

Low Noise Amplifiers									
Part Number	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	Output P1dB (dBm)	Output Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CMD228	2 - 6	30	1.2	12	14	23	3-5 / 3-5	45	DIE
CMD228P4	2 - 6	28	1.5	13	14	25	3-5 / 3-5	45	4x4 mm QFN
CMD276C4 (GaN)*	2.6 - 4	14.5	1.2	25.5	28	32	5-28 / -1.5	225	4x4 mm QFN
CMD185/P3	4 - 8	15.5	1.9	15	17	29	2-5	75	3x3 mm QFN
CMD270*	4 - 8	15.5	1.8	16	17	30	2-5	60	DIE
CMD219 (GaN)	4 - 8	23	1.0	18	26	28	5-28 / -2.3	75	DIE
CMD219C4 (GaN)	4 - 8	22.5	1.0	17	25.5	28	5-28 / -2.3	75	4x4 mm QFN
CMD277C4 (GaN)*	5 - 7	20	1.2	26.5	29.5	33.5	5-28 / -1.5	200	4x4 mm QFN
CMD119P3	5 - 9	22	1.2	11	13	21	2-4.5	30	3x3 mm QFN
CMD218 (GaN)	5 - 9	22	1.1	21.5	26	30	5-28 / -2.7	80	DIE
CMD229	5 - 11	27	1.4	13	15	25	3-5 / 3-5	45	DIE
CMD229P4	5 - 11	26	1.5	13	15	24	3-5 / 3-5	45	4x4 mm QFN
CMD132/P3	5 - 11	23/21	1.4	10	13	22	2-4.5	30	DIE & 3x3 QFN
CMD263/P3*	5 - 11	23/22	1.4	11	15	23/21	2-4.5	35	DIE & 3x3 QFN
CMD222	5 - 11	22	1.2	11	14	23	2-5	107	DIE
CMD186P3	6 - 11	18.5	2.1	17	20	28	2-5	78	3x3 mm QFN
CMD157/P3	6 - 18	26	1.5	11	13.5	23	2-4.5	52	DIE & 3x3 QFN
CMD264/P3*	6 - 18	26	1.5/1.7	13	15	27/24	2-4.5	63	DIE & 3x3 QFN
CMD194/C3	6 - 20	20	2.0	15.5	16.5	26	2-5	120	DIE & 3x3 QFN
CMD278C4 (GaN)*	8 - 12	15	1.8	28	30	33	5-28 / -1.5	280	4x4 mm QFN
CMD167P3	8 - 16	16	1.8	11	13	23	2-4	50	3x3 mm QFN
CMD223	9 - 18	22	1.5	13.5	16	22.5	3-5	93	DIE
CMD161	10 - 14	19	1.05	5	12		2-4 / 1.5	20	DIE
CMD189P3	10 - 14	19	1.4	4	7	13	1-4 / 1.5	20	3x3 mm QFN
CMD159	10 - 17	26	1.1	4	10	14	2-4 / 1.5	29	DIE
CMD167	10 - 17	15	2.0	11	13	24	2-4	55	DIE
CMD224	16 - 26	23	2.2	7	13	18	2-5	110	DIE
CMD160/C4	17 - 25	26.5	1.4/1.6	8	11	16	2-4 / 1.5	26	DIE & 4x4 QFN
CMD163/C4	17 - 27	24/23	1.3/1.7	19/18	20/19	26	2-4 / 3	120	DIE & 4x4 QFN
CMD162	26 - 34	22	1.7	7	9	14	1-4	25	DIE
CMD188	26 - 34	20	1.4	6	8	15	1-4 / 2	20	DIE
CMD190	33 - 45	19	2.1	4	7	13	1-4 / 2	25	DIE

Low Phase Noise Amplifiers									
Part Number	Frequency (GHz)	Phase Noise (dBc/Hz @ 10kHz)	Gain (dB)	Output P1dB (dBm)	Output Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CMD245/C4	6 - 18	-165	18	18	22	29	3-5 / 3	76	DIE & 4x4mm
CMD274P4*	2 - 20	-165	17	19	22	30	5 / 3	86	4x4 mm QFN
CMD246/C4	8 - 22	-165	17	13	18	25	3-5 / 3	48	DIE & 4x4mm
CMD275P4*	DC - 26.5	-165	16	18	20.5	29	5 / 3	74	4x4 mm QFN
CMD247	30 - 40	<-160	13	13.5	15	21	2-4 / 2-3	28	DIE

* = recent release

Distributed Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	Output P1dB (dBm)	Output Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CMD173/P4	DC - 20	15	2	18	20	28	5-8 / 3	78	DIE & 4x4 QFN
CMD192/C5	DC - 20	19.5	1.9	24.5	26	31	5-8 / -1	200	DIE & 5x5 QFN
CMD201/P5	DC - 20	12/11	3.4	29/27	30	38	10/-0.5/5	400	DIE & 5x5 QFN
CMD249*	DC - 20	13	3.4	30	31	38	10/-0.95	400	DIE
CMD233/C4	2 - 20	9	4.5	20.5	22	24	3-6	120	DIE & 4x4 QFN
CMD238*	2 - 20	14	4.5	26	27	34	5-8	360	DIE
CMD241/P4*	2 - 22	13.5	2.3	21	23	28	5-8 / -0.65	74	DIE & 4x4 QFN
CMD197/C4	1 - 24	16	2.5	22/24	24/25	32/31	5-8	225	DIE & 4x4 QFN
CMD240/P4*	DC - 22	15	2.2	19	22	28	5-8/-0.65	80	DIE & 4x4 QFN
CMD244*	DC - 24	18	2.5	25	26.5	32	5-8 / -0.65	185	DIE
CMD242*	DC - 40	11	4.4	18	21	27	5-8 / -0.32	100	DIE
CMD206	DC - 50	11	3.5	12	14.5	22	4 / 3	32	DIE

Driver Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	Output P1dB (dBm)	Output Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CMD231/C3*	2 - 6	14.5	4.5	13.5	16.5	23.5	3-8	45	DIE & 3x3mm
CMD232/C3*	2 - 9	15	4.5	17	18.5	23	5-6	90	DIE & 3x3mm
CMD191C4	4 - 10	20	4.5	21.5	22.5	30	5	123	4x4 mm QFN
CMD158	6 - 16	20	3.5	20	21	26	3-6	95	DIE
CMD158P3	6 - 14	19.5	4	19.5	20.5	26.5	3-6	95	3x3 mm QFN
CMD158C4	6 - 16	21	4	20	21	26	3-6	95	4x4 mm QFN
CMD200	9 - 13	15.5	3.25	15.5	17	20.5	5	38	DIE
CMD187/C4	2 - 20	22.5	6	14/13	16	29	3 / 2	115	DIE & 4x4mm
CMD166	20 - 40	9	4.5	17	18	27	2-4	76	DIE
CMD207	20 - 40	35	5.5	18.5	21	29	4 / 3	270	DIE
CMD199	26 - 35	15	3.5	19.5	21.5	24.5	5	72	DIE
CMD243*	26 - 35	15.5	4.4	21	22.5	26	3-5	90	DIE

Power Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	Output P1dB (dBm)	Output Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CMD169P4	5 - 7	19	6.5	28.4	29.4	37	7 / 3	375	4x4 mm QFN
CMD170P4	7.5 - 9	30	6.5	28.3	29	34	7 / 3	365	4x4 mm QFN
CMD171P4	9.5 - 11	21	6.5	28.4	29	35	7 / 3	380	4x4 mm QFN
CMD216 (GaN)	14 - 18	16		37	38	43	28 / -3.4	550	DIE
CMD217 (GaN)	28 - 32	20		36.7	39.3	41	28 / -3.4	580	DIE
CMD184 (GaN)	0.5 - 20	13		34.5	36.5	42	28 / -2.8/10	700	DIE
CMD201/P5*	DC - 20	12	3.4	29/27	30	38	10/-0.5/5	400	DIE & 5x5 QFN
CMD249*	DC - 20	13	3.4	30	31	38	10/-0.95	400	DIE

* = recent release

Switches (Non-Reflective)

Part Number	Part Description	Freq. (GHz)	Insert. Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Return Loss (dB)	Switch Speed (nS)	Control Voltage (V)	Package
CMD272P3	DPDT	DC - 10	1	43	25	14	4	0/ +5	3x3 mm QFN
CMD204	SPST	DC - 20	1	50	25	17	1.8	0 / -5	DIE
CMD204C3	SPST	DC - 20	1.3	48	25	15	1.8	0 / -5	3x3 mm QFN
CMD230	SPDT refl	DC - 26	1.4	40	21	16	3.4	0/ -5	DIE
CMD195C3	SPDT	DC - 18	2	37	25	13	1.8	0 / -5	3x3 mm QFN
CMD196C3	SPDT	DC - 18	1.5	46	23	17	1.8	0 / -5	3x3 mm QFN
CMD195	SPDT	DC - 20	2	41	25	17	1.8	0 / -5	DIE
CMD196	SPDT	DC - 28	1.75	46	23	15	1.8	0 / -5	DIE
CMD234C4*	SP3T	DC - 15	2	40	21	9	66	0 / -5	4x4 mm QFN
CMD203	SP4T	DC - 20	2.4	39	21	9	66	0 / -5	DIE
CMD203C4	SP4T	DC - 20	2.4	39	21	9	66	0 / -5	4x4 mm QFN
CMD235C4*	SP5T	DC - 18	2.5	40	21	9	66	0 / -5	4x4 mm QFN
CMD236C4	SP6T	DC - 18	2.5	42	18	9	60	0 / -5	4x4 mm QFN
CMD215*	SPDT	DC - 40	2.3	36	19	16	4	0 / -5	DIE

Mixers

Part Number	Part Description	Freq. LO / RF (GHz)	Freq. IF (GHz)	LO Drive (dBm)	Conver. Gain (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	Input IP3 (dBm)	Package
CMD251C3*	Fund. Mixer	4 - 8.5	DC - 2.2	+17	-7	45	36	21	3x3 mm QFN
CMD252C4*	I/Q / IRM	4 - 8	DC - 2.4	+20	-6.5	52	27	25	4x4 mm QFN
CMD182/C4	I/Q / IRM	6 - 10	DC - 3.5	+15	-6	46	20	18	DIE & 4x4mm
CMD257C4*	I/Q / IRM	6 - 10	DC - 3.5	+21	-5.5	40	18	25	4x4 mm QFN
CMD177/C3	Fund. Mixer	6 - 14	DC - 5	+13	-6.5	43	37	16	DIE & 3x3 mm
CMD253C3*	Fund. Mixer	6 - 14	DC - 5	+19	-6	43	39	23	3x3 mm
CMD183C4	I/Q / IRM	7.5 - 13	DC - 4.5	+15	-5.5	43	23	18	4x4 mm QFN
CMD258C4*	I/Q / IRM	7.5 - 13	DC - 3.5	+21	-5.5	38	20	25	4x4 mm QFN
CMD178C3	Fund. Mixer	11 - 21	DC - 6	+13	-6	45	45	16	3x3 mm QFN
CMD254C3*	Fund. Mixer	11 - 21	DC - 6	+19	-6	48	44	22	3x3 mm QFN
CMD179	Fund. Mixer	16 - 26	DC - 9	+13	-6.5	40	48	17	DIE
CMD179C3	Fund. Mixer	16 - 26	DC - 9	+13	-6.5	40	48	17	3x3 mm QFN
CMD255C3*	Fund. Mixer	16 - 26	DC - 9	+19	-6.5	40	33	24	3x3 mm QFN
CMD180/C3	Fund. Mixer	20 - 32	DC - 10	+13	-7	36	36	18	DIE & 3x3 mm
CMD181*	Fund. Mixer	26 - 45	DC - 12	+17	-6.5	37	29	22	DIE
CMD261*	Fund. Mixer	30 - 46	5 - 20	+19	-8	30	20	21	DIE

* = recent release



Standard Product Selection Guide

Multipliers

Part Number	Part Description	Input Freq. (GHz)	Output Freq. (GHz)	Input Power (dBm)	Output Power (dBm)	Fo Isolation (dB)	3 Fo Isolation (dB)	Package
CMD225/C3	Passive Freq. Doubler	4 - 8	8 - 16	15	3	48	50	DIE & 3x3 mm
CMD226/C3	Passive Freq. Doubler	7 - 11	14 - 22	15	5	44	46	DIE & 3x3 mm
CMD227/C3*	Passive Freq. Doubler	8 - 15	16 - 30	15	4	40	43	DIE & 3x3 mm
CMD214	Active Freq. Doubler	12 - 18	24 - 36	13	17	32	25	DIE
CMD213	Active Freq. Doubler	15 - 20	30 - 40	17	17	46		DIE
CMD256*	Passive Freq. Doubler	14 - 20	28 - 40	15	0	38		DIE

Phase Shifters

Part Number	Frequency (GHz)	Number of Bits	Bit Resolu. (deg)	Insert. Loss (dB)	Return Loss (dB)	Phase Error (deg)	Input P1dB (dBm)	Input IP3 (dBm)	Package
CMD175P4	2 - 4	5	11.25	7	17	+/- 5	24	37	4x4 mm QFN
CMD174/P4	3 - 6	5	11.25	7.6	15	+/- 2	26	36	DIE & 4x4 mm
CMD176P4	13 - 17	4	22.5	8	14	+/- 5	26	41	4x4 mm QFN

Voltage Variable Attenuators

Part Number	Frequency (GHz)	Insert. Loss (dB)	Attn Range (dB)	Input P1dB (dBm)	Input IP3 (dBm)	Return Loss (dB)	Control Voltage (V)	Max. Power (dBm)	Package
CMD172	18 - 40	1.6	37	15	25	12	0 / -3	30	DIE

* = recent release

Datasheets and S-Parameters available at www.custommmic.com

Evaluation Boards available for packaged products

Custom MMIC 300 Apollo Drive, Chelmsford MA 01824

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