



# Point-to-Point & VSAT Solutions

High-performance solutions from Qorvo™ are enabling new wireless infrastructure and satellite ground stations that deliver untethered access to broadband data. Qorvo innovation with GaN and GaAs technologies support the needs of highly competitive global markets, helping our customers reach their high requirements.



**qorvo**<sup>™</sup>  
all around you

# PtP Radio Solutions

Smartphones, tablets and a seemingly endless array of software apps feed the global demand for anywhere/anytime internet and M2M connectivity. Qorvo innovation helps network operators and manufacturers satisfy these demands.

Qorvo supports the continuing growth of wireless backhaul infrastructure. Qorvo innovation delivers critical data support for the broadband transport of high-speed data. Qorvo's point-to-point microwave/millimeter wave solutions include industry-leading, high-power and high-efficiency amplifiers with the linearity essential for increasing the capacity of the backhaul system. We also provide top-performing millimeter wave frequency converters and other control products.

Qorvo's innovative RF chipsets for millimeter wave backhaul frequencies offer higher efficiency, integrated functionality and the linearity critical for next-generation, high-capacity backhaul. Qorvo solutions include integrated amplifiers, converters, mixers and discrete components. Qorvo is targeting the highest power requirements with high-frequency GaN solutions.

## PtP Radio Power Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat)/ OIP3 (dBm)	Gain (dB)	Voltage/Current (V/mA)	Package Style	Part Number
6/7/8 GHz PA	5.5-8.5	32 (34)/41	30	6/1260	5x5 QFN	TGA2706-SM
6-15 GHz Driver Amp	5.7-15.4	22 (25)/33	25	5/190	5x5 QFN	RFGA0620 <b>NEW</b>
6/7/8 GHz PA	5.9-7.7	30 (40)/47	31	6/1000 & 28/190	7x9 QFN	TGA2753-SM <b>NEW</b>
6/7/8 GHz PA	5.9-8.5	34 (35)/42	18	6/1000	6x6 QFN	TGA2701-SM
7/8 GHz PA	7.1-8.5	30 (40)/48	28	6/1000 & 28/190	7x9 QFN	TGA2752-SM <b>NEW</b>
9-17 GHz LNA	8.5-17	22 (25)/33	20	1.5-5/37-110	4x4 QFN	TGA2247-SM <b>NEW</b>
10/12 GHz PA	9.5-12	33 (42)/52	33	7/1000 & 28/260	8x10 QFN	TGA2760-SM <b>NEW</b>
10/12 GHz PA	10-12	33 (34.5)/43	25	6/1300	5x5 QFN	TGA2535-SM
13/15 GHz Driver Amp	12-16	26 (26.5)/37	23	5/320	3x3 QFN	TGA2524-SM
13/15 GHz PA	12.5-15.5	30 (31.5)/41	25	6/650	5x5 QFN	TGA2527-SM
13/15 GHz PA	12.5-15.5	33 (34.5)/43	27	6/1300	5x5 QFN	TGA2533-SM
13/15 GHz PA	12.7-15.4	34 (36.5)/43	22	7/1440	5x5 QFN	RFGA1321 <b>NEW</b>
13/15 GHz PA	12.7-15.4	-42/(49)	25	20-28/380	6x6 QFN	TGA2782-SM <b>NEW</b>
18/23 GHz Driver Amp	17-24	23.5 (25.5)/33	20	5/320	4x4 QFN	TGA2521-SM
17-24 GHz PA	17-24	26 (28)/35	17	5/712	4x4 QFN	TGA2522-SM
18 GHz PA	17.7-19.7	31 (32.5)/41	23	6/900	4x4 QFN	TGA4532-SM
18 GHz PA	17.7-19.7	33 (34.5)/42	21	6/1430	5x5 QFN	TGA4534-SM
18 GHz PA	17.7-19.7	-40/(48)	23	20-28/380	6x6 QFN	TGA4548-SM <b>NEW</b>
23 GHz PA	21.2-23.6	31 (32)/41	22	6/880	4x4 QFN	TGA4533-SM
23 GHz PA	21.2-23.6	32 (34)/41	22	6/1430	5x5 QFN	TGA4535-SM
23 GHz PA	21.2-23.6	-40/(48)	23	20-28/380	6x6 QFN	TGA4549-SM <b>NEW</b>
26 GHz PA	24.2 - 26.5	33 (34)/43	18	6/1430	5x5 QFN	TGA4536-SM
28 GHz PA	26-31	31 (32)/41	23	6/1100	5x5 QFN	TGA4544-SM
32 GHz PA	29-35	30 (31)/39	18	6/1100	5x5 QFN	TGA4537-SM
38 GHz PA	37-40	28 (29.5)/38	24	5/600	Die	TGA4538
38 GHz PA	37-40	30 (32)/38	26	6/900	Die	TGA4542
42 GHz PA	40.5-43.5	28.5 (30)/38	23	6/900	Die	TGA4543

*Samples/evaluation fixtures are available; call for details.*

\* At PA OUT

## PtP Radio Converter

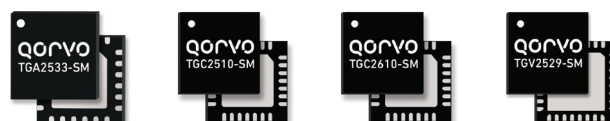
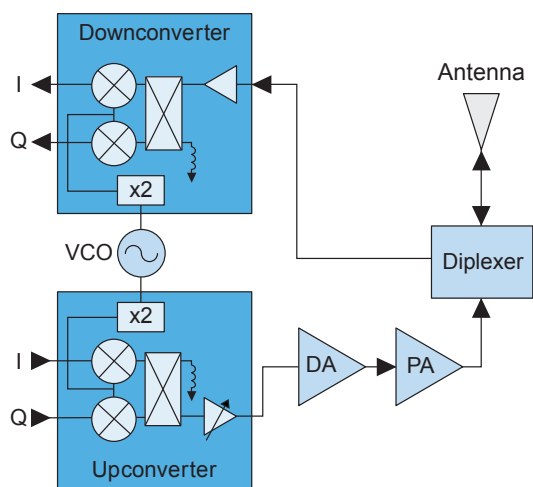
Description	RF Freq Range (GHz)	IF Freq Range (GHz)	Conversion Gain (dB)	IIP3/OIP3 (dBm)	LO Power (dBm)	NF (dB)	Im Rej (dB)	Vdd (V)	Idd (mA)	Package Style	Part Number
Double-Balanced Mixer	6-22	DC-6	-7	22/-	13-20	10	>20	-	-	4x4 QFN	TGC2249-SM
Upconverter	9-14	DC-4	22	-/28	0-5	12	20	5	380	5x5 QFN	RFUV1002
Downconverter	9-14	DC-4	14	4/-	0-5	1.7	>15	3-5	210	5x5 QFN	RFRX1002
Downconverter	10-15.4	DC-4	12	4/-	0-5	2.1	>15	3-5	210	5x5 QFN	RFRX1001
Downconverter	10-16	DC-3.5	14	3/-	2-9	2	>15	4	290	5x5 QFN	TGC2610-SM
Upconverter	10-16	DC-3.5	17	-/33	2-9	-	>15	5	300	5x5 QFN	TGC2510-SM
Upconverter	12-16	DC-4	22	-/28	0-5	12	20	5	380	5x5 QFN	RFUV1003
Upconverter	17.7-23.6	DC-4	21	-/27	0-5	9	15	5	480	5x5 QFN	RFUV1702
Upconverter	17.7-26.5	DC-4	13	-/32	2-9	-	>15	5	345	5x5 QFN	TGC4510-SM
Upconverter	21.2-26.5	DC-4	21	-/27	0-5	9	15	5	480	5x5 QFN	RFUV1703
Upconverter with x4	36-45	DC-3.5	11	-/27	2-8	-	>9	5/4	480	5x5 QFN	TGC4546-SM
Downconverter	17.7-26.5	DC-4	15	3/-	2-9	2.8	>15	3	228	5x5 QFN	TGC4610-SM
Downconverter	17.7-26.5	DC-4	13	6/-	0-5	2.5	>15	3-5	350	5x5 QFN	RFRX1701
Downconverter	17.7-19.7	DC-4	15	6/-	0-5	2.0	>15	3-5	350	5x5 QFN	RFRX1702
Sub-Harmonic Image Reject Mixer	71-86	DC-7 (11)	-12	-	15	-	>15	-	-	Flip-Chip	TGC4671

Samples/evaluation fixtures are available; call for details.

## PtP Radio Voltage Controlled Oscillators

Frequency Range (GHz)	RF Out	Fo Pout (dBm)	10 kHz PN (dBc/Hz)	100 kHz PN (dBc/Hz)	Bias (V/mA)	Package Style	Part Number
8.9-9.8	Fo, Fo/2	9	-85	-112	5/170	5x5 QFN	TGV2561-SM
9.5-10.3	Fo, Fo/2	9	-84	-111	5/170	5x5 QFN	TGV2562-SM
9.7-10.8	Fo, Fo/2	9	-84	-111	5/170	5x5 QFN	TGV2563-SM
10.3-11.1	Fo, Fo/2	9	-83	-111	5/170	5x5 QFN	TGV2564-SM
10.7-11.5	Fo, Fo/2	9	-84	-111	5/180	5x5 QFN	TGV2539-SM
11.3-12.3	Fo, Fo/2	10	-83	-110	5/180	5x5 QFN	TGV2565-SM
12.4-13.4	Fo, Fo/2	7	-80	-110	5/160	5x5 QFN	TGV2529-SM
12.6-13.8	Fo, Fo/2	9	-80	-110	5/170	5x5 QFN	TGV2584-SM
13.4-14.4	Fo, Fo/2	9	-81	-110	5/175	5x5 QFN	TGV2566-SM

Samples/evaluation fixtures are available; call for details.



# VSAT Ka-Band Solutions

Ka-band VSAT service is expanding opportunities in the 28-31 GHz frequency range with greater data throughput. This capability can support more bandwidth-intensive consumer and commercial services such as two-way data for video and other large file transfers. Commercial transaction processing, supervisory control and data acquisition (SCADA) remote monitoring, as well as fixed and portable wideband systems for defense and maritime communications remain key services for Ka- and Ku-band VSAT systems.

Qorvo offers complete Ka-band ground terminal RF chipset solutions with a wide selection of high-performance, cost-effective products. Qorvo VSAT solutions cover a wide range of commercial and defense bands with amplifiers, frequency converters, filters, control devices and related components that improve efficiency, reduce BOMs and offer smaller PCB footprints. The next-generation high-power requirements are addressed using Qorvo's latest GaN processes.

## VSAT Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat)/ OIP3 (dBm)	Gain (dB)	Voltage/Current (V/mA)	Package	Part Number
Ku-Band Driver Amp	12-16	26 (26.5)/37	23	5/320	3x3 QFN	TGA2524-SM
Ku-Band PA	12.5-15.5	30 (31.5)/41	25	6/650	5x5 QFN	TGA2527-SM
Ku-Band PA	12.5-15.5	33 (34.5)/43	27	6/1300	5x5 QFN	TGA2533-SM
Ku-Band PA	12.7-15.4	34 (36.5)/43	22	7/1440	5x5 QFN	RFPA1321 <b>NEW</b>
Ka-Band 2W Linear	27-32	30 (32)/35	19	6/600	5x5 QFN	TGA4604-SM <b>NEW</b>
Ka-Band 4W GaN	27.5-31	-(36)/43	25	20/280	6x6 QFN	TGA2636-SM <b>NEW</b>
Ka-Band 1W Linear PA	28-30	30 (30.5)/33	20	6/420	5x5 QFN	TGA4539-SM
Ka-Band 2W + X2	29-30	30 (31)/36	25	6/1200	5x5 QFN	TGC4603-SM <b>NEW</b>
Ka-Band 4W + X2	29-31	-(36)/43	25	20/280	6x6 QFN	TGC4609-SM <b>NEW</b>

Samples/evaluation fixtures are available; call for details.

## PtP Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO/Rf Isolation (dB)	IIP3 (dBm)	Voltage/Current (V/mA)	Package	Part Number
Ka-Band Downconverter (LNA + VCO + Mixer)	17-21	8	-	-8	5/305	5x6 QFN	TGC4408-SM
Ka-Band Upconverter (Sub-Harmonic Mixer + LO Buffer)	21.5-32.5	-9	35	13	5/65	3x3 QFN	TGC4407-SM

Samples/evaluation fixtures are available; call for details.

