Field-Proven GaN Solutions from Qorvo®

qorvo®

all around you

STRENGTH IN NUMBERS

Qorvo GaN technology enables the systems all around you

#1

GaN Supplier In
DEFENSE & CATV

Industry leader
of GaN on
Silicon Carbide

1

9 MRL

Only supplier to achieve
MRL 9 using USAF MRA tool

More than
2,608,000 GaN
devices shipped since 2008

GaN

Top supplier of DOCSIS® 3.1
GaN components

125 new products
in 18 months

Demonstrated
MTTF reliability with

200°C
10^7 hrs.

0.013%
per million
device hour report failures

65,800,000
device hours
on 16,920 GaN PAs

qorvo®
all around you

For more information, visit www.qorvo.com/gan

Gallium Nitride Innovation

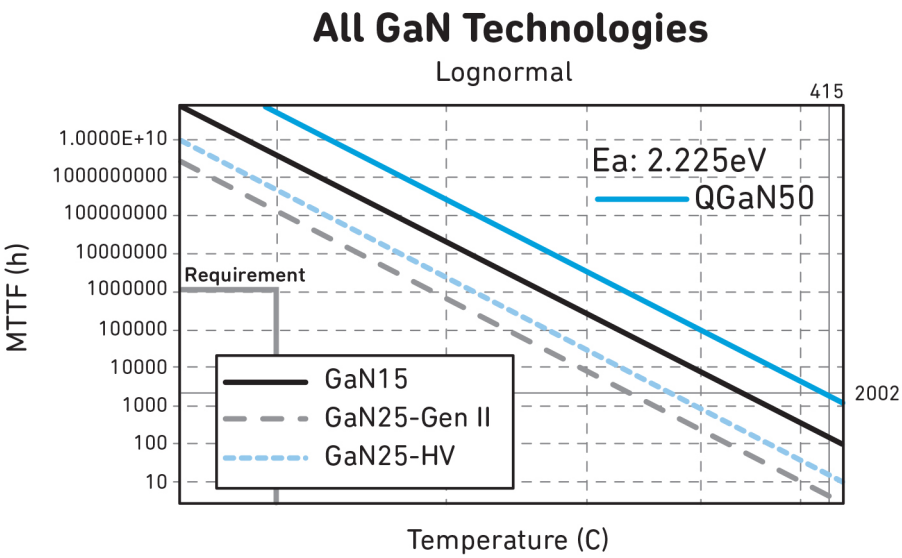
Qorvo has driven innovation and development of gallium nitride (GaN) products and technologies that enable next-generation systems for over 15 years. With high-performance GaN technology supporting products from DC through Ka-band, Qorvo continues to build on a strong GaAs legacy by offering new products and strategic foundry services that strive to meet our partner's demanding system requirements. With Qorvo, not only are you getting world-class electrical performance, our partners also benefit from a 'trusted' supplier with industry-leading GaN reliability. Qorvo is also the only GaN supplier to reach manufacturing readiness level (MRL) 9. Looking for a supplier who can take your ideas from concept to production? Qorvo is expanding the possibilities.

The GaN Advantage

RF power densities, made possible with GaN technology, range between five and six-times higher than gallium arsenide-based RF amplifiers. GaN technology's proven ability makes it an ideal choice for infrastructure, defense and aerospace applications such as radar, electronic warfare, communications, navigation and similar applications. This increase in performance capability offers our partners the flexibility to reduce board space and system costs while improving system performance. Only Qorvo delivers performance, quality and reliability that sets the standard for the industry.

Key Qorvo GaN attributes:

- >65 million device hours on 16,900 devices in the field, with less than 0.013% failures per million hours
- Applications from DC through W-band
- High power density
- Proven reliability at high junction temperatures, mean time to failure (MTTF) of greater than 10^7 (10 million) to 10^9 (1 billion) hours at 200 degrees (C) and greater than 10^6 (1 million) to 10^8 (100 million) hours at 225 degrees (C)
  - Highest power-added efficiency
  - Excellent noise figure – comparable to pHEMT
- Highly robust to ESD and RF input signals
- High RF power handling (receiver applications)
- Very high thermal conductivity substrate



Parametric failure is defined as a 10% degradation in Idmax*

QGaN50 parametric failure is shown here at a 3.5% degradation in Idmax

GaN Foundry Processes

As a DoD-accredited 'Microelectronics Trusted Source', Qorvo offers a variety of GaN custom ASIC solutions. Accreditation encompasses foundry, post-processing, packaging/assembly and test services. Support provided by our foundry services division complements Qorvo's high-frequency standard product portfolio. Qorvo services are centered upon satisfying custom requirements and can blend product and process solutions.

QGaN25:

- Technology: 0.25µm GaN on SiC
- Drain bias (Vd): up to 40V
- Operating frequencies: DC-18GHz
- PAE: >60% at 10GHz
- Power density: 6W/mm at 10GHz
- Reliability: >10M hours at 200C and 40V (3-temp DC MTTF w/failure defined as 10% degradation in Idmax)

QGaN15:

- Technology: 0.15µm GaN on SiC
- Drain bias (Vd): up to 28V
- Operating frequencies: DC-40GHz
- PAE: >50% at 30GHz
- Power density: 4.5W/mm at 30GHz
- Reliability: >10M hours at 200C and 28V (DC MTTF w/failure defined as 10% degradation in Idmax)

QGaN25HV:

- Technology: 0.25µm GaN on SiC
- Drain bias (Vd): up to 50V
- Operating frequencies: DC-10GHz
- PAE: >78% at 3.5GHz
- Power density: 6.5W/mm at 3.5GHz
- Reliability: >10M hours at 200C and 48V (3-temp DC MTTF w/failure defined as 10% degradation in Idmax)

QGaN50:

- Technology: 0.50µm GaN on SiC
- Drain bias (Vd): up to 65V
- Operating frequencies: DC-10GHz
- PAE: >80% at 3.5GHz
- Power density: 9W/mm at 3.5GHz
- Reliability: >100M hours at 200C and 65V (DC MTTF w/failure defined as 10% degradation in Idmax)

GaN Packaging Advancements

Qorvo's GaN MMICs in our unique, copper-based packages deliver superior heat transfer from the MMIC to the heat sink. These packages are much lower cost than other thermal spreaders. We also offer GaN in surface mount plastic over molded packages which provide environmental protection and ease of assembly for our customers.

GaN Standard Product Portfolio

Qorvo's proven technology leadership in high-performance gallium arsenide (GaAs) has been extended to gallium nitride (GaN). With GaN proving to be an evolutionary technology in support of next generation military and commercial applications, Qorvo is leading the way with an assortment of world class products across frequency and functionality. With a growing portfolio of GaN-based amplifiers and switches along with our expanding line of high-performance transistors, Qorvo is the premiere solution provider for your GaN needs.

Qorvo conducts extensive testing and analysis of both processes and products in order to provide the highest performance and reliability while delivering exceptional high-volume manufacturing capability. Equally important is measuring and predicting thermal behaviors. Qorvo simulates FET channel temperature using finite element analysis then verifies those models against micro-Raman measurements of the FET in order to provide accurate long term lifetime reliability data.

GaN on SiC Power Transistors

Description	Frequency (GHz)	Linear Gain (dB)	Psat (dBm)	PAE (%)	Voltage (V)	Current (mA)	Package (mm)	ECCN	Part Number
285W, 36V, DC-2GHz	DC-2	19	54.2	54	36	576	NI-780	EAR99	T1G2028536-FL/-FS
120W, 50V, DC-3.2GHz	DC-3.2	–	51	–	50	–	Ni-360	EAR99	QPD1008/L
100W, 32V, DC-3.5GHz	DC-3.5	15	51	50	32	250	NI-360	3A001b.3.b	TGF2819-FL/-FS
100W, 28V, DC-3.5GHz	DC-3.5	15	50	55	28	260	NI-360	EAR99	TGF2929-FL/-FS
120W, 36V, DC-3.5GHz	DC-3.5	16	50.8	52	36	360	NI-360	3A001b.3.b	T1G4012036-FL/-FS
2x120W, 36V, DC-3.5GHz	DC-3.5	16	54	52	36	520	NI-650	3A001b.3.b	T1G4020036-FL/-FS
45W, 32V, DC-3.5GHz	DC-3.5	19	46.4	52	32	220	NI-360	EAR99	T1G4004532-FL/-FS
30W, 32V, DC-3.5GHz	DC-3.5	16.5	44.5	49	32	150	NI-360	EAR99	T2G4003532-FL/-FS
100W, 28V, DC-3.5GHz	DC-3.5	15	50	55	28	260	NI-360 HM	EAR99	TGF2929-HM
55W, 28V, DC-3.5GHz	DC-3.5	15	47.2	50	28	200	NI-360	EAR99	T2G4005528-FS
50V, DC-4GHz	DC-4	–	–	–	50	–	Ni-360	EAR99	QPD1015/L
5W, 32V, DC-4GHz	DC-4	19	37	68	32	25	PQFN 3x3	EAR99	TQP0102
15W, 32V, DC-4GHz	DC-4	19	43.5	64	32	70	PQFN 3x4	EAR99	TQP0103
30W, 32V, DC-4GHz	DC-4	17	44.6	64	32	60	PQFN 3x4	EAR99	TQP0104
16W, 50V, DC-4GHz	DC-4	24	42	72	50	26	PQFN 3x3	EAR99	QPD1009
8W, 50V, DC-4GHz	DC-4	25	39	70	50	18	PQFN 3x3	EAR99	QPD1010
10W, 32V, DC-6GHz	DC-6	19	40	54	32	50	QFN 5x5	EAR99	T1G6001032-SM
15W, 28V, DC-6GHz	DC-6	15.5	42.3	70	28	100	NI-200	EAR99	T2G6001528-SG
7W, 28V, DC-6GHz	DC-6	15.5	39.5	50	28	50	NI-200	EAR99	T2G6000528-Q3
18W, 28V, DC-6GHz	DC-6	15	42.5	>50	28	50	NI-200	EAR99	T2G6001528-Q3
30W, 28V, DC-6GHz	DC-6	14	45	50	28	200	NI-200	EAR99	T2G6003028-FL/-FS
12W Discrete Power	DC-12	14	41.2	54	32	50	Die	EAR99	TGF2953
27W Discrete Power	DC-12	14	44.3	54	32	100	Die	3A001b.3.b	TGF2954
40W Discrete Power	DC-12	14	46.3	54	32	150	Die	3A001b.3.b	TGF2955
55W Discrete Power	DC-12	14	47.7	54	32	200	Die	3A001b.3.b	TGF2956
70W Discrete Power	DC-12	14	48.5	52	32	250	Die	3A001b.3.b	TGF2957
5W, 32V, DC-12GHz	DC-12	13@10GHz	37	50	32	25	PQFN 3x3	EAR99	TGF2977-SM
20W, 32V, DC-12 GHz	DC-12	11@10GHz	43	50	32	100	PQFN 3x4	3A001b.3.b	TGF2978-SM
25W, 32V, DC-12GHz	DC-12	11@10GHz	44	50	32	150	PQFN 3x4	3A001b.3.b	TGF2979-SM
7W Discrete Power	DC-14	14	37.6	54	32	25	Die	EAR99	TGF2952
6W Discrete Power	DC-18	18	38	71.6	28	25-125	Die	EAR99	TGF2023-2-01
12W Discrete Power	DC-18	21	40.1	73.3	28	50-250	Die	EAR99	TGF2023-2-02
25W Discrete Power	DC-18	18	43	78.3	28	100-500	Die	3A001b.3.b	TGF2023-2-05
50W Discrete Power	DC-18	19.8	47.3	69.5	28	200-1,000	Die	3A001b.3.b	TGF2023-2-10
90W Discrete Power	DC-18	19.2	50.5	70.5	28	400-2,000	Die	3A001b.3.b	TGF2023-2-20
10W, 32V, 0.03-3GHz	0.03-3	17	39.7	51	32	50	PQFN 3x3	EAR99	TGF3015-SM
5W, 32V, 0.03-3GHz	0.03-3	17	37	50	32	30	PQFN 3x3	EAR99	TGF2965-SM
5W, 32V, 0.03-4GHz	0.03-4	17	44	55	32	65	PQFN 3x4	EAR99	TGF3021-SM
5W, 32V, 4-6GHz	0.03-4	12	44	50	32	25	PQFN 3x3	EAR99	TGF3020-SM
15W, 28V, 0.03-1.215 GHz	0.03-1.215	20	42	70	28	26	PQFN 5x6	EAR99	QPD1000

Samples/evaluation fixtures are available; call for details.

GaN & GaAs Hybrid Power Amplifier

Description	Frequency (GHz)	Gain (dB)	P5dBm	Package (mm)	ES Date	Production	ECCN	Part Number
C-Band PA	5.9-7.7	31	+40dBm	QFN 7x9	Available	Released	3A001.b.2.b.2	TGA2753-SM
C-Band PA	7.1-8.5	28	+40dBm	QFN 7x9	Available	Released	3A001.b.2.b.2	TGA2752-SM
9.5-12GHz PA	10-11.7	30	+42dBm	QFN 8x10	Available	Q1'16	3A001.b.2.b.2	TGA2760-SM

Samples/evaluation fixtures are available; call for details.

GaN PtP Radio Power Amplifiers

Description	Frequency (GHz)	Gain (dB)	P5dBm	Package (mm)	ES Date	Production	ECCN	Part Number
Ka-Band 1W Linear PA	29-30	>25	–	6x6	Apr'16	Q4'16	–	TGA2636-SM
13/15GHz PA	12.7-15.4	>22	+40dBm at 22V	6x6	Jun'16	Q4'16	3A001.b.2.b.2	TGA2782-SM
18GHz PA	17.7-19.7	>21	+40dBm at 22V	6x6	Jul'16	Q4'16	3A001.b.2.c	TGA4548-SM
23GHz PA	21.2-23.6	>21	+40dBm at 22V	6x6	Jun'16	Q4'16	3A001.b.2.c	TGA4549-SM

Samples/evaluation fixtures are available; call for details.

GaN Power Amplifiers

Description	Frequency (GHz)	Psat (dBm)	LS Gain (dB)	PAE (%)	Bias (V/mA)	Package (mm)	ECCN	Part Number
10W Wideband PA	0.03-2.5	40	>13	55	32/360	PQFN 4x4	EAR99	QPA2237
10W Wideband PA	0.03-2.5	40	>13	55	32/360	QFN 5x5	EAR99	TGA2237-SM
10W Wideband PA	0.1-3	41	>13	>40	40/360	QFN 4x4	EAR99	TGA2976-SM
10W Wideband PA	0.1-3	41	>13	>40	40/360	QFN 5x5	EAR99	TGA2216-SM
2W Wideband Driver	2-6	32.5	14.5	>30	25/40	QFN 4x4	EAR99	TGA2597-SM
30W Wideband PA	2-6	45	22	>30	28/400	15x15 Cu Bolt Down	3A001.b.2.a	TGA2578-CP
4W Wideband PA	2-18	36	14	>15	22/600	15x15 Cu Bolt Down	3A001.b.2.c	TGA2214-CP
10W Wideband PA	2-18	40	5	25	30/500	Die	ITAR	TGA2573-2
45W Wideband PA	2.5-6	46.5	20	>36	30/1550	Flange	3A001.b.2.a	TGA2576-2-FL
12W S-Band PA	2.7-3.5	41	25	52	28/175	PQFN 5x5	EAR99	TGA2975-SM
18W S-Band PA	2.7-3.5	42.5	25	54	28/225	PQFN 5x5	EAR99	TGA2830-SM
10W S-Band PA	2.7-3.7	40.5	25	>50	25/175	QFN 5x5	EAR99	TGA2583-SM
18W S-Band PA	2.7-3.7	42.5	24.5	>50	28/225	QFN 5x5	EAR99	TGA2585-SM
30W S-Band PA	2.8-3.7	45.5	18.5	>47	28/200	PQFN 6x6	EAR99	TGA2818-SM
50W S-Band PA	2.8-3.2	47	22	58	25/200	PQFN 7x7	EAR99	QPA1000
60W S-Band PA	2.9-3.5	>48	>24	>54	28/200	PQFN 7x7	EAR99	TGA2817-SM
100W S-Band PA	3-3.6	50	23	>50	30/300	15x15 Cu Bolt Down	3A001.b.2.a	TGA2813-CP
80W S-Band PA	3.1-3.5	49.5	24.5	55	30/200	PQFN 7x7	3A001.b.2.a	TGA2814-SM
80W S-Band PA	3.1-3.6	49	22	50	30/200	15x15 Cu Bolt Down	3A001.b.2.a	TGA2814-CP
100W S-Band PA	3.1-3.6	50	24	56	30/300	PQFN 7x9	3A001.b.2.a	TGA2813-SM
50W C-Band PA	5-6	47	20	45	28/500	PQFN 6x6	3A001.b.2.b	TGA2307-SM
2W C-Band Driver	5-8	>33	>15	>34	25/50	PQFN 4x4	EAR99	TGA2599-SM
2W C/X-Band Driver	6-12	>32	20	>15	25/200	QFN 5x5	EAR99	TGA2627-SM
2W C/X-Band Driver	6-12	33	14	>25	25/100	QFN 4x4	EAR99	TGA2598-SM
30W C/X-Band PA	6-12	>45	>22	>30	20/2000	15x15 Cu Bolt Down	3A001.b.2.b	TGA2590-CP
50W X-Band PA	7.9-8.4	47	10	36	24/2240	Flange	EAR99	TGA2586-FL
50W X-Band PA	7.9-11	47	24	34	28/650	15x15 Cu Bolt Down	3A001.b.2.b	TGA2238-CP
100W X-Band PA	7.9-11	50	22	35	28/1300	15x15 Cu Bolt Down	3A001.b.2.b	TGM2635-CP
20W X-Band PA	9-10	43	25	40	28/365	QFN 7x7	3A001.b.2.b	TGA2624-SM
16W X-Band PA	9-10	>42	>27	>37	28/365	15x15 Cu Bolt Down	3A001.b.2.b	TGA2624-CP
35W X-Band PA	9-10	45.5	27.5	>42	28/290	QFN 7x7	3A001.b.2.b	TGA2622-SM
35W X-Band PA	9-10	45.5	27.5	>43	28/290	15x15 Cu Bolt Down	3A001.b.2.b	TGA2622-CP
60W X-Band HPA	9-1	48	10	38	24/2400	Flange	3A001.b.3.b	TGA2312-FL
17W X-Band PA	10-11	42.5	28	>40	28/365	15x15 Cu Bolt Down	3A001.b.2.b	TGA2625-CP
32W X-Band PA	10-11	45	27	>41	28/290	15x15 Cu Bolt Down	3A001.b.2.b	TGA2623-CP
2W Ku-Band Driver	13-18	33	20	>25	20/70	QFN 4x4	EAR99	TGA2958-SM
12W Ku-Band PA	13.4-16.5	41	23	30	28/225	QFN 5.5x4.5	3A001.b.2.c	TGA2218-SM
25W Ku-Band PA	13.4-16.5	44	28	31	28/450	15x15 Cu Bolt Down	3A001.b.2.c	TGA2219-CP
35W Ku-Band PA	13.4-15.5	45.5	25.5	>34	22/900	15x15 Cu Bolt Down	3A001.b.2.b	TGA2239-CP
20W Ku-Band HPA	14-15.35	43	19	27	25/1000	Flange	3A001.b.2.b	TGA2579-2-FL
16W Ku-Band HPA	14-16	42	18	>24	25/2000	Flange	ITAR	TGA2572-2-FL
4W Ka-Band PA	27-31	36.5	22.5	25	20/140	PQFN 7x7	3A001.b.2.c	TGA2594-HM
8W Ka-Band PA	27.5-31	39	21	>22	20/560	15x15 Cu Bolt Down	3A001.b.2.c	TGA2595-CP

Samples/evaluation fixtures are available; call for details.

GaN Low Noise Amplifiers

Description	Frequency (GHz)	Max Pin (dBm)	P1dB/IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage/Current (V/mA)	Package (mm)	ECCN	Part Number
S/C-Band LNA	2-6	30	18/30	22	1	10/100	PQFN 4x4	EAR99	TGA2611-SM
Wideband LNA	2-20	40	23	15	2	8/125	QFN 4x4	EAR99	TGA2227-SM
C/X-Band LNA	6-12	33	19/28	22	2	10/100	PQFN 4x4	EAR99	TGA2612-SM

Samples/evaluation fixtures are available; call for details.

GaN Switches

Description	Frequency (GHz)	IL (dB)	ISO (dB)	P1dB (dBm)	Voltage (V)	Package (mm)	ECCN	Part Number
40W SPDT	0.5-6	<1.1	>25	46	0/-40	QFN 4x4	EAR99	TGS2354-SM
100W SPDT	0.5-6	<1.1	>40	50	0/-40	QFN 5x5	EAR99	TGS2355-SM
5W SPDT	0.5-12	<1	>30	37	0/-40	QFN 4x4	EAR99	TGS2352-2-SM
4W SPDT	0.5-18	<1.5	>25	36	0/-40	QFN 4x4	EAR99	TGS2353-2-SM

Samples/evaluation fixtures are available; call for details.

Broadband DOCSIS® 3.1 Solutions

Qorvo offers a broad family of products tailored for the next-gerneration of cable networking, DOCSIS 3.1. Qorvo's DOCSIS 3.1 family includes 1.2GHz power amplifiers as both hybrids and multi-chip modules (MCMs) that use state-of-the-art GaN HEMT process technology and offer optimal linearity and output power while providing robust reliability.

Hybrid and MCM Power Doubler Amplifiers (12-34v)

Min Freq (MHz)	Max Freq (MHz)	Power Gain	Pout (dBmV at Max Freq)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm)	Part Number
45	1218	23	60	-80	-80	24	430	SOT-115J	RFPD2580
45	1218	23	60	-80	-80	24	430	MCM 9x8	RFCM3316
45	1218	23	67	-80	-80	24-34	540	SOT-115J	RFPD3580
45	1218	23	63	-78	-80	24	480	SOT-115J	RFPD3210
45	1218	23	63	-78	-80	24	370-470	SOT-115J	QPA3230
45	1218	23	63	-78	-80	24	470	MCM 9x8	RFCM3327
45	1218	24	65	-80	-69	28	540	MCM 9x8	QPA3590
45	1218	25	60	-75	-80	24	445	QFN 5x7	TAT9988
45	1218	25	60	-80	-80	24	430	MCM 9x8	RFCM3326
45	1218	25	60	-80	-80	24	430	SOT-115J	RFPD3190
45	1218	25	63	-78	-80	24	370-470	SOT-115J	QPA3240
45	1218	25	63	-78	-80	24	470	MCM 9x8	RFCM3328
45	1218	25	63	-78	-80	24	480	SOT-115J	RFPD3220
45	1218	28	55	-82	-80	24	420	SOT-115J	RFPD2540
45	1218	28	59	-80	-80	24	420	SOT-115J	RFPD3540

Samples/evaluation fixtures are available; call for details.

Hybrid and MCM Push Pull Amplifiers (12-24v)

Min Freq (MHz)	Max Freq (MHz)	Power Gain	Pout (dBmV at Max Freq)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm)	Part Number
45	1218	23.5	44	-64	-70	24	230	SOT-115J	RFPP2590
45	1218	28	46	-72	-78	24	260	SOT-115J	RFPP3870
45	1218	28-32	44	-63	-75	12-24	265	SOI016W	TAT8858A1H
45	1218	28.5	46	-67	-70	12	410	MCM 11x11	RFAM3790
45	1218	28.5	46	-68	-75	24	250	MCM 11x8.5	RFCM4363
45	1218	34	46	-66	-72	24	240	SOT-115J	RFPP3180

Samples/evaluation fixtures are available; call for details.

Hybrid and MCM Reverse Amplifiers

Min Freq (MHz)	Max Freq (MHz)	Power Gain at Max Freq (dB)	NF (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm)	Part Number
5	100	38	3.8	-72	-70	24	158	SOT-115J	RFRP2920
5	100	25	3	-60	-80	5	262	SOIC8	CGR0118Z
5	200	20	2.2	-73	-70	12	355	SOT-115J	R2005200P12
5	200	24.2	1.8	-70	-70	12	355	SOT-115J	R200240P12
5	200	28.3	-70	-69	4.9	24	135	SOT-115J	R2005280L
5	200	30.3	-72	-72	4.7	24	138	SOT-115J	R2005300L
5	200	35.2	-72	-72	5	24	158	SOT-115J	R2005350L
5	200	17	4	-67	-80	5	217	SOIC8	CGR0218Z
5	220	39	3.2	-63	-60	12	205	MCM 11x11	RFCM5304
5	300	19	1.7	-70	-77	5	260	SOIC8	RFCA8830
5	300	17.5	4	-76	-80	5	215	SOIC8	RFCA1008
5	300	25	5.6	-59	-64	24	138	SOT-115J	R3005250L
5	300	30	5.3	-70	-72	24	145	SOT-115J	R3005300L
5	300	35	5.1	-70	-75	24	155	SOT-115J	RFRP3120
5	300	37	4.8	–	–	8	320	MCM 6x6	TAT3814

Samples/evaluation fixtures are available; call for details.

Optical Receivers – Hybrid and MMIC

Description	Min Freq (MHz)	Max Freq (MHz)	Power Gain at Max Freq (dB)	EINC pA/√Hz	Vcc (V)	Current (mA)	Package (mm)	Part Number
Optical Receiver	45	1218	31	4.2	24	245	SOT-115J	RFOS601x (x=2,3)

Samples/evaluation fixtures are available; call for details.

MMIC Broadband Amplifiers – Push Pull (5-8V)

Description	Min Freq (MHz)	Max Freq (MHz)	Power Gain at Max Freq (dB)	EINC pA/√Hz	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm)	Part Number
Broadband Amplifier	45	1500	17	2	-70	-72	7	220	SOIC8	RFCA8818

Samples/evaluation fixtures are available; call for details.

MMIC Broadband Amplifiers – Single Ended (5-8V)

Description	Min Freq (MHz)	Max Freq (MHz)	Power Gain at Max Freq (dB)	EINC pA/√Hz	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm)	Part Number
Broadband PA	45	1218	22	1.5	-82	-68	5	170	SOT-89	RFCA3828

Samples/evaluation fixtures are available; call for details.

Attenuators and Switches – MMIC

Description	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Attenuation Range (dB)	Package (mm)	Part Number
DSA, 0.5dB Step, Serial	5	2000	2.3	1.5	-82	5	31.5	QFN 4x4	RFSA2654
VCA	5	3000	1.5	-75	-80	5	30	QFN 3x3	RFSA3043
SPDT	5	6000	0.75	>100	>100	3	–	QFN 2x2	RFSW1012
VCA	30	3000	2.7	-65	-70	5	30	QFN 3x3	RFSA3013
VCA	30	3000	2.7	-65	-70	3.3	30	QFN 3x3	RFSA3023

Samples/evaluation fixtures are available; call for details.