



United Monolithic
Semiconductors

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SELECTION GUIDE

2025
2026

Products, Foundry Processes and Chipsets
for RF & Microwave Solutions

FROM OUR TECHNOLOGY **TO YOUR SUCCESS**



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AMPLIFIER – DIGITAL VGA

NEW

Part Number	RF Bandwidth (GHz)	Gain (dB)	Noise Figure (dB)	Dynamic Range (dB)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4102-QEG	2-4	20	-	31.5	23.5	24.5	150	5	QFN
CHA3511-99F	6-18	16	7	39	20	22	190	4.5	Die
CHA3512-99F	6-18	16	7	20	20	23	210	4.5	Die
CHA3513-99F	6-18	19	12	25	18	20	300	4.5	Die
CHA3514-99F	6-18	13	7	39.5	18	19	190	4.5	Die

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA8107-QCB	4.7-6.8	30	-	-	42	55 @ Psat	190 to 315	14 to 24	QFN
CHA8012-99F	5.2-6	22	-	-	41.5	43 @ 3dB comp	2100	8	Die
CHA7618-99F	5.5-18	30	-	-	40	20 @ 20dBm	530	18	Die
CHA7060-QAB	5.6-8.5	30	-	-	41	40 @ 41dBm P _{out}	420	20	QFN
CHA8618-99F	6-18	33	-	-	42.5	26 @ Psat	1200	20	Die
CHA6154-99F	7.25-7.75	36.5	-	-	34.5	43 @ Psat	70	28	Die
CHA8054-99F	7.7-8.6	27	-	-	43.6	50 @ 7dB comp	900	28	Die
CHA8612-QDB	7.9-11	26	-	44	43	42.5 @ Psat	680	30	QFN
CHA6105-99F	8-12	30	-	30.5	31.5	-	700	8	Die
CHA6005-99F	8-12	22	-	31.5	32.5	38 @ 3dB comp	350	8	Die
CHA6005-QEG	8-12	19.5	-	31.5	32	35 @ 3dB comp	420	8	QFN
CHA8312-99F	8-12	26	-	-	43	50 @ 23dBm	320	20	Die
CHA6710-99F	8-12.75	23.5	-	-	37.4	36 @ Psat	200	25	Die
CHA6710-FAB	8-12.75	22.5	-	-	37	35 @ Psat	200	25	Hermetic SMD
CHA8710a99F	8.5-10.5	28.5	-	-	44	44 @ Psat	750	25	Die
CHA8710-QDB	8.5-10.5	29.5	-	-	44	41 @ Psat	750	30	QFN
CHA8610-99F	8.5-11	24	-	-	42	40 @ Psat	680	30	Die
CHA8611-99F	8.5-11	24	-	-	42.5	43 @ Psat	800	25	Die
CHA7114-99F	8.5-11.5	20	-	-	39.8	42 @ 4dB comp	2000	8	Die
CHA7115-99F	8.5-11.5	27.5	-	-	39	37 @ 4dB comp	2200	8	Die
CHA7215-99F	8.5-11.5	28	-	-	39.5	34 @ 4dB comp	2300	8	Die
CHA8212-99F	8.5-11.5	34	-	-	44	36 @ 7dB comp	840	28	Die
CHA8100-99F	9-10.5	18.5	-	-	41	40 @ 3dB comp	2100	9	Die
CHA7250-QAB	10-12.75	20	-	-	40	37 @ 40dBm	130	20	QFN
CHA8352-99F	10.7-12.75	25	-	-	43	45 @ 43dBm	500	20	Die

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Products

Foundry

Transistors

Satcom



Chipset Solutions

AMPLIFIER – HPA... continued

NEW

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA7063-QCB	12.7-20	20	-33dBc (ACPR)	-	37	17 @ Psat	216	20	QFN
CHA6251-QKB	17 -21.5	33	-	-	34.5	42@Psat	125	14	QFN
CHA6161-QKB	17-21.5	32	-	-	34.5	43@Psat	60	14	QFN
CHA6550-98F	17-23.6	22	39	33.5	34	20 @ Psat	1300	6	Die
CHA6550-QXG	17-24	22	41	33.5	34	20 @ Psat	1300	6	QFN
CHA6551-99F	17-24	22	39	30	32	25 @ Psat	880	4	Die
CHA8252-99F	17.3-20.3	31	-	40.5	41	35 @ Pin 16dBm	300	18	Die
CHA8254-99F	17.3-21.5	29	-	-	40	31 @ Pin 20dBm 27 @ Pin 14dBm	210	15	Die
CHA6262-99F	17.3-21.5	30	-	33	36	36 @ Psat	260	18	Die
CHA6282-QCB	17.3-21.5	30	-	-	36	28 @ Psat	260	18	QFN
CHA6362-QXG	17.7-19.7	22	42	33	34.5	24 @ Psat	1340	6	QFN
CHA6652-98F	21-27.5	22.5	39	-	33	25 @ Psat	1300	6	Die
CHA6652-QXG	21-27.5	20	41	32.5	33	25 @ Psat	1300	6	QFN
CHA6356-QXG	21.2-23.6	20	42	33	33.5	22 @ Psat	1300	6	QFN
CHA6682-98F	24-27.5	25	-	-	37	32 @ Psat	115	20	Die
CHA6682-QKB	24-27.5	25	-32dBc (ACPR)	-	36	26 @ Psat	140	20	QFN
CHA8362-99F	27-31	25	-	-	44	30	390	25	Die
CHA6357-QKB	27-31	28	-35dBc (ACPR)	-	36	20 @ Psat	70	25	QFN
CHA6653-QXG	27-33.5	20	38	32	33	23 @ Psat	700	6	QFN
CHA6653-98F	27-34	23	38	31	32	17 @ Psat	900	6	Die
CHA7362-QWA	27.5-31	26	-30dBc (ACPR)	-	39	27 @ Psat	280	20	QFN
CHA6354-QQA*	27.5-30	25	-34dBc (ACPR)	-	36	16 @ Psat	120	25	QFN
CHA6094-QKB	35-42.5	26	-33dBc (ACPR)	-	33	13 @ Psat	150	25	QFN
CHA6095-QKB	35-42.5	25	-33dBc (ACPR)	-	36	12 @ Psat	300	25	QFN
CHA7452-99F	35.5-40.5	29	-	-	39.5	24 @ Psat	290	20	Die
CHA5659-98F	36-43.5	22	38.5	30	31	15 @ Psat	800	6	Die
CHA6194-QXG	37-40	20	38	31	31	18 @ Psat	800	6	QFN
CHA7453-99F	37-42	28	-	-	39.5	22 @ Psat	290	20	Die
CHA7455-99F	39-43.5	29	-	-	39.5	25 @ Psat	240	20	Die
CHA5659-QXG	40-45.5	20	38.5	29.5	30	15 @ Psat	800	6	QFN

* includes a double throw switch

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3801-99F	1-2	28	0.5	1.5	15	70	5	Die
CHA3801-FAB	1-2	28	0.5	1.5	16	70	5	Hermetic SMD
CHA3801-QDG	1-2	28	0.5	1.5	15	70	5	QFN
CHA3218-99F	2-18	24	1	2	15	120	4	Die
CHA3024-99F	2-22	15	0.5	3	18	100	5	Die
CHA3024-QGG	2-22	15	-	3	18	100	5	QFN
CHA3024-FDB	2-22	15	-	3	18	100	5	Hermetic SMD
CHA3656-QAG	5.5-17	20	0.5	1.7	14	68	3	QFN
CHA3656-FAB	5.8-16	20	-	1.75	14.5	70	3.3	Hermetic SMD
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAB	6-16	21	1	1.8	17	80	4	Hermetic SMD
CHA3666-99F	6-17	21	0.5	1.8	17	80	4	Die
CHA1010-99F	7-11	32	1.1	1	5.5	30	5	Die
CHA2110-98F	7-12	19	-	1.2	10.5	42	3	Die
CHA2110-QDG	7-12	19	-	1.2	10	45	4	QFN
CHA2063a99F	7-13	19	2	2	8	40	4	Die
CHA2066-99F	10-16	16	0.5	2	10	50	4	Die
CHA2066-QAG	10-16	16	1.5	2.5	10	50	4	QFN
CHA1252-QDG	11-18	26	-	1.3	7	30	2	QFN
CHA2266-99F	12.5-17	34	0.5	2.5	14.5	130	4	Die
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA3689-99F	12.5-30	26	2	2	14	90	4	Die
CHA2069-FAB	16-32	22	1	2.5	10	55	4.5	Hermetic SMD
CHA2050-QDG	17-21.5	26	-	1.3	6	30	2	QFN
CHA2090-99F	17-24	23	1	2	10	55	5	Die
CHA2069-QDG	18-31	20	2	3	10.5	65	4.5	QFN
CHA2069-99F	18-31	22	1	2.5	10	55	4.5	Die
CHA2411-QDG	20-25	26	0.5	2.5	-	43	5	QFN
CHA2190-99F	20-30	15	0.5	2.2	11	50	4	Die
CHA2193-99F	20-30	18	0.5	2	8	60	3.5	Die
CHA2441-QAG	22-26	25.5	0.25	3	10.5	50	3.3	QFN
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN
CHA2362-98F	26-40	22	-	2	9	65	4	Die
CHA2595-98F	27.5-43.5	20	-	2	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2	11	61	3.3	QFN
CHA2494-98F	34-44	20	1.2	3	12	80	4	Die
CHA2494-QEG	34-44	22	1.2	3	12	80	4	QFN
CHA2394-99F	36-40	21	1.5	3	8	60	3.5	Die

AMPLIFIER – LNA ... continued

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2352-98F	46-52.6	21	-	4	12	55	3.3	Die
CHA2368-98F	50-71	21	-	3.5	12	75	3.3	Die
CHA2157-99F	55-60	10	1	3.5	15	80	3.3	Die
CHA2159-99F	55-65	20	1	4	14	115	3.5	Die
CHA2080-98F	71-86	22	0.8	3.5	10	75	4	Die
CHA1077a98F	76-77	15	0.5	4.5	9	80	5	Die
CHA1008-99F	80-105	17	1	6.5	5	115	3	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4220-98F	0.5-20	17	28	20	23	120	6.5	Die
CHA4220-QGG	0.5-20	17	28	20	23	120	6.5	QFN
CHA5005-QDG	0.9-1.8	18.5	-	26.5	-	120	7.5	QFN
CHA3023-99F	1-18	14	-	17	-	95	5	Die
CHA4105-99F	2-4	23	-	24	25.5	180	5	Die
CHA4105-QDG	2-4	23	-	24	25.5	180	5	QFN
CHA3024-99F	2-22	15	30	18	20	100	5	Die
CHA3024-QGG	2-22	15	28	18	20	100	5	QFN
CHA3024-FDB	2-22	15	-	18	22	100	5	Hermetic SMD
CHA4107-99F	4.5-6.5	24.5	-	25	26	115	8	Die
CHA4107-QDG	4.5-6.5	22.5	-	25.5	26	115	8	QFN
CHA4314-98F	4.7-11.3	19	34	26	27	180	5	Die
CHA3664-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3565-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA4350-QDG	5.5-11.7	26	32	24	25	125	5.5	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	4	Die
CHA5618-99F	6-18	22	-	-	28	150	20	Die
CHA5115-99F	8-12	25	-	28	29	190	8	Die
CHA5115-QDG	8-12	24	-	27.5	29	190	8	QFN
CHA5014-99F	8.5-11	20	-	29	30	230	8.5	Die
CHA5266-99F	10-16	23	36	26.5	27.5	360	5	Die
CHA5266-QDG	10-16	23	35	25.5	27	320	5	QFN
CHA5266-FAB	10-16	24	35.5	26	27.5	320	5	Hermetic SMD
CHA4253-FAB	17-21	26	33	23.5	24.5	230	4	Hermetic SMD
CHA4262-QDG	17-22	26	30	20	23	130	2.5	QFN
CHA4253a98F	17-24	26	32	24.5	25	230	4	Die
CHA4253aQQG	17-24	23	33	24	24.5	230	4	QFN

AMPLIFIER – MPA ... continued

NEW

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA5350-99F	17-24	26	35.5	26.5	27	300	6	Die
CHA4252-QKB	17.2-21.3	30	-	-	25	15	14	QFN
CHA3092-99F	20-33	22	29	20	-	300	3.5	Die
CHA2098b99F	20-40	19	-	16	16	150	3.5	Die
CHA4395-QDG	21-27	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA3395-98F	21-30	24	32	20	22.5	180	4	Die
CHA3395-QDG	21-30	24	32	20	22	180	4	QFN
CHA4396-QDG	24-30	22	-	-	-	230	4	QFN
CHA3409-98F	25-45	23	-	19	20	100	4	Die
CHA3396-QDG	27-33.5	22	30	19	21	155	4	QFN
CHA3397-QDG	36-40.5	21	29	18	20	200	4	QFN
CHA3398-98F	36-43.5	20	29	18	19	200	4	Die
CHA3398-QDG	36-43.5	22	29	18	19	200	4	QFN
CHA3080-98F	71-76	16	-	19	21	280	3.5	Die
CHA3090-98F	81-86	13	-	23	19	280	4	Die

AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-99F	2-22	15	0.5	3	30	18	100	5	Die
CHA3024-QGG	2-22	15	-	3	30	18	100	5	QFN
CHA3024-FDB	2-22	15	-	3	30	18	100	5	Hermetic SMD
CHA4350-QDG	5.7-11.7	26	-	5.5	15	24	125	5.5	QFN
CHA2292-99F	16-24	26	1	2.8	20	11	160	5	Die
CHA4253-FAB	17-21	26	-	-	-	23.5	230	4	Hermetic SMD
CHA4253aQQG	17-24	23	1	7.5	15	24	230	4	QFN
CHA3395-QDG	21-30	24	0.5	4.5	15	20	180	4	QFN
CHA2293-99F	24-30	24	1.5	3	15	12	160	5	Die
CHA3396-QDG	27-33.5	22	1.5	4.5	15	19	155	4	QFN
CHA2595-98F	27.5-43.5	19.5	-	2	-	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2	-	11	61	3.3	QFN

Products

Foundry

Transistors

Satcom



Chipset Solutions

AMPLIFIER – ANALOG VGA ... continued

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3397-QDG	36-40.5	21	1	7	15	18	200	4	QFN
CHA2352-98F	46-52.6	21	-	3.5	-	12	55	3.3	Die
CHA2368-98F	50-71	21	-	3.5	-	12	75	3.3	Die
CHA2080-98F	71-86	22	1	3.5	12	10	75	4	Die

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091aQAG	DC-12	3	20	15	QFN
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD
CHT4660-QAG	DC-16	2	30	24	QFN
CHT3091a99F	DC-40	3	17	15	Die
CHT4660-FAB	0.5-16	2.2	35	27	Hermetic SMD
CHT4690-99F	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	31	25	QFN
CHT4690-FAB	5-30	3.5	37	25	Hermetic SMD
CHT4694-QAG	25-40	4	22	22	QFN
CHT4694-99F	25-45	4	24	22	Die
CHT4699-QDG	36-44	4	30	20	QFN

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT4012a98F	DC-6	6	31.5	2.5	+/-0.5	20	0/3.3 or 5	Die
CHT4012-QDG	DC-6	6	31.5	2.5	-0.7/+0.4	20	0/3.3 or 5	QFN
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die
CHT4016-QEG	4-14	6	31.5	7	+/-0.8	23	-5/0	QFN
CHT4016-99F	4-16	6	31.5	6.5	-1.5/1	23	-5/0	Die

CORE CHIP RX – TX

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Pout RX (dBm)	Pout TX (dBm)	NF RX (dB)	Number of Bit Atten.	Number of Bit Phase	Bias (mA)	Bias (V)	Case
CHA4102-QEG	2-4	-	20	-	23.5	-	6	-	150	5	QFN
CHP1102-98F	2.7-3.4	10	-	13	-	5.8	-	6	100	5	Die
CHP1102-QGG	2.7-3.4	10	-	13	-	5.8	-	6	100	5	QFN
CHC3014-99F	8-12	13.5	25	16.5	20	5.8	6	6	350	5	Die

RF FRONT-END

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Psat TX (dBm)	NF RX (dBm)	ACPR (dBc) @ (dBm)	Case
CHC6054-QQA	24.25-30.5	18	28	31	3.25	36@23	QFN
CHC6094-QKB	37-41	24	23	33	4.8	33@25	QFN

WILKINSON POWER DIVIDER

Part Number	RF Bandwidth (GHz)	Ins. Loss (dB)	Isolation Range (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (°)	Case
CHW4212-QKA	8-22	0.5	20	>20	0.2	2	DFN
CHW4213-QAG	15-25	0.5	20	>20	0.5	<2	QFN
CHW4312-QKA	22-34	0.75	20	>15	0	3	DFN
CHW4313-QAG	24-35	0.6	20	>16	+/-0.5	-5	QFN

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	Die
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN
CHE1260-98F	10-27	0.8	30	Bidirectional	Die
CHE1260-QAG	10-27	1	30	Bidirectional	QFN

DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3762-QDG	5.5-9	4-12	DC-3.5	14	1.7	-5	5	100	3	QFN
CHR3861-QEG	5.9-9	3-12.5	DC-3.5	12	2.5	-7	0	380	4	QFN
CHR3662-QDG	7-16	4.5-19.5	DC-3.5	13	3	-8	0	280	4.5	QFN
CHR3362-QEG	10-16	6.5-19.5	DC-3.5	13	3.2	-6	0	310	4	QFN
CHR3352-QEG	12-16	8.5-19.5	DC-3.5	13	2.7	-6	0	250	4	QFN
CHR3763-QDG	12-16	8.5-19.5	DC-3.5	12	2.3	-8	5	80	3	QFN
CHR3663-QEG	17-24	7-14	DC-3.5	11	3.5	-5	0	380	4.5	QFN
CHR3364-QEG	17-24	6.5-14	DC-3.5	11	2.7	-7	0	320	4	QFN
CHR3664-QEG	17-27	7-15	DC-3.5	12	3.3	-8	0	320	4	QFN
CHR3693-99F	21-26.5	9-14	DC-3.5	20	3.2	2	2	160	4	Die
CHR3693-QDG	21-26.5	9-14	DC-3.5	20	3	-6	2	160	4	QFN
CHR3693-FAB	21-26.5	9-14	DC-3.5	20	2.5	0	2	160	4	Hermetic SMD
CHR3764-QEG	21-27	8.5-15	DC-3.5	14	3.1	-7	0	320	4	QFN
CHR2411-QDG	22-24.5	22-24.5	DC-0.001	23	7	-21	5	60	5	QFN
CHR2421-QEG	23.75-24.5	23.75-24.5	DC-0.001	22	7	-20	2	165	5	QFN
CHR2295-99F	24-30	12-15	DC-1.5	11	3.5	-10	10	120	3.5	Die
CHR3394-QEG	37-40	17.5-21	DC-3.5	13	3.5	-7	0	250	4	QFN
CHR3894-98F	37-40	17.5-21	DC-3.5	13	4.5	-6	0	250	4	Die
CHR3894-QEG	37-40	17.5-21	DC-3.5	13	4	-6	0	250	4	QFN
CHR1080a98F	71-86	34.5-44	DC-12	8	5	-10	1	175	3.5	Die

GAN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHKA011aSXA	Up to 1.5	23.5 @ 0.44	130	75 @ 0.5	0.64	50	Ceramic Metal Flange
CHKA012a99F	Up to 4	19 @ 3	140	76 @ 3	0.65	50	Die
CHK8201-SYA	Up to 4	22 @ 1.3	45	55 @ 1.3	0.2	50	Hermetic Ceramic Metal Flange
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHKA012bSYA	Up to 6	19 @ 1.3	130	58 @ 1.3	0.6	50	Hermetic Ceramic Metal Flange
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Ceramic Metal Flange
CHK8101a99F	Up to 6	14 @ 6	20	60 @ 6	0.1	50	Die
CHK9013-99F	Up to 8	18 @ 6	88	65 @ 6	1.1	30	Die
CHK8013-99F	Up to 10	17 @ 6	14	70 @ 6	0.18	30	Die
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die
CHK9014-99F	Up to 13	13 @ 12	60	50 @ 12	0.7	30	Die
CHK8015-99F	Up to 18	17 @ 9	20	50 @ 15	0.2	30	Die

INTERNALLY MATCHED GAN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ180AaSEB	1.2-1.4	20	200	> 14	52	VDS 45V@ID_Q 1.3A	Ceramic Metal Flange
CHZ015AaQEG	1.2-1.4	17.2	15	> 14	> 55	VDS 45V@ID_Q 100mA	QFN
CHZ8012-QJA	2.6-3.4	16.5	12	11	55	VDS 30V@ID_Q 180mA	QFN
CHZ9012-QFA	2.7-3.4	16	65	12	55	VDS 30V@ID_Q 800mA	QFN

MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1290-99F	20-30	10-15	DC-6	-10	0	-4	33	4	Die
CHM1291-99F	25-32	12-15.5	0.1-3	-11	0	5	55	3.5	Die
CHR2294-99F	25-35	11-19	DC-3	-11	2.5	9	55	4	Die
CHM1294-99F	35-45	16-24	DC-3	-11	0	10	60	4	Die
CHM1298-99F	55-65	27.5-32.5	DC-5	-12	0	10	90	3.5	Die
CHM1080-98F	71-86	34.5-44	DC-12	-11	10	2	90	3.5	Die
CHM2179b98F	76-77	76-77	DC-0.1	-8	0	5.5	1	4.5	Die

MIXER ... continued

NEW

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM2378a99F	76-77	76-77	DC-0.1	-7.5	0	7	1.5	4.5	Die
CHM1270a98F	76-77	76-77	DC-0.1	-7.5	0	15	-	-	Die

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2193-99F	X2	6.25-8.25	12.5-16.5	12	14	60	3.5	Die
CHX2193-FAB	X2	6.25-8.25	12.5-16.5	10	14	60	3.5	Hermetic SMD
CHX2095a99F	X4	6.25-8.25	25-33	12	11	75	3.5	Die
CHX2089-99F	X2	8-11.5	16-23	12	15	60	3.5	Die
CHX2092a99F	X4	9-10	36-40	12	11	80	3.5	Die
CHX2090-99F	X2	11-13	22-26	12	15	50	3.5	Die
CHX2090-QDG	X2	11-13	22-26	14	12	65	3.5	QFN
CHX1191-QDG	X3	11-14.5	33-43.5	1	6	80	5	QFN
CHX1191-98F	X3	11.25-14.5	33.75-43.5	-1	6	80	5	Die
CHU3377-98F	X6	12.67-12.83	76-77	4	15	210	4.5	Die
CHX3068-QDG	X2	14-15	28-30	0	20	270	4	QFN
CHX2091-99F	X2	17-20	34-40	12	12	50	3.5	Die
CHX1162-QDG	X2	17.5-21.5	35-43	1	8	50	5	QFN
CHU2277a98F	X2	38-38.5	76-77	5	13	180	4.5	Die
CHU2277-99F	X2	38-38.5	76-77	5	13	180	4.5	Die

OSCILLATOR – VCO

Part Number	Central Output Freq (GHz)	Tuning Bandwidth (GHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV1203a98F	2.6	0.4	-108	8	50	3	Die
CHV1203-FAB	2.8	0.4	-108	8	50	3	Hermetic SMD
CHV1206a98F	5.725	0.75	-100	8.5	75	3	Die
CHV2411aQDG	24.125	2	-90	16	220	5	QFN
CHV3241-QDG	24.13	2	-94	16	225	5	QFN
CHV2421-QDG	24.25	2	-90	15	233	5	QFN
CHV2243a99F	38.25	3	-65	8	110	5	Die
CHV2240-99F	38.25	1.5	-100	9	120	5	Die

PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control Voltage (V)	Case
CHP6013-SRF	1.2-1.4	6	360	8.5	5	-	-6/0	Ceramic SMD
CHP3010a98F	1.2-1.4	6	360	7	-1/+3	24	0/3.3 or 5	Die
CHP3010-QFG	1.2-1.4	6	360	7	-1/+3	24	0/3.3 or 5	QFN
CHP1102-98F	2.7-3.4	6	360	-10	5	3	0/3.3 or 5	Die
CHP1102-QGG	2.7-3.4	6	360	-10	5	3	0/3.3 or 5	QFN
CHP4012a98F	2.7-3.5	6	360	6	-2/+4	24.5	0/3.3 or 5	Die
CHP4012-QEG	2.7-3.5	6	360	6	-2/+4	24.5	0/3.3 or 5	QFN
CHP4014-98F	5-6	6	360	6	4	26	0/3.3 or 5	Die
CHP4014-QEG	5-6	6	360	6	4	26	0/3.3 or 5	QFN
CHP4511-99F	6-18	4	360	13	10	23	-5/0	Die
CHP4010-99F	7-9	6	360	9	-4/4.5	26	-3.5/0	Die
CHP3015-QDG	8.5-10.5	6	360	8	-2/+8	23.5	3.3 or 5	QFN
CHP3015-99F	8.5-11.5	6	360	7.5	-3/+5	24	0/3.3 or 5	Die

SWITCH

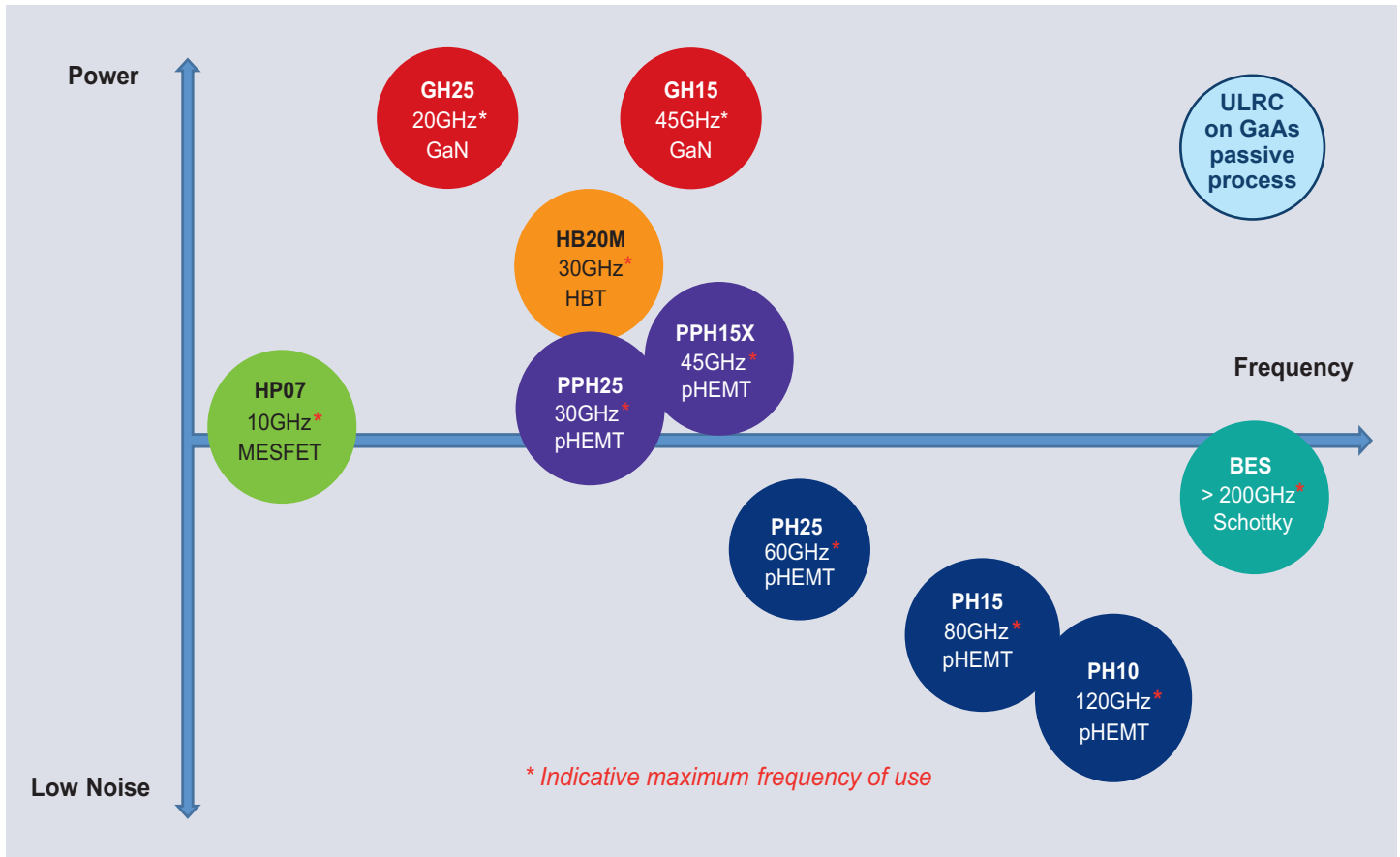
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Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5104-99F	DC-4	0.5	30	35	reflective	Die
CHS5105-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5104-FAB	DC-6	1	30	30	reflective	Hermetic SMD
CHS7012-99F	DC-12	1.4	40.5	30	reflective	Die
CHS5100-99F	DC-20	2.1	20	30	reflective	Die
CHS8618-99F	6-18	1.3	42	34	reflective	Die
CHS2411-QDG	23-26	2.9	23.5	35	reflective	QFN

GaAs TRANSISTOR

Part Number	RF Bandwidth (GHz)	Gain (dB)	Noise Figure (dB)	Case
EC2612-99F	DC-40	9.5@40GHz	1.5@40GHz	Die

Foundry open processes



GaAs pHEMT PROCESS

	Power Density (mW/mm)	Gate Length (μm)	Ids@gm Max (mA/mm)	Ids Sat (mA/mm)	V _{BDS} (>V)	Cut off Freq (GHz)	V Pinch (V)	Gm Max (mS/mm)	Noise/Gain _{ass} @Freq (dB-dB-GHz)	Noise/Gain _{ass} @Freq (dB-dB-GHz)
PH25 - Low noise	250	0.25	200	500	6	90	-0.8	560	0.6-13-10	2-8-40
PH15 - Low noise	300	0.15	220	550	4.5	110	-0.7	640	0.5-14-10	1.9-6-60
PH10 - Low noise	250	0.10	280	-	5	130	-0.45	750	1.3-7-40	2.3-4.5-70
PPH25 - Power	700	0.25	200	500	12	50	-0.9	450	0.6-12-10	-
PPH15X - Power	800	0.15	350	575	12	70	-0.95	480	1.8-6-40	-

GaAs HBT PROCESS

	Power Density (W/mm)	Emitter Width (μm)	Ic Max (mA/ μm^2)	V _{BCE} (>V)	Cut off Freq (GHz)	Beta
HB20M - VCO	2	2	0.3	14	30	60

GaAs MESFET PROCESS

	Power Density (mW/mm)	Gate Length (μm)	Ids@gm Max (mA/mm)	Ids Sat (mA/mm)	Cut off Freq (GHz)	V Pinch (V)	Gm Max (mS/mm)
HP07	400	0.7	300	450	15	-4	110

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GaAs SCHOTTKY PROCESS

	Gate Length (μm)	V _{AK} (<V)	Cut off Freq (THz)
BES	1	-5	3

GaN on SiC HEMT PROCESS

	Power Density (W/mm)	Gate Length (μm)	Idss mA/mm	Ids Sat (mA/mm)	V _{BDS} (V)	Cut off Freq (GHz)	V Pinch (V)	Gm Max (mS/mm)	Noise/Gain@freq (dB-dB-GHz)
GH25	5	0.25	880	1000	>100	30	-3.4	290	1.8-11-15
GH15	4.2	0.15	1200	1450	>70	35	-3.2	405	1.5-11-15

Products

Foundry

Transistors

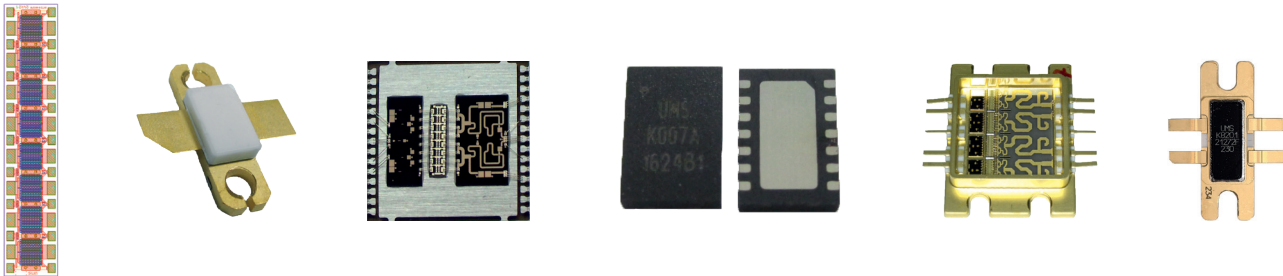
Satcom



Chipset Solutions

GaN & GaAs Transistors

Unmatched or fully matched transistors in bare die, SMD or flange ceramic and hermetic packages



GaN HEMT TRANSISTOR DIE

Part Number	Operating Frequency (GHz)	Glin (dB) @ Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHKA012a99F	Up to 4	19 @ 3	140	76 @ 3	0.65	50	Die
CHK8101a99F	Up to 6	14 @ 6	20	60 @ 6	0.1	50	Die
CHK9013-99F	Up to 8	18 @ 6	88	65 @ 6	1.1	30	Die
CHK8013-99F	Up to 10	17 @ 6	14	70 @ 6	0.18	30	Die
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die
CHK9014-99F	Up to 13	13 @ 12	60	50 @ 12	0.7	30	Die
CHK8015-99F	Up to 18	17 @ 9	20	50 @ 15	0.2	30	Die

GaN HEMT PACKAGED TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB) @ Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHKA011aSXA	Up to 1.5	23.5 @ 0.44	130	75 @ 0.5	0.64	50	Ceramic Metal Flange
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Ceramic Metal Flange
CHKA012bSYA	Up to 6	19 @ 1.3	130	58 @ 1.3	0.6	50	Hermetic Ceramic Metal Flange

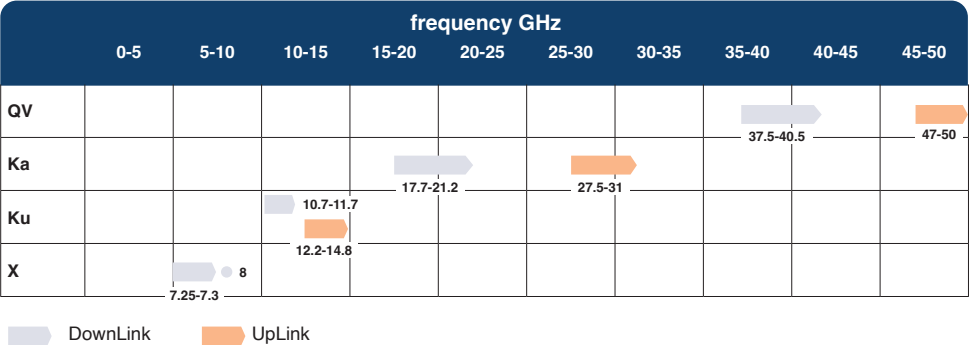
INTERNALLY MATCHED GaN POWER TRANSISTORS

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ180AaSEB	1.2-1.4	20	200	> 14	52	VDS 45V@ID_Q 1.3A	Ceramic Metal Flange
CHZ015AaQEG	1.2-1.4	17.2	15	> 14	> 55	VDS 45V@ID_Q 100mA	QFN
CHZ8012-QJA	2.6-3.4	16.5	12	11	55	VDS 30V@ID_Q 180mA	QFN
CHZ9012-QFA	2.7-3.4	16	65	12	55	VDS 30V@ID_Q 800mA	QFN

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GaAs TRANSISTOR

Part Number	RF Bandwidth (GHz)	Gain (dB)	Noise Figure (dB)	Case
EC2612-99F	DC-40	9.5@40GHz	1.5@40GHz	Die



AMPLIFIER – HPA

Part Number	Frequency (GHz)	Gain (dB)	IP3 (dBm)	Psat (dBm)	PAE (%)	Bias mA @ V	Case
CHA8352-99F	10.7-12.75	25	-	43	45 @ 43dBm	500 @ 20	Die
CHA6550-98F	17- 23.6	22	39	34	20 @ Psat	1300 @ 6	Die
CHA6550-QXG	17- 23.6	22	39	34	20 @ Psat	1300 @ 6	QFN
CHA8252-99F	17.3-20.3	31		41	35 @ 16dBm	300 @ 18	Die
CHA8254-99F	17.3-20.3	29	-	40	31 @ Pin 20dBm	225 @15	Die
CHA6282-QCB	17.3-21.5	30	-	36	28 @ Psat	260 @ 18	QFN
CHA6354-QQA	27.5-30	25	-34dBc (ACPR)	35	15	90 @ 25	QFN
CHA6357-QKB	27.5-30	27	-35dBc (ACPR)	35	15	90 @ 25	QFN
CHA6653-98F	27-34	20	38	33	23 @ Psat	900 @ 6	Die
CHA6653-QXG	27-34	20	38	33	23 @ Psat	900 @ 6	QFN
CHA8362-99F	27.5-31	25	-	44	30	390 @ 25	Die
CHA7362-QWA	27.5-31	26	-30dBc (ACPR)	39	27 @ Psat	280 @ 20	QFN

AMPLIFIER – MPA

Part Number	Frequency (GHz)	Gain (dB)	IP3 (dBm)	Psat (dBm)	Bias mA @ V	Case
CHA5266-QDG	10-16	23	-	27 @Psat	320 @ 5	QFN
CHA4253-FAB / QQG	17-21	26	33	24.5	230 @ 4	Hermetic SMD / QFN
CHA4253a98F	17-24	26	32	25	230 @ 4	Die
CHA3396-QDG	27-33.5	22	30	21	155 @ 4	QFN
CHA4396-QDG	24-30	22	-35dBc (ACPR)	-	230 @ 4	QFN

AMPLIFIER – LNA

Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (+/-dB)	NF (dB)	Bias mA @ V	Case
CHA3666-FAB/99F/QAG	1-2	21	0.5	1.8	80 @ 4	Hermetic SMD / Die / QFN
CHA3688aQDG	12.5-30	26	2	2	85 @ 4	QFN
CHA2069-FAB	16-32	22	1	2.5	55 @ 4.5	Hermetic SMD
CHA2050-QDG	17-21.5	26	-	1.3	30 @ 2	QFN
CHA1351-QAG	24-32	24	-	1.3	30 @ 2	QFN
CHA2362-98F	26-40	22	-	2	65 @ 4	Die
CHA2595-98F / QDG	27.5-43.5	19.5	-	2	61 @ 3.3	Die / QFN

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ATTENUATOR – ANALOG

Part Number	Frequency (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD
CHT4690-FAB	5-30	3.5	37	25	Hermetic SMD
CHT4660-QAG	DC-16	2	30	24	QFN

WILKINSON POWER DIVIDER

Part Number	Frequency (GHz)	Ins. Loss (dB)	Isolation Range (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Amplitude phase (°)	Case
CHW4212-QKA	8-22	0.5	20	>20	0.2	2	DFN
CHW4213-QAG	15-25	0.5	20	>18	0.5	<+/-2	QFN
CHW4312-QKA	22-34	0.75	20	>15	0	3	DFN
CHW4313-QAG	24-35	0.6	20	>16	+/-0.5	-5	QFN

Products

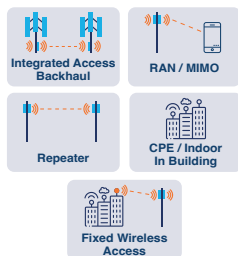
Foundry

Transistors

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Chipset Solutions



Freq (GHz)	3.4	4.2	5.9	7.1	24	26	28	32	39	42	47	60	80	90
GaN Transistor	15W 140 90 60 20 4W													
LNA														
MPA														
HPA														
Front-End														
Wilkinson														

* Linear power at 1024QAM

RF FRONT-END

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Psat TX (dBm)	NF RX (dBm)	ACPR (dBc) @ (dBm)	Case
CHC6054-QQA	24.25-30.5	18	28	31	3.25	36 @ 23	QFN
CHC6094-QKB	37-41	24	23	33	4.8	33 @ 25	QFN

WILKINSON POWER DIVIDER

Part Number	RF Bandwidth (GHz)	Ins. Loss (dB)	Isolation Range (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (°)	Case
CHW4312-QKA	22-34	0.75	20	>15	0	3°	DFN
CHW4313-QAG	24-35	0.6	20	>16	+/-0.5	-5°	QFN

GAN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHK8101a99F	Up to 6	14 @ 6	20	60 @ 6	0.1	50	Die
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Ceramic Metal Flange
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3688aQDQ	12.5-30	26	2	2	14	85	4	QFN
CHA2069-QDQ	18-31	20	2	3	10.5	65	4.5	QFN
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN

AMPLIFIER – LNA ... continued

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2362-98F	26-40	22	-	2	9	65	4	Die
CHA2595-98F	27.5-43.5	19.5	-	2	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2.3	11	61	3.3	QFN
CHA2494-QEG	34-44	22	1.5	3	12	80	4	QFN
CHA2352-98F	46-52.6	21	-	3.5	12	55	3.3	Die
CHA2368-98F	50-71	21	-	3.5	12	75	3.3	Die
CHA2157-99F	55-60	10	1	3.5	15	80	3.3	Die
CHA2159-99F	55-65	20	1	4	14	115	3.5	Die

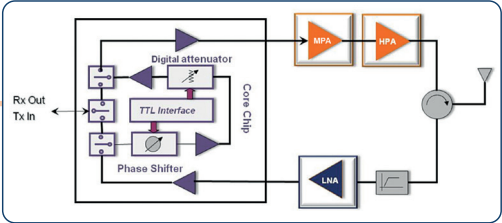
AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3395-QDG	21-30	24	32	20	22	180	4	QFN
CHA4396-QDG	24-30	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA3409-98F	25-45	23	26	19	20	100	4	Die
CHA3396-QDG	27-33.5	22	30	19	21	155	4	QFN
CHA3397-QDG	36-40.5	21	29	18	20	200	4	QFN
CHA3398-98F	36-43.5	20	29	18	19	200	4	Die
CHA3398-QDG	36-43.5	22	29	18	19	200	4	QFN

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA7060-QAB	5.6-8.5	30	-	-	41	40 @ 41dBm P _{out}	420	20	QFN
CHA7250-QAB	10-12.75	20	-	-	40	37 @ 40dBm	130	20	QFN
CHA7063-QCB	12.7-20	20	-33dBc (ACPR)	-	37	17 @ Psat	216	20	QFN
CHA6652-QXG	21-27.5	20	41	-	33	25 @ Psat	1300	6	QFN
CHA6682-98F	24-27.5	25	-	-	37	32 @ Psat	115	20	Die
CHA6682-QKB	24-27.5	25	-33dBc (ACPR)	-	36	26 @ Psat	140	20	QFN
CHA8362-99F	26.5-31	25	-33dBc (ACPR)	-	44	30 @ Psat	440	700	Die
CHA6357-QKB	27-31	28	-35dBc (ACPR)	-	36	20 @ Psat	70	25	QFN
CHA6653-QXG	27-33.5	20	38	32	33	23 @ Psat	900	6	QFN
CHA6354-QQA	27.5-30	25	-34dBc (ACPR)	-	36	16 @ Psat	120	25	QFN
CHA7362-QWA	27.5-31	26	-30dBc (ACPR)	-	39	27 @ Psat	280	20	QFN
CHA6094-QKB	35-42.5	26	-33dBc (ACPR)	-	33	13 @ Psat	150	25	QFN
CHA6095-QKB	35-42.5	25	-33dBc (ACPR)	-	36	12 @ Psat	300	25	QFN
CHA5659-98F	36-43.5	22	38	30	31	15 @ Psat	800	6	Die
CHA6194-QXG	37-40	20	38	30	31	18 @ Psat	800	6	QFN
CHA7453-99F	37-42	28	-	-	39.5	22 @ Psat	290	20	Die
CHA7455-99F	39-43.5	29	-	-	39.5	25 @ Psat	240	20	Die
CHA5659-QXG	40-45.5	20	38.5	29.5	30	15 @ Psat	800	6	QFN

L-Band Chipset



AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3801-99F	1-2	28	0.5	1.5	15	70	5	Die
CHA3801-FAB	1-2	28	0.5	1.5	16	70	5	Hermetic SMD
CHA3801-QDG	1-2	28	0.5	1.5	15	70	5	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4220-QGG	0.5-20	17	28	20	23	120	6.5	QFN
CHA5005-QDG	0.9-1.8	18.5	-	26.5	-	120	7.5	QFN
CHA3023-99F	1-18	14	-	17	-	95	5	Die

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ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT4012a98F	DC-6	6	31.5	2.5	+/-0.5	20	0/3.3 or 5	Die
CHT4012-QDG	DC-6	6	31.5	2.5	-0.7/+0.4	20	0/3.3 or 5	QFN
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die

GAN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHKA011aSXA	Up to 1.5	23.5 @ 0.44	130	75 @ 0.5	0.64	50	Ceramic Metal Flange
CHKA012a99F	Up to 4	19 @ 3	140	76 @ 3	0.65	50	Die
CHK8201-SYA	Up to 4	22 @ 1.3	45	55 @ 1.3	0.2	50	Hermetic Ceramic Metal Flange
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Ceramic Metal Flange
CHKA012bSYA	Up to 6	19 @ 1.3	130	58 @ 1.3	0.6	50	Hermetic Ceramic Metal Flange
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die

INTERNALLY MATCHED GAN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ180AaSEB	1.2-1.4	20	200	> 14	52	VDS 45V@ID_Q 1.3A	Ceramic Metal Flange
CHZ015AaQEG	1.2-1.4	17.2	15	> 14	> 55	VDS 45V@ID_Q 100mA	QFN

PHASE SHIFTER

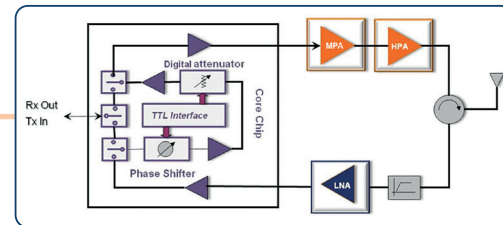
Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control voltage (V)	Case
CHP6013-SRF	1.2-1.4	6	360	8.5	5	-	-6/0	Ceramic SMD
CHP3010a98F	1.2-1.4	6	360	7	-1/+3	24	0/3.3 or 5	Die
CHP3010-QFG	1.2-1.4	6	360	7	-1/+3	24	0/3.3 or 5	QFN

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5104-99F	DC-4	0.5	30	35	reflective	Die
CHS5105-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5104-FAB	DC-6	1	30	30	reflective	Hermetic SMD
CHS7012-99F	DC-12	1.4	40.5	30	reflective	Die
CHS5100-99F	DC-20	2.1	20	30	reflective	Die

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S-Band Chipset



AMPLIFIER – DIGITAL VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Noise Figure (dB)	Dynamic Range (dB)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4102-QEG	2-4	20	-	31.5	23.5	24.5	150	5	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3218-99F	2-18	24	1	2	15	120	4	Die
CHA3024-99F	2-22	15	-	3	18	100	5	Die
CHA3024-QGG	2-22	15	-	3	18	100	5	QFN
CHA3024-FDB	2-22	15	-	3	18	100	5	Hermetic SMD

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3023-99F	1-18	14	-	17	-	95	5	Die
CHA4105-99F	2-4	23	-	24	25.5	180	5	Die
CHA4105-QDG	2-4	23	-	24	25.5	180	5	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT4012a98F	DC-6	6	31.5	2.5	+/-0.5	20	0/3.3 or 5	Die
CHT4012-QDG	DC-6	6	31.5	2.5	-0.7/+0.4	20	0/3.3 or 5	QFN
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die

GaN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK8201-SYA	Up to 4	22 @ 1.3	45	55 @ 1.3	0.2	50	Hermetic Metal Ceramic Flange
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Metal Ceramic Flange
CHKA012bSYA	Up to 6	19 @ 1.3	130	58 @ 1.3	0.6	50	Hermetic Metal Ceramic Flange
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die

INTERNALLY MATCHED GAN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ8012-QJA	2.6-3.4	16.5	12	11	55	VDS 30V@ID_Q 180mA	QFN
CHZ9012-QFA	2.7-3.4	16	65	12	55	VDS 30V@ID_Q 800mA	QFN

OSCILLATOR – VCO

Part Number	Central Output Freq (GHz)	Tuning Bandwidth (GHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV1203a98F	2.6	0.4	-108	8	50	3	Die
CHV1203-FAB	2.8	0.4	-108	8	50	3	Hermetic SMD

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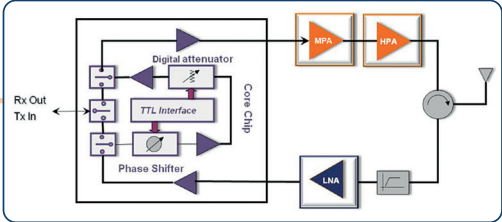
PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control voltage (V)	Case
CHP1102-98F	2.7-3.4	6	360	-10	5	3	0/3.3 or 5	Die
CHP1102-QGG	2.7-3.4	6	360	-10	5	3	0/3.3 or 5	QFN
CHP4012a98F	2.7-3.5	6	360	6	-2/+4	24.5	0/3.3 or 5	Die
CHP4012-QEG	2.7-3.5	6	360	6	-2/+4	24.5	0/3.3 or 5	QFN

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5104-99F	DC-4	0.5	30	35	reflective	Die
CHS5105-QAG	DC-4	1	30	35	reflective	QFN
CHS5104-FAB	DC-6	1	30	30	reflective	Hermetic SMD
CHS7012-99F	DC-12	1.4	40.5	30	reflective	Die
CHS5100-99F	DC-20	2.1	20	30	reflective	Die

C-Band Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA8107-QCB	4.7-6.8	-	-	42	55 @ Psat	190 to 315	14 to 24	QFN
CHA8012-99F	5.2-6	-	-	41.5	43 @ 3dB comp	2100	8	Die
CHA7618-99F	5.5-18	-	-	40	20 @ 20dBm	530	18	Die
CHA6154-99F	7.25-7.75	-	-	34.5	43 @ Psat	70	28	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-QGG	2-22	28	18	20	100	5	QFN
CHA3024-FDB	2-22	-	18	22	100	5	Hermetic SMD
CHA3024-99F	2-22	30	18	20	100	5	Die
CHA4107-99F	4.5-6.5	-	25	26	115	8	Die
CHA4107-QDG	4.5-6.5	-	25.5	26	115	8	QFN
CHA4314-98F	4.7-11.3	34	26	27	180	5	Die

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD
CHT4690-99F	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	31	25	QFN
CHT4690-FAB	5-30	3.5	37	25	Hermetic SMD

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT4012a98F	DC-6	31.5	2.5	+/-0.5	20	0/3.3 or 5	Die
CHT4012-QDG	DC-6	31.5	2.5	-0.7/+0.4	20	0/3.3 or 5	QFN
CHT3029-QEG	DC-31	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	15	4.5	+/-0.5	20	0/3.3 or 5	Die
CHT4016-QEG	4-14	31.5	7	+/-0.8	23	-5/0	QFN
CHT4016-99F	4-16	31.5	6.5	-1.5/1	23	-5/0	Die

GAN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK015AaQIA	Up to 4	18 @ 2.9	20	55 @ 2.9	0.1	50	QFN
CHK8101-SYC	Up to 6	19 @ 1.3	15	65 @ 1.3	0.1	50	Hermetic Ceramic Metal Flange
CHK8101a99F	Up to 6	14 @ 6	20	60 @ 6	0.1	50	Die
CHKA012bSYA	Up to 6	19 @ 1.3	130	58 @ 1.3	0.6	50	Hermetic Ceramic Metal Flange
CHK9013-99F	Up to 8	18 @ 6	88	65 @ 6	1.1	30	Die
CHK8013-99F	Up to 10	17 @ 6	14	70 @ 6	0.18	30	Die
CHK5010-99F	Up to 12	21.6 @ 6	4	72 @ 6	0.05	30	Die
CHK9014-99F	Up to 13	13 @ 12	60	50 @ 12	0.7	30	Die

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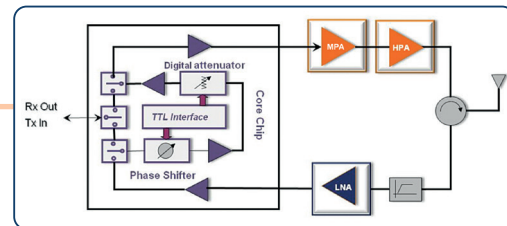
PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control voltage (V)	Case
CHP4014-98F	5-6	6	360	6	4	26	0/3.3 or 5	Die
CHP4014-QEG	5-6	6	360	6	4	26	0/3.3 or 5	QFN

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5104-FAB	DC-6	1	30	30	reflective	Hermetic SMD
CHS7012-99F	DC-12	1.4	40.5	30	reflective	Die
CHS5100-99F	DC-20	2.1	20	30	reflective	Die
CHS8618-99F	6-18	1.3	42	34	reflective	Die

X-Band Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA8054-99F	7.7-8.6	27	-	-	43.6	50 @ 7dB comp	900	28	Die
CHA8612-QDB	7.9-11	26	-	-	42.5	40 @ Psat	680	30	QFN
CHA6005-QEG	8-12	19.5	-	31.5	32	35 @ 3dB comp	420	8	QFN
CHA8312-99F	8-12	26	-	-	43	50 @ 23dBm	320	20	Die
CHA6710-99F	8-12.75	23.5	-	-	37.4	36 @ Psat	200	25	Die
CHA6710-FAB	8-12.75	22.5	-	-	37	35 @ Psat	200	25	Die
CHA8710-QDB	8.5-10.5	29.5	-	-	44	41 @ Psat	750	30	QFN
CHA8710a99F	8.5-10.5	28.5	-	-	44	44 @ Psat	750	25	Die
CHA8611-99F	8.5-11	24	-	-	42.5	43 @ Psat	800	25	Die
CHA8610-99F	8.5-11	24	-	-	42	40 @ Psat	680	30	Die
CHA8212-99F	8.5-11.5	34	-	-	44	36 @ 7dB comp	840	28	Die
CHA7114-99F	8.5-11.5	20	-	-	39.8	42 @ 4dB comp	2000	8	Die
CHA7215-99F	8.5-11.5	28	-	-	39.5	34 @ 4dB comp	2300	8	Die
CHA8100-99F	9-10.5	18.5	-	-	41	40 @ 3dB comp	2100	9	Die

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3656-QAG*	5.5-17	20	0.5	1.7	14	68	3	QFN
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-99F*	6-17	21	0.5	1.8	17	80	4	Die
CHA1010-99F	7-11	32	1.1	1	5.5	30	5	Die
CHA2110-98F	7-12	19	-	1.2	10.5	42	3	Die
CHA2110-QDG	7-12	19	-	1.2	10	45	4	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4314-98F	4.7-11.3	19	34	26	27	180	5	Die
CHA4350-QDG	5.5-11.7	26	32	24	25	125	5.5	QFN
CHA5115-99F	8-12	25	-	28	29	190	8	Die
CHA5115-QDG	8-12	24	-	27.5	29	190	8	QFN
CHA5014-99F	8.5-11	20	-	29	30	230	8.5	Die
CHA5266-99F*	10-16	23	36	26.5	27.5	360	5	Die
CHA5266-QDG	10-16	23	35	25.5	27	320	5	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT3091-FAB	DC-14	2.5	20.5	15	Hermetic SMD
CHT4690-99F	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	31	25	QFN

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die
CHT4016-QEG	4-14	6	31.5	7	+/-0.8	23	-5/0	QFN
CHT4016-99F	4-16	6	31.5	6.5	-1.5/1	23	-5/0	Die

CORE CHIP RX – TX

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Pout RX (dBm)	Pout TX (dBm)	NF RX (dB)	Number of Bit Atten.	Number of Bit Phase	Bias (mA)	Bias (V)	Case
CHC3014-99F	8-12	13.5	25	16.5	20	5.8	6	6	350	5	Die

GAN POWER TRANSISTOR

Part Number	Operating Frequency (GHz)	Glin (dB)@Freq (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK9014-99F	Up to 13	13 @ 12	60	50 @ 12	0.7	30	Die

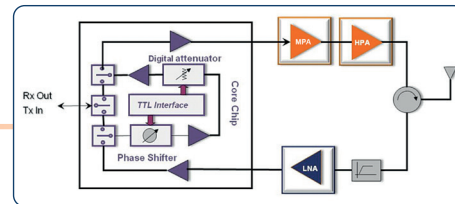
PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control Voltage (V)	Case
CHP4010-99F	7-9	6	360	9	-4/4.5	26	-3.5/0	Die
CHP3015-QDG	8.5-10.5	6	360	8	-2/+8	23.5	3.3 or 5	QFN
CHP3015-99F	8.5-11.5	6	360	7.5	-3/+5	24	0/3.3 or 5	Die

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS7012-99F	DC-12	1.4	40.5	30	Reflective	Die
CHS5100-99F	DC-20	2.1	20	30	Reflective	Die
CHS8618-99F	6-18	1.3	42	34	Reflective	Die

Ku-Band Chipset



AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3218-99F	2-18	24	1	2	15	120	4	Die
CHA3656-QAG*	5.5-17	20	0.5	1.7	14	68	3	QFN
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-99F*	6-17	21	0.5	1.8	17	80	4	Die
CHA1252-QDG	11-18	26	-	1.3	7	30	2	QFN
CHA2050-QDG	17-21.5	26	-	1.3	6	30	2	QFN
CHA2090-99F	17-24	23	1	2	10	55	4.5	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4220-98F	0.5-20	17	28	20	23	120	6.5	Die
CHA4220-QGG	0.5-20	17	28	20	23	120	6.5	QFN
CHA3024-99F*	2-22	15	30	18	20	100	5	Die
CHA3024-QGG	2-22	15	28	18	20	100	5	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	4	Die
CHA5618-99F	6-18	22	-	-	28	150	20	Die
CHA5266-QDG	10-16	23	35	25.5	27	320	5	QFN
CHA5266-99F*	10-16	23	36	26.5	27.5	360	5	Die
CHA4262-QDG	17-22	26	30	20	23	130	2.5	QFN
CHA4252-QKB	17.2-21.3	30	-	-	25	15	14	QFN

PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control Voltage (V)	Case
CHP4511-99F	6-18	4	360	13	10	23	-5/0	Die

DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3662-QDG	7-11	4.5-19.5	DC-3.5	13	3	-8	0	280	4.5	QFN

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA8618-99F	6-18	33	-	-	42.5	26 @ Psat	1200	20	Die
CHA7250-QAB	10-12.75	20	45	-	40	37 @ 40dBm	130	20	QFN
CHA8352-99F	10.7-12.75	25	-	-	43	45 @ 43 dBm	500	20	Die
CHA7063-QCB	12.7-20	20	-33dBc (ACPR)	-	37	17 @ Psat	216	20	QFN
CHA6161-QKB	17-21.5	32	-	-	34.5	43 @ Psat	60	14	QFN
CHA6251-QKB	17-21.5	33	-	-	34.5	42 @ Psat	125	14	QFN
CHA8252-99F	17.3-20.3	31	-	40.5	41	35 @ Pin 16dBm	260	18	Die
CHA8254-99F	17.3-20.3	29	-	-	40	31 @ Pin 20dBm 27 @ Pin 14dBm	210	15	Die
CHA6282-QCB	17.3-21.5	30	-	-	36	28 @ Psat	260	18	QFN

WILKINSON POWER DIVIDER

Part Number	RF Bandwidth (GHz)	Ins. Loss (dB)	Isolation Range (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (°)	Case
CHW4212-QKA	8-22	0.5	20	>20	0.2	2	DFN
CHW4213-QAG	15-25	0.5	20	>20	0.5	< 2	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4690-99F	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	31	25	QFN
CHT4694-QAG	25-40	4	22	22	QFN
CHT4694-99F	25-45	4	24	22	Die

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die
CHT4016-QEG	4-14	6	31.5	7	+/-0.8	23	-5/0	QFN
CHT4016-99F	4-16	6	31.5	6.5	-1.5/1	23	-5/0	Die

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2193-99F*	X2	6.25-8.25	12.5-16.5	12	14	60	3.5	Die

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5100-99F	DC-20	2.1	20	30	reflective	Die
CHS8618-99F	6-18	1.3	42	34	reflective	Die

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* Exists also in Hermetic package

Products

Foundry

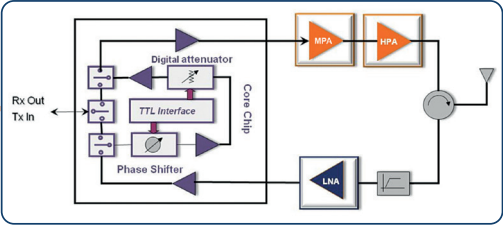
Transistors

Satcom



Chipset Solutions
Aerospace, Defense
and Instrumentation

Ka-Band chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA6682-98F	24-27.5	25	-	-	37	32 @ Psat	115	20	Die
CHA6682-QKB	24-27.5	25	-33dBc (ACPR)	-	36	26 @ Psat	140	20	QFN
CHA8362-99F	26.5-31	25	-33dBc (ACPR)	-	44	30 @ Psat	440	25	Die
CHA6357-QKB	27-31	28	-35dBc (ACPR)	-	36	20 @ Psat	70	25	QFN
CHA6354-QQA	27.5-30	25	-34dBc (ACPR)	-	36	16 @ Psat	120	25	QFN
CHA7362-QWA	27.5-31	26	-30dBc (ACPR)	-	39	27 @ Psat	280	20	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2069-QDG	18-31	20	2	3	10.5	65	4.5	QFN
CHA2069-99F*	18-31	22	1	2.5	10	55	4.5	Die
CHA2190-99F	20-30	15	0.5	2.2	11	50	4	Die
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN
CHA2362-98F	26-40	22	-	2	9	65	4	Die
CHA2595-98F	27.5-43.5	19.5	-	2	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2.3	11	61	3.3	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4253-FAB	17-21	26	33	23.5	24.5	230	4	Hermetic SMD
CHA4253aQQG	17-24	23	33	24	24.5	230	4	QFN
CHA5350-99F	17-24	26	35.5	26.5	27	300	6	Die
CHA3092-99F	20-33	22	29	20	-	300	3.5	Die
CHA2098b99F	20-40	19	-	16	16	150	3.5	Die
CHA4395-QDG	21-27	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA4396-QDG	24-30	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA3409-98F	25-45	23	26	19	20	100	4	Die
CHA3396-QDG	27-33.5	22	30	19	21	155	4	QFN

WILKINSON POWER DIVIDER

Part Number	RF Bandwidth (GHz)	Ins. Loss (dB)	Isolation Range (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (°)	Case
CHW4312-QKA	22-34	0.75	20	>15	0	3	DFN
CHW4313-QAG	24-35	0.6	20	>16	+/-0.5	-5	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4690-99F*	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	37	25	QFN
CHT4694-QAG	25-40	4	22	22	QFN
CHT4694-99F	25-45	4	24	22	Die

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die

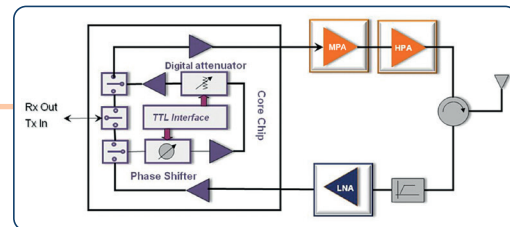
DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3693-FAB	21-26.5	9-14	DC-3.5	20	2.5	0	2	160	4	Hermetic SMD
CHR3764-QEG	21-27	8.5-15	DC-3.5	14	3.1	-7	0	320	4	QFN
CHR2295-99F	24-30	12-15	DC-1.5	11	3.5	-10	10	120	3.5	Die

MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1290-99F	20-30	10-15	DC-6	-10	0	-4	33	4	Die
CHM1291-99F	25-32	12-15.5	0.1-3	-11	0	5	55	3.5	Die
CHR2294-99F	25-35	11-19	DC-3	-11	2.5	9	55	4	Die

6-18GHz Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA7618-99F	5.5-18	30	-	-	40	20 @ 20dBm	530	18	Die
CHA8618-99F	6-18	33	-	-	42.5	26 @ Psat	1200	20	

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3218-99F	2-18	24	1	2	15	120	4	Die
CHA3024-FDB	2-22	15	-	3	18	100	5	Hermetic SMD
CHA3656-FAB	5.8-16	20	-	1.75	14.5	70	3.3	Hermetic SMD
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAB	6-16	21	1	1.8	17	80	4	Hermetic SMD
CHA3666-99F	6-17	21	0.5	1.8	17	80	4	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4220-98F	0.5-20	17	28	20	23	120	6.5	Die
CHA4220-QGG	0.5-20	17	28	20	23	120	6.5	QFN
CHA3023-99F	1-18	14	-	17	-	95	5	Die
CHA3024-99F	2-22	15	30	18	20	100	5	Die
CHA3024-QGG	2-22	15	28	18	20	100	5	QFN
CHA3664-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	4	Die
CHA5618-99F	6-18	22	-	-	28	150	20	Die

AMPLIFIER – DIGITAL VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Noise Figure (dB)	Dynamic Range (dB)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3511-99F	6-18	16	7	39	20	22	190	4.5	Die
CHA3512-99F	6-18	16	7	20	20	23	210	4.5	Die
CHA3513-99F	6-18	19	12	25	18	20	300	4.5	Die
CHA3514-99F	6-18	13	7	39.5	18	19	190	4.5	Die

ATTENUATOR – DIGITAL

Part Number	RF Bandwidth (GHz)	Number of Bits	Amplitude Control (dB)	Insertion loss (dB)	Attenuation error (dB)	P-1dB IN (dBm)	Control voltage (V)	Case
CHT3029-QEG	DC-31	4	15	5	+/-0.5	20	0/3.3 or 5	QFN
CHT3029-99F	DC-35	4	15	4.5	+/-0.5	20	0/3.3 or 5	Die
CHT4016-QEG	4-14	6	31.5	7	+/-0.8	23	-5/0	QFN
CHT4016-99F	4-16	6	31.5	6.5	-1.5/1	23	-5/0	Die

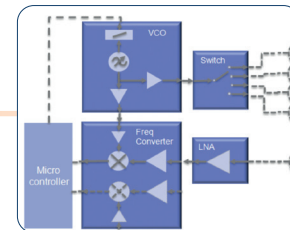
PHASE SHIFTER

Part Number	RF Bandwidth (GHz)	Number of Bits	Phase range (°)	Insertion Loss (dB)	Phase Error (°p-p)	P-1dB IN (dBm)	Control voltage (V)	Case
CHP4511-99F	6-18	4	360	13	10	23	-5/0	Die

SWITCH

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS5100-99F	DC-20	2.1	20	30	Reflective	Die
CHS8618-99F	6-18	1.3	42	34	Reflective	Die

Automotive & ISM 24GHz



AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2411-QDG	20-25	26	0.5	2.5	-	43	5	QFN
CHA2441-QAG*	22-26	25.5	0.25	2.5	10.5	50	3.3	QFN
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN

AMPLIFIER – HPA / MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA) @ (V)	Case
CHA6652-QXG	21-27.5	20	41	32.5	33	25 @ Psat	1300 @ 6	QFN
CHA6682-QKB	21-30	24	32	20	22	18 @ Psat	180 @ 4	QFN
CHA4396-QDG	24-30	22	-	-	-	15 @ Psat	230 @ 4	QFN
CHA6682-QKB	24-27.5	25	-32dBc (ACPR)	-	36	26 @ Psat	140 @ 20	QFN

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RECEIVER RI, R2

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR2411-QDG	22-24.5	22-24.5	DC-0.001	23	7	-21	5	60	5	QFN
CHR2421-QEG	23.75-24.5	23.75-24.5	DC-0.001	22	7	-20	2	165	5	QFN

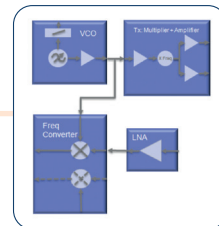
TX – IT, 2T

Part Number	Central Output Freq (GHz)	Tuning Bandwidth (GHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV2411aQDG	24.125	2	-90	16	220	5	QFN
CHV3241-QDG	24.125	2	-94	16	225	5	QFN
CHV2421-QDG	24.25	2	-90	15	233	5	QFN

SWITCH – SP4T

Part Number	RF Bandwidth (GHz)	Loss (dB)	P-1dB IN (dBm)	Isolation (dB)	Type	Case
CHS2411-QDG*	23-26	2.9	23.5	35	Reflective	QFN

Automotive & ISM 79GHz



AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2080-98F	71-86	22	0.8	3.5	10	75	4	Die
CHA1077a98F	76-77	15	0.5	4.5	9	80	5	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3080-98F	71-76	16	-	19	21	280	3.5	Die

MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM2179b98F	76-77	76-77	DC-0.1	-8	0	5.5	1	4.5	Die
CHM2378a99F	76-77	76-77	DC-0.1	-7.5	0	7	1.5	4.5	Die
CHM1270a98F	76-77	76-77	DC-0.1	-7.5	0	15	-	-	Die

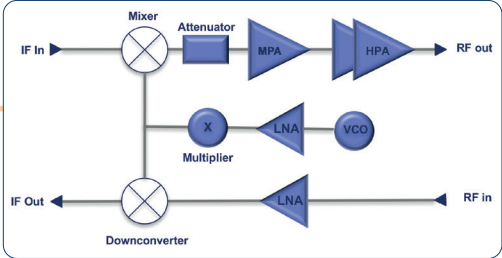
MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHU3377-98F	X6	12.67-12.83	76-77	4	15	210	4.5	Die
CHU2277-99F	X2	38-38.5	76-77	5	13	180	4.5	Die

VCO

Part Number	Central Output Freq (GHz)	Tuning Bandwidth (GHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV2240-99F	38.25	1.5	-100	9	120	4.5	Die

Telecom 6-8.5GHz



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA7060-QAB	5.6-8.5	30	45	33	41	40 @ 41dBm	420	20	QFN
CHA6154-99F	7.25-7.75	36.5	-	-	34.5	43 @ Psat	70	28	Die

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-QGG	2-22	15	-	3	18	100	5	QFN
CHA3656-QAG	5.5-17	20	0.5	1.7	14	68	3	QFN
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-99F	6-17	21	0.5	1.8	17	80	4	Die
CHA2063a99F	7-13	19	2	2	8	40	4	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3664-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3665-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3565-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA4350-QDG	5.5-11.7	26	32	24	25	125	5.5	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	4	Die

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4660-QAG	DC-16	2	30	24	QFN
CHT4690-99F	5-30	4	28	25	Die
CHT4690-QAG	5-30	4	31	25	QFN

DETECTOR

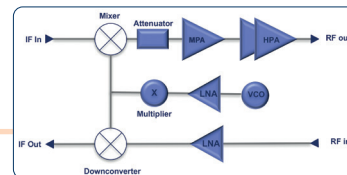
Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	Die
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN

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DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3762-QDG	5.5-9	4-12	DC-3.5	14	1.7	-5	5	100	3	QFN
CHR3861-QEG	5.9-9	3-12.5	DC-3.5	12	2.5	-7	0	380	4	QFN
CHR3662-QDG	7-16	4.5-19.5	DC-3.5	13	3	-8	0	280	4.5	QFN

I3-18GHz & VSAT Ku Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA7250-QAB	10-12.7	20	-	-	40	37 @ Psat	130	20	QFN
CHA7063-QCB	12.7-20	20	-33dBc (ACPR)	-	37	17 @ Psat	216	20	QFN
CHA6161-QKB	17-21.5	32	-	-	35	43 @ Psat	60	14	QFN
CHA6251-QKB	17-21.5	33	-	-	34.5	42 @ Psat	125	14	QFN
CHA6550-98F	17-23.6	22	39	33.5	34	20 @ Psat	1300	6	Die
CHA6550-QXG	17- 24	22	41	33.5	34	20 @ Psat	1300	6	QFN
CHA8252-99F	17.3-20.3	31	-	40.5	41	35 @ Pin 16dBm 27 @ Pin 14dBm	300	18	Die
CHA6262-99F	17.3-21.5	30	-	33	36	36 @ Psat	260	18	Die
CHA6362-QXG	17.7-19.7	22	42	-	34.5	24 @ Psat	1340	6	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-QGG	2-22	15	-	3	18	100	5	QFN
CHA3656-QAG	5.5-17	20	0.5	1.7	14	68	3	QFN
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA2066-QAG	10-16	16	1.5	2.5	10	50	4	QFN
CHA1252-QDG	11-18	26	-	1.3	7	30	2	QFN
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2050-QDG	17-21.5	26	-	1.3	6	30	2	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3664-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3665-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA3565-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA5266-QDG	10-16	23	35	25.5	27	320	5	QFN
CHA4253aQQG	17-24	23	33	24	24.5	230	4	QFN
CHA4253a98F	17-24	26	32	24.5	25	230	4	Die
CHA4252-QKB	17.2-21.3	30	-	-	25	15	14	QFN

AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-99F	2-22	15	0.5	3	30	18	100	5	Die
CHA3024-QGG	2-22	15	-	3	30	18	100	5	QFN
CHA4253aQQG	17-24	23	1	7.5	15	24	230	4	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4690-QAG	5-30	4	31	25	QFN

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN
CHE1260-QAG	10-27	1	30	Bidirectional	QFN

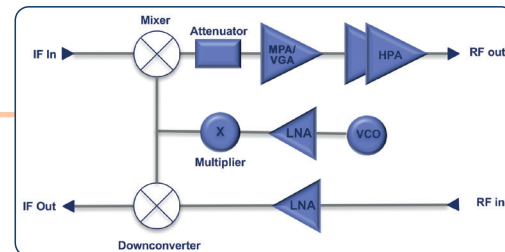
DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3662-QDG	7-16	4.5-19.5	DC-3.5	13	3	-8	0	280	4.5	QFN
CHR3362-QEG	10-16	6.5-19.5	DC-3.5	13	3.2	-6	0	310	4	QFN
CHR3352-QEG	12-16	8.5-19.5	DC-3.5	13	2.7	-6	0	250	4	QFN
CHR3763-QDG	12-16	8.5-19.5	DC-3.5	12	2.3	-8	5	80	3	QFN
CHR3364-QEG	17-24	6.5-14	DC-3.5	11	2.7	-7	0	320	4	QFN
CHR3664-QEG	17-27	7-15	DC-3.5	12	3.3	-8	0	320	4	QFN

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2193-99F	X2	6.25-8.25	12.5-16.5	12	14	60	3.5	Die
CHX2089-99F	X2	8-11.5	16-23	12	15	60	3.5	Die

23-26GHz Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA6550-98F	17-23.6	22	39	33.5	34	20 @ Psat	1300	6	Die
CHA6550-QXG	17- 24	22	41	33.5	34	20 @ Psat	1300	6	QFN
CHA6652-98F	21-27.5	22.5	39	32.5	33	25 @ Psat	1300	6	Die
CHA6652-QXG	21-27.5	20	41	-	33	25 @ Psat	1300	6	QFN
CHA6356-QXG	21.2-23.6	20	42	33	33.5	22 @ Psat	1300	6	QFN
CHA6682-98F	24-27.5	25	-	-	37	32 @ Psat	115	20	Die
CHA6682-QKB	24-27.5	25	-32dBc (ACPR)	-	36	26 @ Psat	140	20	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2090-99F	17-24	23	1	2	10.5	55	4.5	Die
CHA2069-QDG	18-31	20	2	3	10.5	65	4.5	QFN
CHA2069-99F	18-31	22	1	2.5	10	55	4.5	Die
CHA2441-QAG	22-26	25.5	0.25	2.5	10.5	50	3.3	QFN
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA4253aQQG	17-24	23	33	24	24.5	230	4	QFN
CHA5350-99F	17-24	26	35.5	26.5	27	300	6	Die
CHA4253a98F	17-24	26	32	24.5	25	230	4	Die
CHA4395-QDG	21-27	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA3395-98F	21-30	24	32	20	22.5	180	4	Die
CHA3395-QDG	21-30	24	32	20	22	180	4	QFN
CHA4396-QDG	24-30	22	-35dBc (ACPR)	21	-	230	4	QFN

AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA4253aQQG	17-24	23	1	8	15	24	230	4	QFN
CHA3395-QDG	21-30	25	0.5	4.5	36	26	140	20	QFN
CHA2293-99F	24-30	24	1.5	3	15	12	160	5	Die

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4690-QAG	5-30	4	31	25	QFN

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	Die
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN
CHE1260-98F	10-27	0.8	30	Bidirectionnal	Die
CHE1260-QAG	10-27	1	30	Bidirectionnal	QFN

DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3364-QEG	17-24	6.5-14	DC-3.5	11	2.7	-7	0	320	4	QFN
CHR3664-QEG	17-27	7-15	DC-3.5	12	3.3	-8	0	320	4	QFN
CHR3693-QDG	21-26.5	9-14	DC-3.5	20	3	-10	2	160	4	QFN
CHR3764-QEG	21-27	8.5-15	DC-3.5	14	3.1	-7	0	320	4	QFN

RF FRONT-END

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Psat TX (dBm)	NF RX (dBm)	ACPR (dBc) @ (dBm)	Case
CHC6054-QQA	24.25-30.5	18	28	31	3.25	36 @ 23	QFN

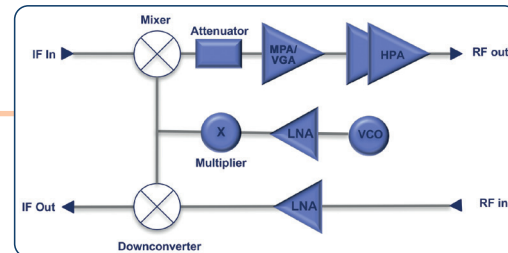
MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1290-99F	20-30	10-15	DC-6	-10	0	-4	33	4	Die

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2095a99F	X4	6.25-8.25	25-33	12	11	75	3.5	Die
CHX2090-99F	X2	11-13	22-26	12	15	50	3.5	Die
CHX2090-QDG	X2	11-13	22-26	14	12	65	3.5	QFN

28-32GHz & VSAT Ka Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA8362-99F	26.5-31	25	-33dBc (ACPR)	-	44	30 @ Psat	440	700	Die
CHA6357-QKB	27-31	28	-35dBc (ACPR)	-	36	20@Psat	70	25	QFN
CHA6653-QXG	27-33.5	20	38	32	33	23@Psat	900	6	QFN
CHA6653-98F	27-34	23	38	31	32	17@Psat	900	6	Die
CHA6354-QQA*	27.5-30	25	-34dBc (ACPR)	-	36	16@Psat	120	25	QFN
CHA7362-QWA	27.5-31	26	-30dBc (ACPR)	-	39	27@Psat	280	20	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA3689-99F	12.5-30	26	2	2	14	90	4	Die
CHA2069-99F	18-31	22	1	2.5	10	55	4.5	Die
CHA2190-99F	20-30	15	0.5	2.2	11	50	4	Die
CHA1351-QAG	24-32	24	-	1.3	5	30	2	QFN
CHA2595-98F	27.5-43.5	19.5	-	2	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2.3	11	61	3.3	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3092-99F	20-33	22	29	20	-	300	3.5	Die
CHA2098b99F	20-40	19	-	16	16	150	3.5	Die
CHA3395-QDG	21-30	24	32	20	22	180	4	QFN
CHA3395-98F	21-30	24	32	20	22.5	180	4	Die
CHA4396-QDG	24-30	22	-35dBc (ACPR)	21	-	230	4	QFN
CHA3409-98F	25-45	23	26	19	20	100	4	Die
CHA3396-QDG	27-33.5	22	30	19	21	155	4	QFN

*includes a double throw switch

AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3395-QDG	21-30	24	0.5	4.5	15	20	180	4	QFN
CHA2293-99F	24-30	24	1.5	3	15	12	160	5	Die
CHA3396-QDG	27-33.5	22	1.5	4.5	15	19	155	4	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4694-QAG	25-40	4	22	22	QFN
CHT4694-99F	25-45	4	24	22	Die

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	Die
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN
CHE1260-98F	10-27	0.8	30	Bidirectional	Die
CHE1260-QAG	10-27	1	30	Bidirectional	QFN

RF FRONT-END

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Psat TX (dBm)	NF RX (dBm)	ACPR (dBc) @ (dBm)	Case
CHC6054-QQA	24.25-30.5	18	28	31	3.25	36 @ 23	QFN

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DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR2295-99F	24-30	12-15	DC-1.5	11	3.5	-10	10	120	3.5	Die

MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1290-99F	20-30	10-15	-10	0	0	-4	33	4	Die
CHM1291-99F	25-32	12-15.5	-11	0	0	5	55	3.5	Die
CHR2294-99F	25-35	11-19	-11	2.5	2.5	9	55	4	Die

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2095a99F	X4	6.25-8.25	5-33	12	11	75	3.5	Die
CHX3068-QDG	X2	14-15	8-30	0	20	270	4	QFN

Products

Foundry

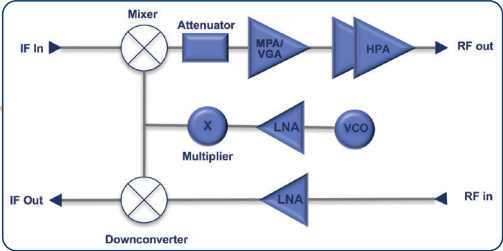
Transistors

Satcom



Chipset Solutions
Telecoms from 6GHz
to E-band

36-44GHz Chipset



AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	PAE (%)	Bias (mA)	Bias (V)	Case
CHA6094-QKB	35-42.5	26	-33dBc (ACPR)	-	33	13 @ Psat	150	25	QFN
CHA6095-QKB	35-42.5	25	-33dBc (ACPR)	-	36	12 @ Psat	300	25	QFN
CHA7452-99F	35.5-40.5	29	-	-	39.5	24 @ Psat	290	20	Die
CHA5659-98F	36-43.5	22	38	30	31	15 @ Psat	800	6	Die
CHA6194-QXG	37- 40	20	38	30	31	18 @ Psat	800	6	QFN
CHA7453-99F	37-42	28	-	-	39.5	22 @ Psat	290	20	Die
CHA7455-99F	39-43.5	29	-	-	39.5	25 @ Psat	240	20	Die
CHA5659-QXG	40-45.5	20	38.5	29.5	30	15 @ Psat	800	6	QFN

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2362-98F	26-40	22	-	2	9	65	4	Die
CHA2595-98F	27.5-43.5	19.5	-	2	11	61	3.3	Die
CHA2595-QDG	27.5-43.5	20	-	2.3	11	61	3.3	QFN
CHA2494-98F	34-44	20	1.2	3	12	80	4	Die
CHA2494-QEG	34-44	22	1.5	3	12	80	4	QFN
CHA2394-99F	36-40	21	1.5	2.5	8	60	3.5	Die

RF FRONT-END

Part Number	RF Bandwidth (GHz)	Gain RX (dB)	Gain TX (dB)	Psat TX (dBm)	NF RX (dB)	ACPR (dBc) @ (dBm)	Case
CHC6094-QKB	37-41	24	23	33	4.8	33@25	QFN

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA2098b99F	20-40	19	-	16	16	150	3.5	Die
CHA3409-98F	25-45	23	26	19	20	100	4	Die
CHA3397-QDG	36-40.5	21	29	18	20	200	4	QFN
CHA3398-QDG	36-43.5	22	29	18	19	200	4	QFN

AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3397-QDG	36-40.5	21	1	7	15	18	200	4	QFN
CHA3398-QDG	36-43.5	22	1	7	15	18	200	4	QFN

ATTENUATOR – ANALOG

Part Number	RF Bandwidth (GHz)	Insertion Loss (dB)	Amplitude Control (dB)	P-1dB IN (dBm)	Case
CHT4694-QAG	25-40	4	22	22	QFN
CHT4694-99F	25-45	4	24	22	Die
CHT4699-QDG	36-44	4	30	20	QFN

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	Die
CHE1270a99F	5-44	-	30	Wide-Band	Die
CHE1270-QAG	5-44	-	30	Wide-Band	QFN

DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR3394-QEG	37-40	17.5-21	DC-3.5	13	3.5	-7	0	250	4	QFN
CHR3894-QEG	37-40	17.5-21	DC-3.5	13	4	-6	0	250	4	QFN

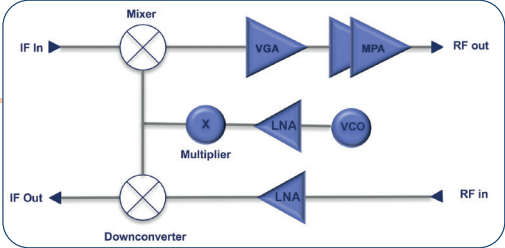
MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1294-99F	35-45	16-24	DC-3	-11	0	10	60	4	Die

MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX2092a99F	X4	9-10	36-40	12	11	80	3.5	Die
CHX1191-QDG	X3	11-14.5	33-43.5	1	6	80	5	QFN
CHX1191-98F	X3	11.25-14.5	33.75-43.5	-1	6	80	5	Die
CHX2091-99F	X2	17-20	34-40	12	12	50	3.5	Die
CHX1162-QDG	X2	17.5-21.5	35-43	1	8	50	5	QFN

46GHz, V-Band & E-Band



AMPLIFIER – ANALOG VGA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	Gain Control Range (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2352-98F	46-52.6	21	0	3.5	-	12	55	3.3	Die
CHA2368-98F	50-71	21	-	3.5	-	12	75	3.3	Die
CHA2080-98F	71-86	22	1	3.5	12	10	75	4	Die
CHA3080-99F	71-76	16	-	4.3	10	19	280	3.5	Die
CHA3090-99F	81-86	13	-	4.5	10	17	280	3.5	Die

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2352-98F	46-52.6	21	-	3.5	12	55	3.3	Die
CHA2368-98F	50-71	21	-	3.5	12	75	3.3	Die
CHA2157-99F	55-60	10	1	3.5	15	80	3.3	Die
CHA2159-99F	55-65	20	1	4	14	115	3.5	Die
CHA1077a98F	76-77	15	0.5	4.5	9	80	5	Die
CHA1008-99F	80-105	17	1	6.5	5	115	3	Die

AMPLIFIER – MPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA3080-98F	71-76	16	-	19	21	280	3.5	Die
CHA3090-98F	81-86	13	-	17	19	280	3.5	Die

DOWN – CONVERTER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	Noise Figure (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHR1080a98F	71-86	34.5-44	DC-12	8	5	-10	1	175	3.5	Die

MIXER

Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1298-99F	55-65	27.5-32.5	DC-5	-12	0	10	90	3.5	Die
CHM1080-98F	71-86	34.5-44	DC-12	-11	10	2	90	3.5	Die

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MULTIPLIER

Part Number	Xn	Input Bandwidth (GHz)	Output Bandwidth (GHz)	Input Power (dBm)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHX1191-QDG	X3	11-14.5	33-43.5	1	6	80	5	QFN
CHX1191-98F	X3	11.25-14.5	33.75-43.5	-1	6	80	5	Die
CHX1162-QDG	X2	17.5-21.5	35-43	1	8	50	5	QFN
CHX2192-99F	X2	27-33	54-66	12	11	130	3.5	Die

Catalogue products commercial designation

Prefix		Radical <i>(The 1st digit after the prefix indicates the power range)</i>			Suffix	
CHA	Amplifiers	W		dBm	Bare die products 99F Standard	Packages <i>(The first letter defines the package family)</i>
CHC	Core chips / RF Front End	1	P < 10mW	P < 10dBm		F Ceramic metal SMD unleaded
CHE	Detectors	2	10mW < P < 30mW	10dBm < P < 15dBm		Q Over molded plastic SMD
CHK	GaN power bars	3	30mW < P < 100mW	15dBm < P < 20dBm		S Ceramic metal non SMD leaded
CHM	Mixers	4	100mW < P < 300mW	20dBm < P < 25dBm		
CHP	Phase shifters	5	300mW < P < 1W	25dBm < P < 30dBm	98F With BCB protection	
CHR	Down-converters	6	1W < P < 5W	30dBm < P < 37dBm		
CHS	Switches	7	5W < P < 10W	37dBm < P < 40dBm	Die can be delivered in Gel Pack®, Waffle Pack or wafer on films QFN can be delivered in Stick, Tape & Reel or Waffle Pack Other Package in Waffle Pack	
CHT	Attenuators	8	10W < P < 50W	40dBm < P < 47dBm		
CHU	Up-converters	9	50W < P < 100W	47dBm < P < 50dBm		
CHV	Oscillators	A	100W < P < 500W	50dBm < P < 57dBm		
CHW	Wilkinson Power Dividers	B	500W < P < 1000W	57dBm < P < 60dBm		
CHX	Multipliers	C	1000W < P < 5000W	60dBm < P < 67dBm		
CHZ	GaN power bars internally matched					
EC	GaAs transistors					

Exemple line

CHA	6710	- 99F
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Notes



**United Monolithic
Semiconductors**

FROM OUR TECHNOLOGY TO YOUR SUCCESS

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