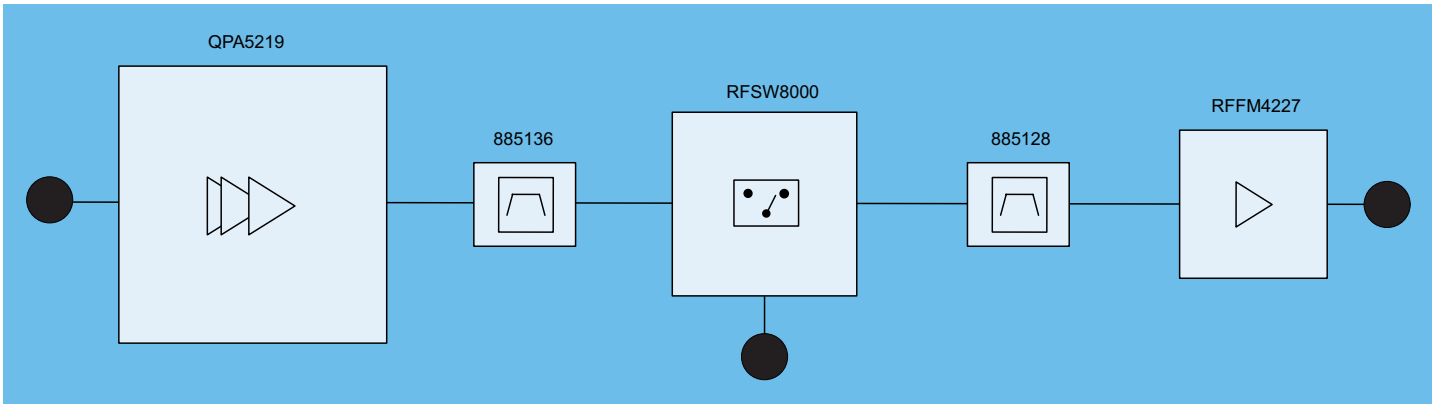
1024 QAM & 160 MHz

Functions	MCS11 P_{OUT}	MSC11 EVM	160 MHz P_{OUT}	160 MHz EVM	Gain (dB)	V_{CC} (V)	Rx Gain (dB)	Noise Figure (dB)	Bypass Loss (dB)	Rx Input IP3	Package	Size (mm)	Part Number
5 GHz PA+SW+LNA	20	-40	22	-35	32	5	16	2	6.5	6.5	QFN	5x3	QPF4519
5 GHz PA	20	-40	22	-35	33	5	–	–	–	–	QFN	4x4	RFPA5542
5 GHz PA	17	-40	19	-35	32	3.3	–	–	–	–	QFN	4x4	RFPA5532
5 GHz PA+SW+LNA	18	-40	19	-35	32	5	14	2.5	5	5	Lam	2.5x2.5	RFFM4558
5 GHz PA+SW+LNA	14.5	-40	16	-35	30	3.3	13.5	2.5	6	6	Lam	2.5x2.5	QPF4538
2 GHz PA+SP3T+LNA	21	-40	–	–	29	5	15	2.5	7	7	Lam	3x3	RFFM4252
2 GHz PA	21	-40	–	–	32	5	–	–	–	–	Lam	3x3	QPA5219

Qorvo Wi-Fi Achieves Unsurpassed Bandedge

Using Qorvo Wi-Fi BAW filtering, any customer can achieve regulatory bandedge compliance at higher power levels across all channels. This enables applications to maximize range, opt to work at lower power levels and possible reduce the number of MIMO chains needed to achieve maximum allowable powers.

To demonstrate this the technical teams have created the QPA5219PCB411 evaluation board which integrates five components on a single board so one can test the capability to achieve +27 dBm 2.4 GHz FCC bandedge complaint output power for themselves.



www.qorvo.com
cpewifi@qorvo.com