

# ALTUM REF

Power Amplifiers Selection Guide

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# Introducing Altum RF

- Established in 2018 in The Netherlands as a fabless RF semiconductor company with a global presence
- High performance MMIC amplifiers and other components using GaN and GaAs
- Focus on 'high frequency' professional markets (10 to 100+ GHz)
- ISO9001:2015 certified since January 2020
- Markets addressed:

## 5G mmWave



## Satcom



## ISM-A&D-T&M



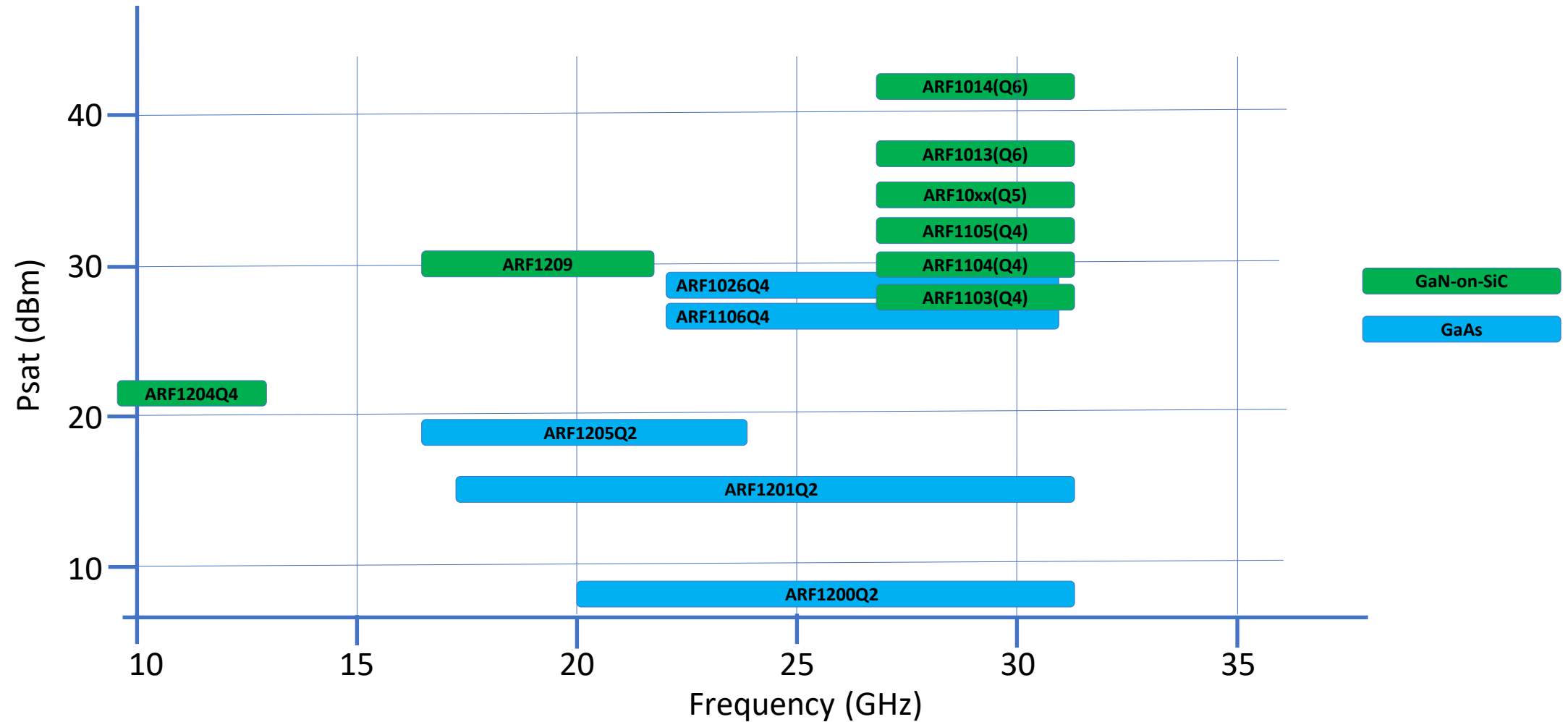
# Power Amplifiers, X-band

Power Amplifier	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	P1dB (dBm)	P <sub>SAT</sub> (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
ARF1001C7	8	11	25	36	37	TBD	-5/8	1450	7 x 7 Ceramic
ARF1002C7	8	11	24	39	40	TBD	-5/8	2800	7 x 7 Ceramic
ARF1003C7	8.5	10.5	18	41	42	TBD	-5/8	4500	7 x 7 Ceramic
ARF1009Q5	9	11	42	38	40	45	-1.8/24	200	5 x 5 QFN
ARF1020Q5	9	11	28	39	40	45	-1.8/24	180	5 x 5 QFN
ARF1021Q5	9	12	29	36	39.5	42	-1.8/24	100	5 x 5 QFN
ARF1022Q4	8	12	30	33	37	40	-1.5/24	80	4 x 4 QFN

# Power Amplifiers, K, Ka-band

Power Amplifier	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	P1dB (dBm)	P <sub>SAT</sub> (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
ARF1010Q4	22	30	28	27	29.5	36	4	600	4 x 4 QFN
ARF1026Q4	22	31.5	28	27	29.5	36	4	600	4 x 4 QFN
ARF1106Q4	24	31.5	28	24	27	TBD	4	300	4 x 4 QFN
ARF1012Q4	37	40	24	24.5	27.5	TBD	4	550	4 x 4 QFN
ARF1107Q4	37	40	24	23	25	TBD	4	275	4 x 4 QFN
ARF1023Q4	34	38	29.5	26	28	33.5	4	550	4 x 4 QFN
ARF1013	27	31.5	28	TBD	38.9	44	-1.9/22	115	Bare Die
ARF1013Q6	27	31.5	27.5	TBD	38.5	43.5	-1.9/22	115	6 x 6 QFN
ARF1014	27	31.5	27.5	TBD	41	49	-1.9/22	230	Bare Die
ARF1014Q6	27	31.5	27	TBD	39.5	48.5	-1.9/22	230	6 x 6 QFN
ARF1103Q4	27	31.5	25	23.5	26	TBD	-1.5V/10V	150	4 x 4 QFN
ARF1104Q4	27	31.5	28	24.5	28	TBD	-1.5V/15V	150	4 x 4 QFN
ARF1105Q4	27	31.5	31	28	31.5	TBD	-1.5V/20V	250	4 x 4 QFN

# Amplifier overview for Satcom



# Q, V and E-band Amplifiers

Power Amplifier	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	P1dB (dBm)	P <sub>SAT</sub> (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
ARF1208	37	59	26.5	16.5	19	TBD	2	55	Bare Die
ARF1207	57	71	25	22	24.5	TBD	4	250	Bare Die
ARF1206	71	86	22	14.5		TBD	3.5	55	Bare Die
ARF1006	71	76	20	28	29	36	-0.5/4	1000	Bare Die
ARF1007	81	86	21	28	29	35	-0.5/4	1100	Bare Die
ARF1017	76	81	24	28	29	35	-0.5/4	1100	Bare Die

# Low Noise / Driver Amplifiers

Low Noise/ Driver Amplifiers	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	NF (dB)	P1dB (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
ARF1200Q2	20	31.5	20	3.5	1	3.3	15	2.5 × 2.5 QFN
ARF1201Q2	17	31.5	21	2.6	7	3.3	40	2.5 × 2.5 QFN
ARF1202Q2	37	42	17	4.0	8.5	3.3	15	2.5 × 2.5 QFN
ARF1203Q2	37	40	20.5	4.0	13	3.3	40	2.5 × 2.5 QFN
ARF1205Q2	13	24	23	2.5	16	3.3	50	2.5 × 2.5 QFN
ARF1204Q4	7	12	21	2.0	20	10/-1.5	60	4 × 4 QFN
ARF1210Q2	32	37	18	3.8	10	3.3	40	2.5 × 2.5 QFN
ARF1206	71	86	22	4.0	14.5	3.5	55	Bare Die
ARF1207	57	71	25	5.0	22	4	250	Bare Die
ARF1208	37	59	26.5	3.0	16.5	2	55	Bare Die

# Distributed Amplifiers

Distributed Amplifiers	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	P1dB (dBm)	P <sub>SAT</sub> (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
ARF1300Q4	0	24	13	21.5	23.6	30	10	130	4 × 4 QFN
ARF1301Q5	0	18	12.5	28	30	37.5	12	310	5 × 5 QFN
ARF1303	0	50	15	20	23	TBD	6	240	Bare Die
ARF1303Q6	0	46	15	22	TBD	TBD	6	240	6 × 6 QFN
ARF1304Q5	0	26.5	15	23	25	33	10	150	5 × 5 QFN
ARF1306C5	2	18	15	TBD	34	38.5	24	450	5 × 5 Ceramic
ARF1306	2	20	16	TBD	34.5	TBD	24	450	Bare Die
ARF1307C7	2	20	18	35	40	42.5	28	950	7 × 7 Ceramic
ARF1307	2	20	18	35	40	TBD	28	950	Bare Die
ARF1312Q6	0	26.5	15	29.5	32	TBD	20	460	6 × 6 QFN



# Further Information

## Microwave Journal White Papers:

- [GaN Ka-band Amplifiers for Satcom Applications](#)
- [Wideband, High-Power GaN PAs in SMT Packages Preserve Electrical and Thermal Performance While Simplifying Design](#)

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