



## Standard Product Selection Guide

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
CMD119P3	5 - 9	22	1.2	11	13	21	3.6	30	3x3 mm QFN
CMD132	5 - 11	23	1.4	10	13	22	3.6	30	DIE
CMD132P3	5 - 11	21	1.4	10	13	22	3.6	30	3x3 mm QFN
CMD157	6 - 18	26	1.5	11	13.5	23	3	52	DIE
CMD157P3	6 - 18	26	1.5	11	13.5	23	3	52	3x3 mm QFN
CMD159	10 - 17	26	1.1	4	10	14	3 / 1.5	29	DIE
CMD160	17 - 25	26.5	1.4	8	11	16	3 / 1.5	26	DIE
CMD161	10 - 14	19	1.05	5	12		3 / 1.5	20	DIE
CMD162	26 - 34	22	1.7	7	9	14	2	25	DIE
CMD163	17 - 27	24	1.3	19	20	26	4 / 3	120	DIE
CMD163C4	17 - 27	23	1.7	18	19	25	4 / 3	120	4x4 mm QFN
CMD167	10 - 17	15	2.0	11	13	24	3	55	DIE
CMD167P3	8 - 16	16	1.8	11	13	23	3	50	3x3 mm QFN
CMD185P3	4 - 8	15.5	1.9	15	17	29	4	75	3x3 mm QFN
CMD186P3	6 - 11	18.5	2.1	17	20	28	5	78	3x3 mm QFN
CMD188	26 - 34	20	1.4	6	8	15	2 / 2	20	DIE
CMD189P3	10 - 14	19	1.4	4	7	13	1.5 / 1.5	20	3x3 mm QFN
CMD190	33 - 45	19	2.1	4	7	13	2 / 2	25	DIE
CMD193P3X4	5 - 11	21	1.4	10	13	22	3.6	30	3x3 mm QFN
CMD194C3	6 - 20	20	2.0	15.5	16.5	26	4	120	3x3 mm QFN
CMD218	5 - 9	22	1.1	21.5	26	30	10 / -2.7	80	DIE
CMD219	4 - 8	23	1.0	18	26	28	10 / -2.3	75	DIE
CMD219C4	4 - 8	22.5	1.0	17	25.5	28	10 / -2.3	75	4x4 mm QFN

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
CMD164	DC - 30	12	2.4	15	18	26	8 / 3	67	DIE
CMD165	2 - 30	12	2.4	15.5	18	26	8 / 3	67	DIE
CMD173	DC - 20	15	2	18	20	28	8 / 3	78	DIE
CMD173P4	DC - 20	15	2	18	20	28	8 / 3	78	4x4 mm QFN
CMD192	DC - 20	19.5	1.9	24.5	26	31	8 / -1	170	DIE
CMD192C5	DC - 20	19.5	1.9	25	27	31	8 / -1	200	5x5 mm QFN
CMD197	1 - 24	16	2.5	22	24	32	8	225	DIE
CMD201	DC - 20	12	3.4	29	30	38	10/-0.55/5	400	DIE
CMD206	DC - 50	11	3.5	12	14.5	22	4 / 3	32	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
CMD184	0.5 - 20	13		34.5	36.5	42	28 / -2.8/10	700	DIE
CMD216	14 - 18	16		37	38	43	28 / -3.4	550	DIE
CMD217	28 - 32	20		36.7	39.3	41	28 / -3.4	580	DIE

(Continued on back)

March 2015

### 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
CMD158C4	6 - 16	21	4	20	21	26	5	95	4x4 mm QFN
CMD158P3	6 - 14	19.5	4	19.5	20.5	26.5	5	95	3x3 mm QFN
CMD166	20 - 40	9	4.5	17	18	27	4	76	DIE
CMD187	2 - 20	22.5	6	14	16	29	3 / 2	115	DIE
CMD187C4	2 - 20	22.5	6	13	15	29	3 / 2	115	4x4 mm QFN
CMD191C4	4 - 10	20	4.5	21.5	22.5	30	5	123	4x4 mm QFN
CMD199	26 - 35	15	3.5	19.5	21.5	24.5	5	72	DIE
CMD200	9 - 13	15.5	3.25	15.5	17	20.5	5	38	DIE
CMD207	20 - 40	35	5.5	18.5	21	29	4 / 3	270	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
CMD174P4	3 - 6	5	11.25	7.6	15	+/- 2	26	36	4x4 mm QFN
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	4x4 mm QFN

### 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
CMD195	SPDT	DC - 20	2	41	25	17	1.8	0 / -5	DIE
CMD195C3	SPDT	DC - 18	2	37	25	13	1.8	0 / -5	3x3 mm QFN
CMD196	SPDT	DC - 28	1.75	46	23	15	1.8	0 / -5	DIE
CMD196C3	SPDT	DC - 18	1.5	46	23	17	1.8	0 / -5	3x3 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
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

### Mixers

Part Number	Part Description	Freq. LO / RF (GHz)	Freq. IF (GHz)	LO Drive Level (dBm)	Conver. Gain (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	Input P1dB (dBm)	Package
CMD168P3	Dual Mixer	6 - 12	DC - 3.5	+13	-7	41	33	12	3x3 mm QFN
CMD177C3	Fund. Mixer	6 - 14	DC - 5	+13	-6.5	43	37	9.5	3x3 mm QFN
CMD178C3	Fund. Mixer	11 - 21	DC - 6	+13	-6	45	45	9	3x3 mm QFN
CMD179	Fund. Mixer	16 - 26	DC - 9	+13	-6.5	40	48	10	DIE
CMD179C3	Fund. Mixer	16 - 26	DC - 9	+13	-6.5	40	48	10	3x3 mm QFN
CMD180C3	Fund. Mixer	20 - 32	DC - 10	+13	-7	36	36	10	3x3 mm QFN
CMD182C4	I/Q / IRM	6 - 10	DC - 3.5	+15	-6	46	20	9	4x4 mm QFN
CMD183C4	I/Q / IRM	7.5 - 13	DC - 4.5	+15	-5.5	43	23	9	4x4 mm QFN

### 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
CMD214	Active Freq. Doubler	12 - 18	24 - 36	13	17	32	25	DIE