



SELECTION GUIDE 2016 2017

Products,
Foundry Processes
& Chipset solutions

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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	200	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)	Bias (mA)	Bias (V)	Case
CHA6015-99F	2-8	18.5	-	36.5	37.5	2000	7	die
CHA8012-99F	5.2-6	22	-	-	41.5	2100	8	die
CHA6250-QFG	5.5-9	23.5	43	33.5	34.5	900	7	QFN
CHA6552-QJG	5.8-8.5	22	45	35	36	1800	7	QFN
CHA6105-99F	8-12	30	-	30.5	31.5	700	8	die
CHA6005-99F	8-12	22	-	31.5	32.5	350	8	die
CHA6005-QEG	8-12	19.5	-	31.5	32	420	8	QFN
CHA8610-99F	8.5-11	24	-	-	42.5	680	30	die
CHA7114-99F	8.5-11.5	20	-	-	39.8	2000	8	die
CHA7115-99F	8.5-11.5	27.5	-	-	39	2200	8	die
CHA7215-99F	8.5-11.5	28	-	-	39.5	2300	8	die
CHA8100-99F	9-10.5	18	-	-	41	2100	9	die
CHA7012-99F	9.2-10.4	20	-	37.5	39.5	1900	7.5	die
CHA6252-QFG	13-15.5	22	41	32.5	35	1100	7	QFN
CHA6550-QXG	17- 24	22	41	33.5	34	1300	6	QFN
CHA6362-QXG	17.7-19.7	22	42	33	34.5	1340	6	QFN
CHA5356-QGG	17.7-23.6	19	38	31	33	700	6	QFN
CHA6652-QXG	21-27.5	22	40	33.5	34	1300	6	QFN
CHA6356-QXG	21.2-23.6	20	42	33	33.5	1300	6	QFN
CHA6558-99F	28-32	21	-	33.2	33.4	1400	6	die
CHA6194-QXG	37- 40	20	38	31	32	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
CHA3801-99F	1-2	28	0.5	1.5	15	70	5	die
CHA3801-QDG	1-2	28	0.5	1.5	15	70	5	QFN
CHA3218-99F	2-18	24	1	2	15	120	4	die

Products

Foundry

GaN Power Transistors

Chipset Solutions

AMPLIFIER – LNA ... continued

NEW

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA3024-99F	2-22	15	-	3	18	100	5	die
CHA3024-QGG	2-22	15	-	3	18	100	5	QFN
CHA3666-SNF	5.8-16	20	1	2.1	16	80	4	SNF
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAA	6-16	21	1	1.8	17	80	4	Hermetic SMD
CHA3666-99F	6-17	21	0.5	1.8	17	80	4	die
CHA3656-QAG	6-17	20	0.5	1.7	14	68	3	QFN
CHA1010-99F	7-11	32	1.1	1	5.5	30	5	die
CHA2110-98F	7-12	19	-	1.2	11	45	4	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	2.5	10	50	4	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	15	90	4	die
CHA2069-FAA	16-31.5	22	1	2.5	10	55	4.5	Hermetic SMD
CHA2069-QDG	16-31.5	20	2	3	10.5	65	4.5	QFN
CHA2069-99F	16-31.5	22	1	2.5	10	55	4.5	die
CHA2090-99F	17-24	23	1	2	10	55	4.5	die
CHA2260-QAG	18-27	26	1	2.2	13	65	3.5	QFN
CHA2092b99F	18-32	22	2.5	2.5	10	60	3.5	die
CHA2411-QDG	20-25	26	0.5	2.5	-	43	5	QFN
CHA2093-99F	20-30	15	0.5	2.2	13	50	4	die
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	21-26	25.5	+/- 0.25	2.5	12	50	3.3	QFN
CHA2494-98F	34-44	20	-	3	12	80	4	die
CHA2494-QEG	34-44	22	1.5	3	12	80	4	QFN
CHA2091-99F	36-40	14	0.5	2.5	12	45	4	die
CHA2094b99F	36-40	21	1.5	3	8	60	3.5	die
CHA2095a99F	36-40	26	1	3.5	10	90	3.5	die
CHA2391-99F	36-40	15	0.5	2.5	12	45	4	die
CHA2394-99F	36-40	21	1.5	2.5	8	60	3.5	die
CHA2395-99F	36-40	30	1.5	3	10	90	3.5	die
CHA2194-99F	36-44	19	0.5	3	10	45	3.5	die

AMPLIFIER – LNA ... continued

NEW

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2157-99F	55-60	10	1	3.5	15	60	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	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	2.5	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
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
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
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
CHA5250-QDG	5.5-9	26	36	28	30	280	7	QFN
CHA4250-QDG	5.5-11	26	31	23.5	25	125	7	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	4	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
CHA5012-99F	9.2-10.8	22.5	-	28	29.5	200	7.5	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
CHA4253aQGG	17-24	23	33	24	24.5	230	4	QFN
CHA5050-QDG	17-24	22	30	25	26	230	6	QFN
CHA5350-99F	17-24	26	35.5	26.5	27	300	6	die

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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
CHA5050-99F	17-26	22	30	25	25.5	230	6	die
CHA3092-99F	20-33	22	29	20	-	300	3.5	die
CHA2098b99F	20-40	19	-	16	16	150	3.5	die
CHA3660-QQG	21-27.5	25	32	19	21	180	4	QFN
CHA3395-QDG	21-29.5	24	32	20	22	180	4	QFN
CHA3396-QDG	27-33.5	22	30	19	21	155	4	QFN
CHA3397-QDG	36-40.5	21	29	18	20	200	4	QFN
CHA3080-98F	71-76	16	25	19	21	280	3.5	die
CHA3090-98F	81-86	13	23	17	19	280	3.5	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
CHA4861-QGG	6-11	23	1	9	20	24	160	4.5	QFN
CHA2292-99F	16-24	26	1	2.8	20	11	160	5	die
CHA4863-QGG	17-24	24	1.5	11	20	22	200	4.5	QFN
CHA4253aQQG	17-24	23	1	7.5	15	24	230	4	QFN
CHA2097a99F	20-40	18	1.5	-	12	14	140	3.5	die
CHA3660-QQG	21-27.5	25	1	4	15	19	180	4	QFN
CHA3395-QDG	21-29.5	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
CHA3397-QDG	36-40.5	21	1	7	15	18	200	4	QFN
CHA2080-98F	71-86	22	0.8	3.5	12	10	75	3.5	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
CHT4660-QAG	DC-16	2	30	24	QFN
CHT3091a99F	DC-40	3	17	15	die
CHT4690-99F	5-30	6.5	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
CHT4699-QDG	36-44	4	30	20	QFN

ATTENUATOR – DIGITAL

NEW

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-30	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	18	-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	-	200	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
CHC2442-QPG	24-24.5	37	VCO incl.	-	13.5	11.5	5	-	225	3.3	QFN

DETECTOR

Part Number	RF Bandwidth (GHz)	Loss (dB)	Dynamic Range (dB)	Type	Case
CHE1270a98F	5-44	-	30	Wide-Band	die
CHE1270-QAG	10-44	-	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
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

Products

Foundry

GaN Power Transistors

Chipset Solutions

DOWN - CONVERTER ... continued

NEW

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
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
CHR2291-99F	12-17	5.25-7.75	DC-1.5	10	3.5	-8	10	130	3.5	die
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	15	3.2	-10	2	160	4	die
CHR3693-QDG	21-26.5	9-14	DC-3.5	14	3	-10	2	160	4	QFN
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
CHR2296-99F	36-40	17-20	DC-1.5	11	5	-10	10	110	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

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GaN POWER TRANSISTOR

Part Number	Glin (dB)@Freq (GHz)	Operating Frequency (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK007A-QIA	14 @ 6	Up to 6	7	50 @ 6	0.05	50	QFN Plastic package
CHK015A-QIA	14 @ 6	Up to 6	15	60 @ 3	0.1	50	QFN Plastic package
CHK015A-SMA	15 @ 6	Up to 6	15	50 @ 6	0.1	50	Ceramic Metal Flange
CHK8101-99F	14 @ 6	Up to 6	20	55 @ 6	0.1	50	Die
CHK8401-99F	14 @ 6	Up to 6	40	55 @ 6	0.2	50	Die
CHK025A-SOA	16 @ 4	Up to 4.5	30	60 @ 4	0.2	50	Ceramic Metal Flange
CHK040A-SOA	16 @ 3	Up to 3.5	45	65 @ 3	0.3	50	Ceramic Metal Flange
CHK080A-SRA	16 @ 3	Up to 3.5	90	65 @ 3	0.6	50	Ceramic Metal Flange
CHKA011-SXA	23 @ 0.5	Up to 1.5	130	75 @ 0.5	0.65	50	Ceramic Metal Flange

INTERNALLY MATCHED GaN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ180A-SEB	1.2-1.4	20	200	> 15	50	$V_{DS} = 45V @ I_{D,Q} = 1.3A$	Ceramic Metal Flange
CHZ015A-QEG	1.2-1.4	19.5	15	> 13	> 50	$V_{DS} = 45V @ I_{D,Q} = 100mA$	QFN Plastic Package
CHZ050A-SEA	5.2-5.8	15	50	> 11	> 40	$V_{DS} = 50V @ I_{D,Q} = 400mA$	Ceramic Metal Flange

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
CHM1481-QFG	6-9	6-9	DC-0.25	-9	11	0	120	4	QFN
CHM1483-QFG	12-16	12-16	DC-1	-9	11	0	100	4	QFN
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
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	12	60	3.5	die
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
CHX1094-99F	X3	12-13.5	36-40.5	14	10	60	3	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
CHX2192-99F	X2	27-33	54-66	12	11	130	3.5	die
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 – DRO

Part Number	Central Output Freq (GHz)	Resonator Freq	Tuning (MHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV2240-99F	38.2	Fo/2	5	-100	9	120	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
CHV2270-98F	12.7	1.2	-100	14	150	4.5	die
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
CHV2243a99F	38.2	3	-65	8	110	4.5	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
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
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

NEW

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
CHS5104-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5105-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5100-99F	DC-20	2.1	20	30	reflective	die
CHS2411-QDG*	23-26	2.9	23.5	35	reflective	QFN
CHS2412-QDG*	23-26	2.9	23.5	35	reflective	QFN

* Dual source

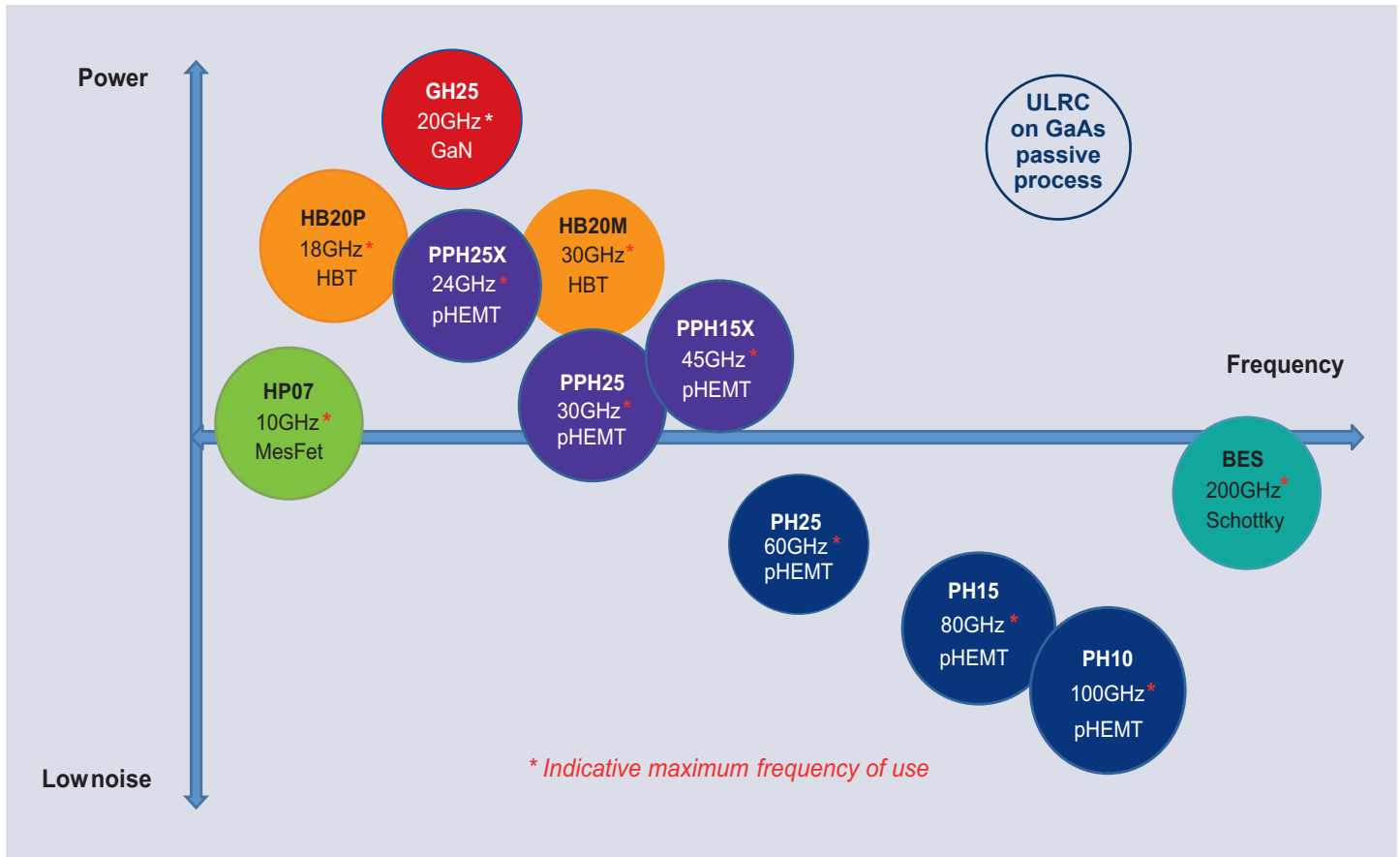
TRANSISTOR

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

TRANSPONDER

Part Number	RF Bandwidth (GHz)	Downlink Sensitivity (dBm)	Downlink Freq (KHz)	Uplink Conversion Gain (dB)	Uplink Freq (MHz)	Standby Current (μA)	Case
CHR2270-QRG	5.72-5.88	-	250-500	-	DC-30	6.5	QFN

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	
PPH25X - Power	900	0.25	170	450	18	45	-0.9	400		
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
HB20P - Power	3.5	2	0.3	16	25	65
HB20M - VCO	2	2	0.3	14	30	50

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

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_10	4	0.25	750	900	>100	30	-3	300	1.8-11-15

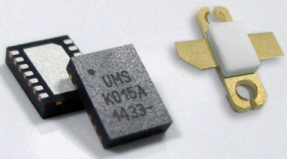
COTS and Custom GaN Product solutions

Boost your system with UMS GaN power products

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

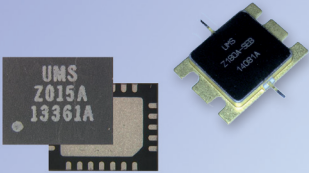
- High Power
- High Efficiency
- European source
- Thermally optimised

UMS GaN general purpose transistors



	CHKA011-SXA	CHK007A-QIA	CHK015A-QIA	CHK8101-99F	CHK8401-99F
Frequency range	DC-1.5GHz	DC-6GHz	DC-6GHz	DC-6GHz	DC-6GHz
Small signal gain	23dB @ 0.5GHz	>14dB @ 6GHz	>14dB @ 6GHz	14dB @ 6GHz	14dB @ 6GHz
Output power	> 120W	>7W	>15W	>20W	>40W
Associated gain	18dB typ @ 0.5GHz	9dB typ @ 5.5GHz	9dB typ @ 5.5GHz	9dB typ @ 6GHz	9dB typ @ 6GHz
PAE	75% typ @ 0.5GHz	50% typ @ 6GHz	60% typ @ 3GHz	55% typ @ 6GHz	55% typ @ 6GHz
DC bias	50V, I_{DQ} 650mA	50V, I_{DQ} 50mA	50V, I_{DQ} 100mA	50V, I_{DQ} 100mA	50V, I_{DQ} 200mA
Package	Ceramic metal flange	Plastic DFN 3x4	Plastic DFN 3x4	Die	Die

UMS GaN internally-matched power quasi-MMIC devices from L to C Band

	CHZ015A-QEG	CHZ180A-SEB	CHZ050A-SEA
	L-Band 15W Integrated gate biasing	L-Band 200W	C-Band 50W
Frequency range	1.2-1.4GHz	1.2-1.4GHz	5.2-5.8GHz
Small signal gain	19dB	20dB	15dB
Output power	>15W	200W	50W
Associated gain	>14dB	15dB	10dB
PAE	Up to 55%	52% pulsed	>40% pulsed
Saturated Drain current	650mA	-	-
DC bias	V_{DS} 45V @ $I_{D,Q}$ 100mA	V_{DS} 45V @ $I_{D,Q}$ 1.3A	V_{DS} 50V @ $I_{D,Q}$ 400mA
Package	Multi-chip SMD 4x5 plastic	Hermetic Thermally enhanced Ceramic metal flange	Hermetic thermally enhanced Ceramic metal flange

L-Band Chipset

Switch

CHS5104-99F
CHS5104-QAG
CHS5105-QAG
CHS5100-99F

Digital Attenuator

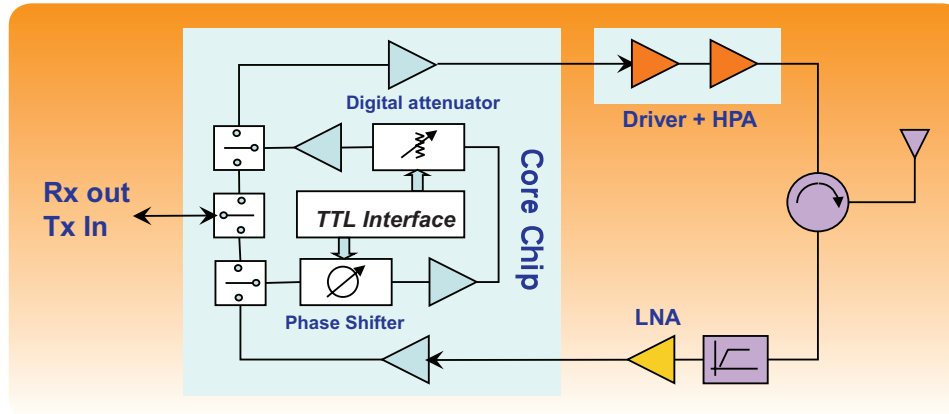
CHT3029-99F
CHT3029-QEG
CHT4012a98F
CHT4012-QDG

MPA

CHA3801-QDG
CHA3801-99F
CHA3023-99F

HPA

CHK007A-QIA
CHK015A-QIA
CHZ015A-QEG
CHZ180A-SEB
CHKA011-SXA



Phase Shifter

CHP3010a98F
CHP3010-QFG
CHP6013-SRF

LNA

CHA3801-QDG
CHA3801-99F

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-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
CHA3023-99F	1-18	14	-	17	-	95	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
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-30	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	Gain (dB)@Freq (GHz)	Operating Frequency (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK007A-QIA	14 @ 6	Up to 6	7	50 @ 6	0.05	50	QFN plastic package
CHK015A-QIA	14 @ 6	Up to 6	15	60 @ 3	0.1	50	QFN plastic package
CHKA011-SXA	23 @ 0.5	Up to 1.5	130	75 @ 0.5	0.65	50	Ceramic Metal Flange

INTERNALLY MATCHED GaN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ180A-SEB	1.2-1.4	20	200	> 15	50	V _{DS} 45V@I _{D,Q} 1.3A	Ceramic Metal Flange
CHZ015A-QEG	1.2-1.4	19.5	15	> 13	> 50	V _{DS} 45V@I _{D,Q} 100mA	QFN Plastic Package

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
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
CHS5104-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5105-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5100-99F	DC-20	2.1	20	30	reflective	die

S-Band Chipset

Switch

CHS5104-99F
CHS5104-QAG
CHS5105-QAG
CHS5100-99F

Digital Attenuator

CHT3029-99F
CHT3029-QEG
CHT4012a98F
CHT4012-QDG

MPA

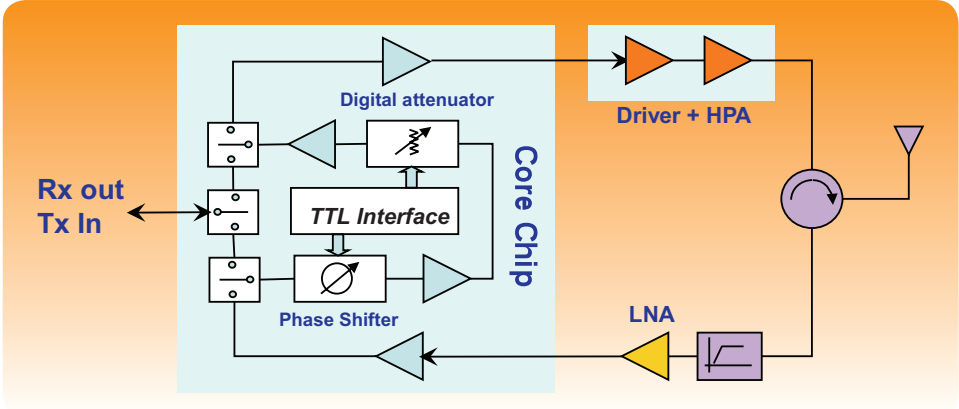
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CHA4105-QDG
CHA3023-99F

HPA

CHK040A-SOA
CHK025A-SOA
CHK080A-SRA
CHK007A-QIA
CHK015A-QIA

Core chip

CHA4102-QEG
CHP1102-98F
CHP1102-QGG



Phase Shifter

CHP4012a98F
CHP4012-QEG

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	-	200	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
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 – 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-30	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	Glin (dB)@Freq (GHz)	Operating Frequency (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK007A-QIA	14 @ 6	Up to 6	7	50 @ 6	0.05	50	QFN plastic package
CHK015A-QIA	14 @ 6	Up to 6	15	60 @ 3	0.1	50	QFN plastic package
CHK025A-SOA	16 @ 4	Up to 4.5	30	60 @ 4	0.2	50	Ceramic Metal Flange
CHK040A-SOA	16 @ 3	Up to 3.5	45	65 @ 3	0.3	50	Ceramic Metal Flange
CHK080A-SRA	16 @ 3	Up to 3.5	90	65 @ 3	0.6	50	Ceramic Metal Flange

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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
CHS5104-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5105-QAG	DC-4	0.5	30	35	reflective	QFN
CHS5100-99F	DC-20	2.1	20	30	reflective	die

Products

Foundry

GaN Power Transistors

Chipset Solutions
Aerospace, Defence and Instrumentation

C-Band Chipset

Switch

CHS5100-99F

Digital Attenuator

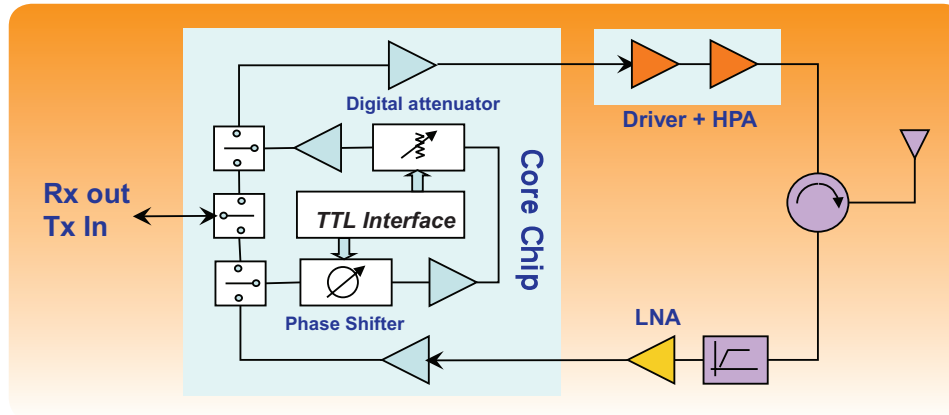
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CHT3029-QEG
CHT4012a98F
CHT4012-QDG
CHT4016-99F
CHT4016-QEG

MPA

CHA4107-99F
CHA4107-QDG
CHA3023-99F

Phase Shifter

CHP4014-98F
CHP4014-QEG



HPA

CHZ050A-SEA
CHA8012-99F
CHK007A-QIA
CHK015A-QIA
CHK8101-99F
CHK8401-99F

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AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA8012-99F	5.2-6	22	-	-	41.5	2100	8	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
CHA3023-99F	1-18	14	-	17	-	95	5	die
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

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-30	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	18	-5/0	die

GaN POWER TRANSISTOR

Part Number	Gain (dB)@Freq (GHz)	Operating Frequency (GHz)	Saturated Power (W)	PAE (%) @ Freq (GHz)	Bias (A)	Bias (V)	Case
CHK007A-QIA	14 @ 6	Up to 6	7	50 @ 6	0.05	50	QFN plastic package
CHK015A-QIA	14 @ 6	Up to 6	15	60 @ 3	0.1	50	QFN plastic package
CHK8101-99F	14 @ 6	Up to 6	20	55 @ 6	0.1	50	Die
CHK8401-99F	14 @ 6	Up to 6	40	55 @ 6	0.2	50	Die

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INTERNALLY MATCHED GaN POWER TRANSISTOR

Part Number	Frequency range (GHz)	Small signal Gain (dB)	Power (W)	Associated Gain (dB)	PAE (%)	DC Bias	Case
CHZ050A-SEA	5.2-5.8	15	50	> 11	>40	V_{DS} 50V@ I_{D_Q} 400mA	Ceramic Metal Flange

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
CHS5100-99F	DC-20	2.1	20	30	reflective	die

Products

Foundry

GaN Power Transistors

Chipset Solutions
Aerospace, Defence and Instrumentation

X-Band Chipset

Switch

CHS5100-99F

Digital Attenuator

CHT3029-99F
CHT3029-QEG
CHT4016-99F
CHT4016-QEG

MPA

CHA5014-99F
CHA5115-99F
CHA5115-QDG

LNA

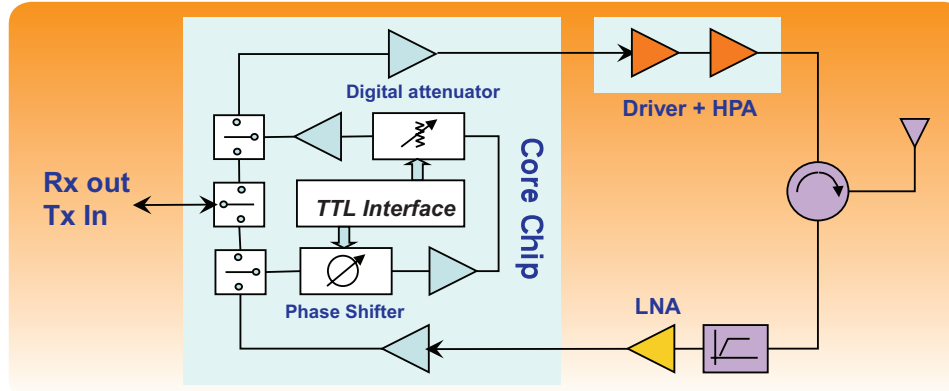
CHA2110-98F
CHA2110-QDG
CHA1010-99F
CHA3666-99F
CHA3666-QAG
CHA3666-FAA

Core chip

CHC3014-99F

Phase Shifter

CHP3015-99F
CHP3015-QDG



HPA

CHA8610-99F
CHA8100-99F
CHA6005-99F
CHA6005-QEG
CHA7114-99F
CHA7115-99F
CHA7215-99F

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6005-99F	8-12	22	-	31.5	32.5	350	8	die
CHA6005-QEG	8-12	19.5	-	31.5	32	420	8	QFN
CHA8610-99F	8.5-11	24	-	-	42.5	680	30	die
CHA7114-99F	8.5-11.5	20	-	-	39.8	2000	8	die
CHA7115-99F	8.5-11.5	27.5	-	-	39	2200	8	die
CHA7215-99F	8.5-11.5	28	-	-	39.5	2300	8	die
CHA8100-99F	9-10.5	18	-	-	41	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
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAA	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	11	45	4	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
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

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-30	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	18	-5/0	die

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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

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
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
CHS5100-99F	DC-20	2.1	20	30	reflective	die

Products

Foundry

GaN Power Transistors

Chipset Solutions
Aerospace, Defence and Instrumentation

Ku-Band Chipset

Switch

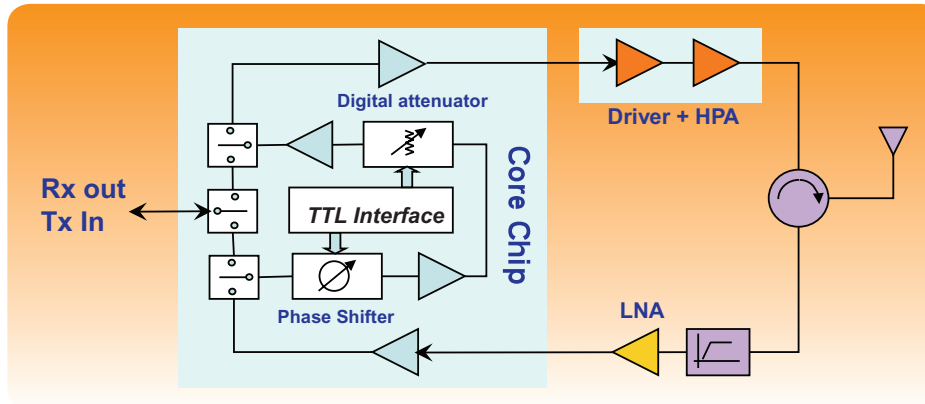
CHS5100-99F

Digital Attenuator

CHT3029-99F
CHT3029-QEG
CHT4016-99F
CHT4016-QEG

MPA

CHA3024-99F	CHA3063-99F
CHA3024-QGG	CHA5266-99F
CHA4220-98F	CHA5266-QDG
CHA4220-QGG	



Rx

CHR3662-QDG

Phase Shifter

CHP4511-99F

LNA

CHA3218-99F
CHA3666-99F
CHA3666-QAG
CHA3666-FAA

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
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAA	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
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
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 – 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-30	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	18	-5/0	die

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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
CHR3662-QDG	7-16	4.5-19.5	DC-3.5	13	3	-8	0	280	4.5	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

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

Products

Foundry

GaN Power Transistors

Chipset Solutions
Aerospace, Defence and Instrumentation

Ka-Band chipset

Digital Attenuator

CHT3029-99F
CHT3029-QEG

Analogue Attenuator

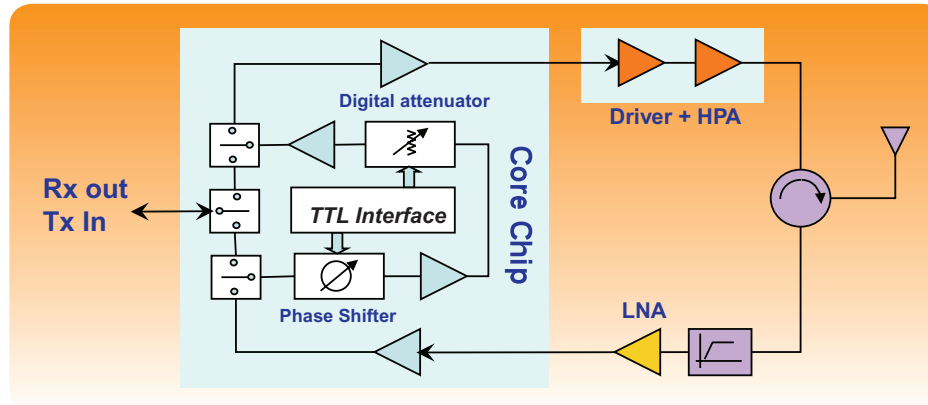
CHT4694-99F
CHT4694-QAG

MPA

CHA3092-99F
CHA2098b99F
CHA5350-99F

HPA

CHA6558-99F



Rx

CHR2294-99F
CHR2295-99F
CHM1290-99F
CHM1291-99F

Tx

CHR2294-99F
CHM1290-99F
CHM1291-99F

LNA

CHA2069-99F
CHA2069-QDG
CHA2069-FAA
CHA3688aQDG
CHA2193-99F
CHA2092b99F

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6558-99F	28-32	21	-	33.2	33.4	1400	6	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
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2069-FAA	16-31.5	22	1	2.5	10	55	4.5	Hermetic SMD
CHA2069-QDG	16-31.5	20	2	3	10.5	65	4.5	QFN
CHA2069-99F	16-31.5	22	1	2.5	10	55	4.5	die
CHA2092b99F	18-32	22	2.5	2.5	10	60	3.5	die
CHA2193-99F	20-30	18	0.5	2	8	60	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
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

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

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-30	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
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

Switch

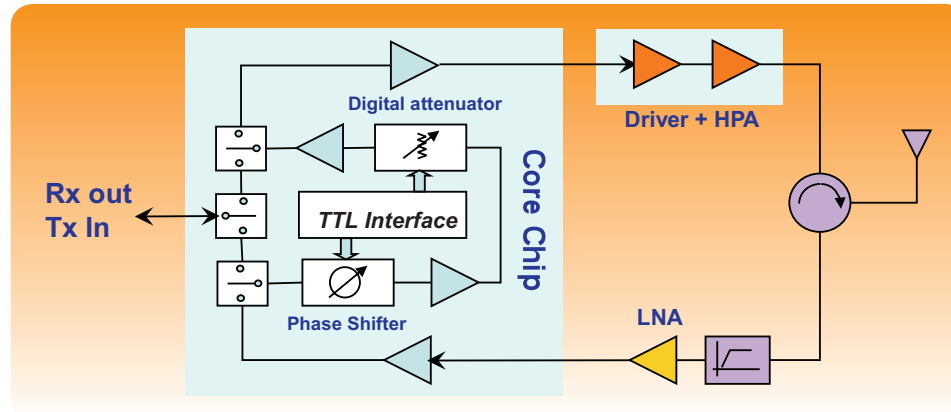
CHS5100-99F

Digital Attenuator

CHT3029-99F
CHT3029-QEG
CHT4016-99F
CHT4016-QEG

MPA

CHA4220-98F CHA3023-99F
CHA4220-QGG CHA3063-99F
CHA3024-99F CHA3664-QAG
CHA3024-QGG



Phase Shifter

CHP4511-99F

LNA

CHA3218-99F
CHA3666-99F
CHA3666-QAG
CHA3666-FAA
CHA3023-99F

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
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3666-FAA	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

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-30	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	18	-5/0	die

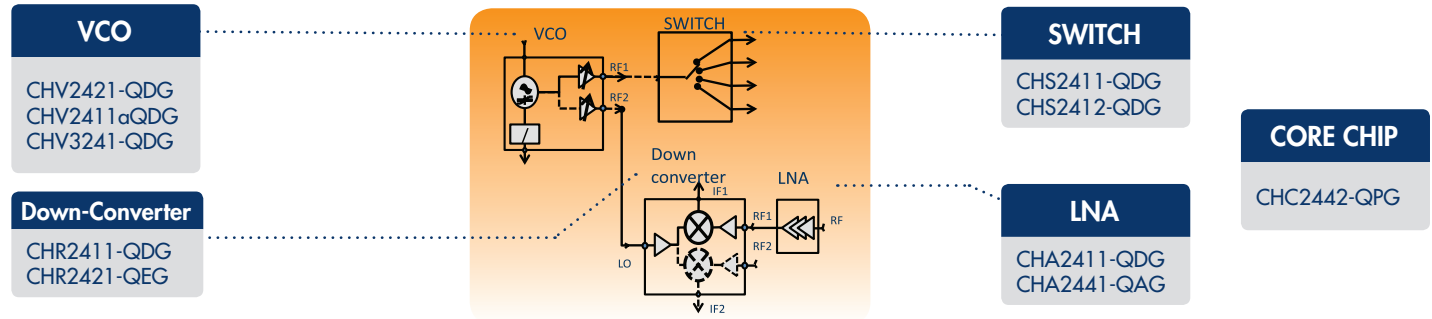
PHASE SHIFTER

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

Automotive 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	21-26	25.5	+/- 0.25	2.5	12	50	3.3	QFN

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
CHC2442-QPG	24-24.5	37	VCO incl.	-	13.5	11.5	5	-	225	3.3	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
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

OSCILLATOR – VCO

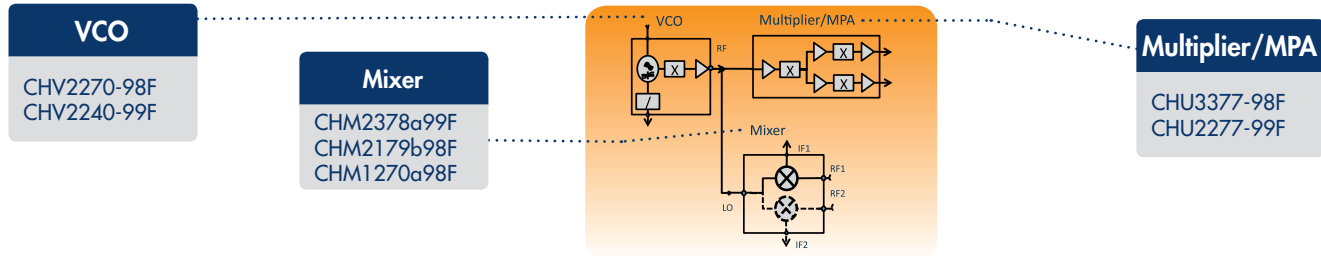
Part Number	Central Output Freq (GHz)	Tuning Bandwidth (GHz)	Noise @ 100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV2411aQDG	24.125	2	-90	16	220	5	QFN
CHV3241-QDG	24.125	2	-94	16	225	5	QFN
CHV2421-QDG	24.25	2	-90	15	233	5	QFN

SWITCH

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
CHS2412-QDG*	23-26	2.9	23.5	35	reflective	QFN

* Dual source

Automotive 77GHz



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

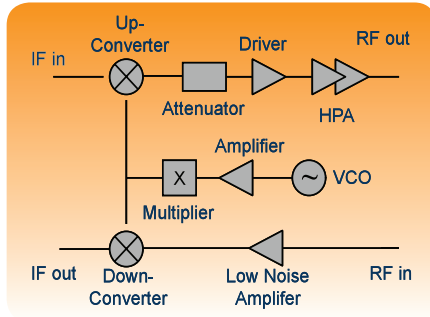
OSCILLATOR – DRO

Part Number	Central Output Freq (GHz)	Resonator Freq	Tuning (MHz)	Noise@100KHz (dBc/Hz)	Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHV2240-99F	38.2	Fo/2	5	-100	9	120	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
CHV2270-98F	12.7	1.2	-100	14	150	4.5	die

Telecoms 6-8GHz



MPA

CHA4250-QDG
CHA5250-QDG
CHA3063-99F

Buffer, VGA

CHA4861-QGG
CHA3565-QAG
CHA3665-QAG
CHA3666-QAG
CHA3664-QAG

LNA

CHA3656-QAG
CHA3666-99F
CHA3666-QAG
CHA2063a99F

Attenuator

CHT4690-99F
CHT4690-QAG
CHT4660-QAG

IQ down converter

CHR3762-QDG
CHR3662-QDG
CHR3861-QEG

Detector

CHE1270a98F
CHE1270-QAG

UP/Modulator

CHM1481-QFG

PA

CHA6250-QFG
CHA6552-QJG

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6250-QFG	5.5-9	23.5	43	33.5	34.5	900	7	QFN
CHA6552-QJG	5.8-8.5	22	45	35	36	1800	7	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
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
CHA3656-QAG	6-17	20	0.5	1.7	14	68	3	QFN
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
CHA3665-QAG	5-21	15	25	19.5	20.5	120	5	QFN
CHA5250-QDG	5.5-9	26	36	28	30	280	7	QFN
CHA4250-QDG	5.5-11	26	31	23.5	25	125	7	QFN
CHA3063-99F	5.5-23	19	28	18	21	160	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
CHA4861-QGG	6-11	23	1	9	20	24	160	4.5	QFN

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	6.5	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
CHE1270-QAG	10-44	-	30	Wide-Band	QFN

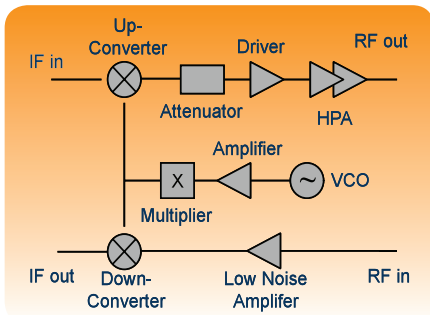
DOWN - CONVERTER

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
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

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
CHM1481-QFG	6-9	6-9	DC-0.25	-9	11	0	120	4	QFN

13-18GHz & VSAT Ku Chipset



IQ down converter		Buffer, VGA	Detector	LNA	MPA	Multiplier
CHR3763-QDG		CHA3565-QAG	CHE1270a98F	CHA3666-QAG	CHA5050-QDG	CHX2193-99F
CHR3352-QEG		CHA4863-QGG	CHE1270-QAG	CHA2066-QAG	CHA3063-99F	CHX2089-99F
CHR3364-QEG		CHA3665-QAG	CHE1260-98F	CHA3688aQDG	CHA5266-QDG	
CHR3662-QDG		CHA3664-QAG	CHE1260-QAG	CHA2260-QAG	CHA4253aQQG	
CHR3362-QEG		CHA3024-99F		CHA3656-QAG		
CHR3664-QEG		CHA3024-QGG				
		CHA4253aQQG				
				UP/Modulator	Attenuator	PA
				CHM1483-QFG	CHT4690-99F CHT4690-QAG	CHA6362-QXG CHA6252-QFG CHA5356-QGG CHA6550-QXG

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6252-QFG	13-15.5	22	41	32.5	35	1100	7	QFN
CHA6550-QXG	17- 24	22	41	33.5	34	1300	6	QFN
CHA6362-QXG	17.7-19.7	22	42	33	34.5	1340	6	QFN
CHA5356-QGG	17.7-23.6	19	38	31	33	700	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
CHA3666-QAG	5.8-17	21	0.5	1.8	16	80	4	QFN
CHA3656-QAG	6-17	20	0.5	1.7	14	68	3	QFN
CHA2066-QAG	10-16	16	1	2.5	10	50	4	QFN
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2260-QAG	18-27	26	1	2.2	13	65	3.5	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
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
CHA5050-QDG	17-24	22	30	25	26	230	6	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
CHA4863-QGG	17-24	24	1.5	11	20	22	200	4.5	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
CHE1270-QAG	10-44	-	30	Wide-Band	QFN
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
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

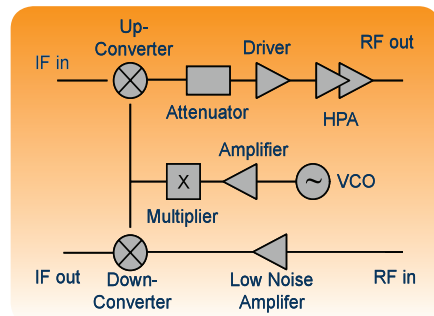
MIXER

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
CHM1483-QFG	12-16	12-16	DC-1	-9	11	0	100	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	12	60	3.5	die
CHX2089-99F	X2	8-11.5	16-23	12	15	60	3.5	die

23-26GHz Chipset



MPA

CHA3395-QDG
CHA5350-99F
CHA5050-QDG
CHA4253aQQG
CHA3660-QQG

LNA

CHA3688aQDG
CHA2069-QDG
CHA2090-99F
CHA2260-QAG

IQ down converter

CHR3364-QEG
CHR3764-QEG
CHR3693-QDG
CHM1290-99F
CHR3664-QEG

Buffer, VGA

CHA3395-QDG
CHA4863-QGG
CHA3688aQDG
CHA2293-99F
CHA4253aQQG
CHA3660-QQG

Detector

CHE1270a98F
CHE1270-QAG
CHE1260-98F
CHE1260-QAG

Multiplier

CHX2095a99F
CHX2090-99F
CHX2090-QDG

PA

CHA6356-QXG
CHA5356-QGG
CHA6550-QXG
CHA6652-QXG

Attenuator

CHT4690-99F
CHT4690-QAG

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6550-QXG	17- 24	22	41	33.5	34	1300	6	QFN
CHA5356-QGG	17.7-23.6	19	38	31	33	700	6	QFN
CHA6652-QXG	21-27.5	22	40	33.5	34	1300	6	QFN
CHA6356-QXG	21.2-23.6	20	42	33	33.5	1300	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
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA2069-QDG	16-31.5	20	2	3	10.5	65	4.5	QFN
CHA2090-99F	17-24	23	1	2	10	55	4.5	die
CHA2260-QAG	18-27	26	1	2.2	13	65	3.5	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
CHA4253aQQG	17-24	23	33	24	24.5	230	4	QFN
CHA5050-QDG	17-24	22	30	25	26	230	6	QFN
CHA5350-99F	17-24	26	35.5	26.5	27	300	6	die
CHA3660-QQG	21-27.5	25	32	19	21	180	4	QFN
CHA3395-QDG	21-29.5	24	32	20	22	180	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
CHA4863-QGG	17-24	24	1.5	11	20	22	200	4.5	QFN
CHA4253aQQG	17-24	23	1	7.5	15	24	230	4	QFN
CHA3660-QQG	21-27.5	25	1	4	15	19	180	4	QFN
CHA3395-QDG	21-29.5	24	0.5	4.5	15	20	180	4	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
CHT4690-99F	5-30	6.5	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
CHE1270-QAG	10-44	-	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	14	3	-10	2	160	4	QFN
CHR3764-QEG	21-27	8.5-15	DC-3.5	14	3.1	-7	0	320	4	QFN

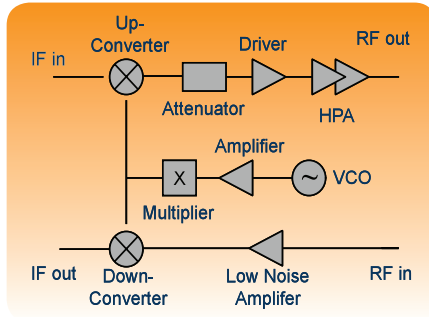
MIXER

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
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



LNA	IQ down converter	MPA	Detector	Buffer, VGA	Attenuator
CHA3689-99F CHA3688aQDG CHA2092b99F CHA2069-99F CHA2193-99F	CHR2294-99F CHR2295-99F CHM1290-99F CHM1291-99F	CHA3395-QDG CHA3092-99F CHA2098b99F CHA3396-QDG	CHE1270a98F CHE1270-QAG CHE1260-98F CHE1260-QAG	CHA3689-99F CHA3688aQDG CHA2293-99F CHA3395-QDG CHA3396-QDG	CHT4694-99F CHT4694-QAG
			PA	Multiplier	IQ up converter
			CHA6558-99F	CHX3068-QDG CHX2095a99F	CHR2294-99F

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6558-99F	28-32	21	-	33.2	33.4	1400	6	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
CHA3688aQDG	12.5-30	26	2	2	14	85	4	QFN
CHA3689-99F	12.5-30	26	2	2	15	90	4	die
CHA2069-99F	16-31.5	22	1	2.5	10	55	4.5	die
CHA2092b99F	18-32	22	2.5	2.5	10	60	3.5	die
CHA2193-99F	20-30	18	0.5	2	8	60	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
CHA3092-99F	20-33	22	29	20	-	300	3.5	die
CHA2098b99F	20-40	19	-	16	16	150	3.5	die
CHA3395-QDG	21-29.5	24	32	20	22	180	4	QFN
CHA3396-QDG	27-33.5	22	30	19	21	155	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
CHA3395-QDG	21-29.5	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
CHE1270-QAG	10-44	-	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
CHR2295-99F	24-30	12-15	DC-1.5	11	3.5	-10	10	120	3.5	die

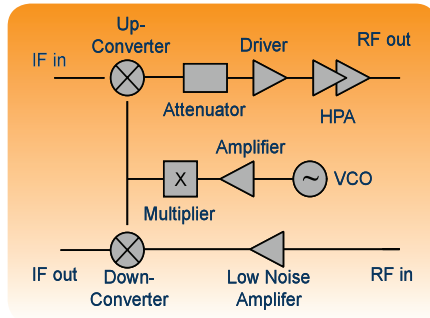
MIXER

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

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
CHX3068-QDG	X2	14-15	28-30	0	20	270	4	QFN

36-44GHz Chipset



Multiplier

CHX1191-98F
CHX1191-QDG
CHX1162-QDG
CHX2091-99F
CHX2092a99F

IQ down converter

CHR3894-QEG
CHR3394-QEG
CHM1294-99F

LNA

CHA2494-98F
CHA2494-QEG
CHA2094b99F
CHA2194-99F
CHA2095a99F
CHA2394-99F

Buffer, VGA

CHA2098b99F
CHA3397-QDG

Attenuator

CHT4694-99F
CHT4694-QAG
CHT4699-QDG

MPA

CHA2098b99F
CHA3397-QDG

PA

CHA6194-QXG

Detector

CHE1270a98F
CHE1270-QAG

IQ up converter

CHM1294-99F

AMPLIFIER – HPA

Part Number	RF Bandwidth (GHz)	Gain (dB)	IP3 (dBm)	P-1dB OUT (dBm)	Sat. Output Power (dBm)	Bias (mA)	Bias (V)	Case
CHA6194-QXG	37- 40	20	38	31	32	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
CHA2494-98F	34-44	20	-	3	12	80	4	die
CHA2494-QEG	34-44	22	1.5	3	12	80	4	QFN
CHA2094b99F	36-40	21	1.5	3	8	60	3.5	die
CHA2095a99F	36-40	26	1	3.5	10	90	3.5	die
CHA2394-99F	36-40	21	1.5	2.5	8	60	3.5	die
CHA2194-99F	36-44	19	0.5	3	10	45	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
CHA2098b99F	20-40	19	-	16	16	150	3.5	die
CHA3397-QDG	36-40.5	21	29	18	20	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

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
CHE1270-QAG	10-44	-	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

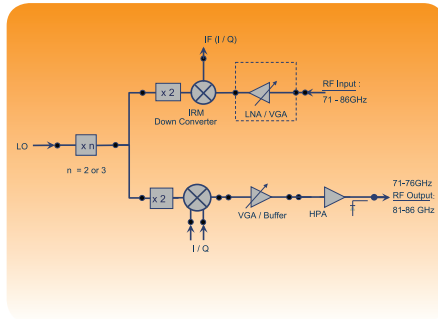
MIXER

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

52-85GHz & E-Band Chipset



Multiplier

CHX2192-99F
CHX1191-98F
CHX1191-QDG
CHX1162-QDG

MPA

CHA2159-99F
CHA2157-99F

LNA

CHA2080-98F
CHA2159-99F
CHA2157-99F
CHA1077a98F
CHA1008-99F

Buffer, VGA

CHA2080-98F
CHA2159-99F
CHA2157-99F

IQ up converter

CHM1080-98F
CHM1298-99F

IQ down converter

CHR1080a98F
CHM1298-99F

PA

CHA3080-98F
CHA3090-98F

AMPLIFIER – LNA

Part Number	RF Bandwidth (GHz)	Gain (dB)	Gain Flatness (+/-dB)	Noise Figure (dB)	P-1dB OUT (dBm)	Bias (mA)	Bias (V)	Case
CHA2157-99F	55-60	10	1	3.5	15	60	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	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	2.5	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	25	19	21	280	3.5	die
CHA3090-98F	81-86	13	23	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

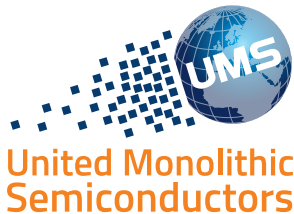
Part Number	RF Bandwidth (GHz)	LO Bandwidth (GHz)	IF Bandwidth (GHz)	Conv. Gain (dB)	P-1dB IN (dBm)	LO Input Power (dBm)	Bias (mA)	Bias (V)	Case
CHM1298-99F	55-65	27.5-32.5	DC-5	-12	0	10	90	3.5	die
CHM1080-98F	71-86	34.5-44	DC-12	-11	10	2	90	3.5	die

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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

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