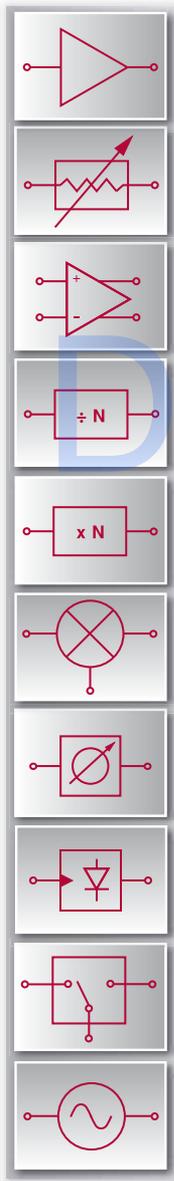




# 产品选择指南

模拟&混合信号集成电路, 模块, 子系统&仪表  
DC - 110 GHz



## 汽车电子

*Telematics & Sensors*

## 宽带通信

*Cable Modem, CATV, DBS & VoIP  
WiMAX, WiBro, WLAN & UWB*

## 蜂窝移动通信

*GSM, GPRS, CDMA, TD-SCDMA,  
WCDMA, UMTS & 4G /LTE*

## 光通信

*OC-48 to 100G*

## 微波&毫米波通信

*Backhaul Radio Links  
Multi-Pt Radios & VSAT*

## 测试&测量

*Commercial & Industrial Sensors  
Test Equipment*

放大器/控制类器件/数据比较器/数据转换器/频率发生类器件/高速数字逻辑器件/接口类器件/混频器/微系统  
电源管理器件/调制器/功率检测器/信号发生器/可变增益放大器/模块



美国讯泰微波有限公司上海代表处

2010年01月号

**放大器 - 差分增益放大器 & 带接头放大器模块**

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
DC - 1.0	50 / 75 Ohm Differential Gain Block	16	40	3.5	24	+8V @ 350mA	LP4B	EAR99	HMC771LP4B
0.04 - 1.0	50 / 75 Ohm Differential Gain Block	16	40	2.5	23.5	+5V @ 270mA	LP4B	EAR99	HMC770LP4BE
2.3 - 2.8	Power Amplifier, 2 Watt	31	45	5	32.5	+5V @ 430mA	LP4	EAR99	HMC755LP4E
24 - 29.5	Power Amplifier, 1/2 Watt	22	-	-	26.5	+6V @ 360mA	Chip	EAR99	HMC863
24 - 29.5	Power Amplifier, 1 Watt	23	-	-	29.8	+6V @ 720mA	Chip	3A001.b.2c	HMC864
0.01 - 6.0	Power Amplifier, 1 Watt	13	40	5	29.5	-5V @ 5 mA +15V @ 450mA	C-17 / SMA	EAR99	HMC-C074
0.01 - 6.0	Power Amplifier, 1 Watt	24	42	5	29.5	-5V @ 5 mA +15V @ 740mA	C-17 / SMA	EAR99	HMC-C075

**放大器 - 低相位噪声**

Frequency (GHz)	Function	Gain / NF (dB)	OIP3 (dBm)	Phase Noise (dBc/Hz)	P1dB / Psat (dBm)	Bias Supply	Package / Connector	ECCN Code	Part Number
1.5 - 5.0	Wideband, Low Phase Noise	14 / 4.5	26.5	-157	17 / -	+7V @ 170mA	C-16 / SMA	EAR99	HMC-C077
7 - 11	Low Phase Noise	9 / 6	33	-180	22 / 25	+7V @ 300mA	C-16 / SMA	EAR99	HMC-C076

**放大器 - 微波 & 光通信驱动**

Frequency (GHz)	Function	Gain (dB)	Group Variation Delay (ps)	Additive Jitter (ps)	P1dB (dBm)	Output Voltage Level (V-p-p)	Package	ECCN Code	Part Number
DC - 20	10 Gbps Modulator Driver	18	±15	1.3	23	3 - 9	LC5	EAR99	HMC870LC5
DC - 20	12.5 Gbps EML Modulator Driver	15	±16	1.5	16.5	1 - 4	LC5	EAR99	HMC871LC5

**LIA放大器 (LIA)**

Data Rate (Gbps)	Function	Small Signal Bandwidth (GHz)	Differential Gain (dB)	Deterministic Jitter (ps p-p)	Additive Random Jitter (ps rms)	Supply Current	Package	ECCN Code	Part Number
32	Limiting w/ DC Offset	25	30	5	0.3	+3.3V @ 90mA	LC3C	EAR99	HMC865LC3C
32	Limiting w/o DC Offset	25	29	7	0.3	+3.3V @ 85mA	LC3C	EAR99	HMC866LC3C

**TIA放大器 (TIA)**

Data Rate (Gbps)	Function	Transimpedance (kΩ)	Input Overload (mApp)	Small Signal Bandwidth (GHz)	Deterministic Jitter (ps)	Noise (pA/√Hz)	Package	ECCN Code	Part Number
0.1 - 1.0	10 kΩ Low Noise TIA	10	20	0.7	<100	4.6	LP3	EAR99	HMC799LP3E

**衰减器 - 数字**

Frequency (GHz)	Function	Insertion Loss (dB)	Attenuation Range (dB)	IIP3 (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
DC - 6	6-Bit Digital	2.2	15.75	55	TTL / CMOS	LP4	EAR99	HMC792LP4E
0.01 - 0.3	7-Bit Digital	3.3	31.75	40	TTL / CMOS	LP3	EAR99	HMC759LP3E

**高速比较器 - 高速时钟控制 RSPECL, RSCML & RSECL - 新产品线!**

Clock Rate (Gbps)	Function	Deterministic Jitter (ps)	Propagation Delay (ps)	Output Voltage Swing (Vdc)	DC Power Consumption (mW)	Vcc0 / Vterm* Power Supply (Vdc)	Package	ECCN Code	Part Number
20	Clocked Comparator - RSPECL	<3	120	0.4	150	+3.3 / +1.3	LC3C	3A001.a.11.b	HMC874LC3C
20	Clocked Comparator - RSCML	<3	120	0.4	130	0 / 0	LC3C	3A001.a.11.b	HMC875LC3C
20	Clocked Comparator - RSECL	<3	120	0.4	150	0 / -2.0	LC3C	3A001.a.11.b	HMC876LC3C

\* Note that Vee = -3.0V & Vcc1 = +3.3V

**DROs - 新产品线!**

Frequency (GHz)	Function	Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Frequency Drift (ppm/°C)	Bias Supply	Package	ECCN Code	Part Number
8.0 - 8.3	Dielectric Resonator Oscillator	14.5	-122	-140	2	+6 to +15V @ 125mA	C-18 / SMA	EAR99	HMC-C200

**分频器**

Input Frequency (GHz)	Function	Input Power (dBm)	Output Power (dBm)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
0.2 - 2.0	Programmable Divider (N = 1 to 4)	-2 to +10	10	-155	+5V @ 135mA	LP3	3A001.a.11.b	HMC794LP3E

**有源倍频器**

Input Frequency (GHz)	Function	Output Frequency (GHz)	Input Power (dBm)	Output Power (dBm)	100 kHz SSB Phase Noise (dBc/Hz)	Package	ECCN Code	Part Number
6.5 - 12.3	X2 Active	13.0 - 24.6	4	17	-136	Chip	EAR99	HMC814
6.85 - 12.0	X2 Active	13.5 - 24.0	3	17	-136	LC3B	EAR99	HMC814LC3B

**高速数字逻辑**

Data / Clock Rate (Gbps/GHz)	Function	Rise / Fall (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power Consumption (mW)	Vee Power Supply (Vdc)	Package	ECCN Code	Part Number
28 / 28	Clock Divide-by-2/4	12 / 14	-	0.6	660	-3.3	LC4B	3A001.a.11.b	HMC791LC4B
28	D-Type Flip-Flop *	15 / 14	2	0.7 - 1.3	260	-3.3	LC3C	3A001.a.11.b	HMC853LC3C

\* With Programmable Output Voltage

**I/Q 下变频器 / 接收器**

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Image Rejection (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
12 - 16	I/Q Downconverter / Receiver	DC - 3.5	14	32	-1	LC5	EAR99	HMC869LC5

# 56新产品

## I/Q 下变频器 / 发射器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Sideband Rejection (dB)	OIP3 (dBm)	Package	ECCN Code	Part Number
17.7 - 23.6	I/Q Upconverter / Transmitter	DC - 3.5	15	35	35	LC5	EAR99	HMC819LC5
21 - 27	I/Q Upconverter / Transmitter	DC - 3.75	12	20	27	LC5	EAR99	HMC815LC5

## 混频器 - 高IP3 & 双平衡混频器

RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
0.5 - 2.7	High IP3, DBL-BAL, +2 LO	DC - 1	-8	28	28	LP4	EAR99	HMC915LP4E
7 - 34	+13 LO, DBL-BAL	DC - 8	-11	32	22	LC3B	EAR99	HMC774LC3B
7 - 43	+13 LO, DBL-BAL	DC - 10	-9	35	22	Chip	EAR99	HMC774
17.1 - 25.1	Sub-Harmonic, Upconverter	DC - 3.5	15	10	14	LC5	EAR99	HMC711LC5
24 - 34	Sub-Harmonic	DC - 3	-10	30	22	LC4	EAR99	HMC798LC4

## PLLs 带内部集成 VCO - 新产品线!

Frequency (GHz)	Function	Closed Loop SSB Phase Noise @ 10 kHz Offset	Open Loop VCO Phase Noise @ 1 MHz Offset	Pout (dBm)	RMS Jitter Fractional Mode (fs)	Integrated PN Fractional Mode (deg rms)	Package	ECCN Code	Part Number
0.66 - 3.3	Tri-Band RF VCO	-115 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	3A001.a.11.b	HMC822LP6CE
0.78 - 0.87	RF VCO	-120 dBc/Hz	-147 dBc/Hz	+12	190	0.05	LP6C	3A001.a.11.b	HMC824LP6CE
0.86 - 4.16	Tri-Band RF VCO	-113 dBc/Hz	-140 dBc/Hz	+10	190	0.12	LP6C	3A001.a.11.b	HMC821LP6CE
0.99 - 1.105	RF VCO	-118 dBc/Hz	-145 dBc/Hz	+10	190	0.07	LP6C	3A001.a.11.b	HMC826LP6CE
1.095 - 5.10	Tri-Band RF VCO	-110 dBc/Hz	-139 dBc/Hz	+10	190	0.17	LP6C	3A001.a.11.b	HMC820LP6CE
1.285 - 1.415	RF VCO	-116 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	3A001.a.11.b	HMC828LP6CE
1.815 - 2.01	RF VCO	-112 dBc/Hz	-141 dBc/Hz	+9	190	0.13	LP6C	3A001.a.11.b	HMC831LP6CE
3.365 - 3.705	RF VCO	-107 dBc/Hz	-135 dBc/Hz	0	190	0.25	LP6C	3A001.a.11.b	HMC836LP6CE
7.3 - 8.2	Microwave VCO	-102 dBc/Hz	-140 dBc/Hz	+15	196	0.55	LP6C	3A001.a.11.b	HMC764LP6CE
7.8 - 8.8	Microwave VCO	-102 dBc/Hz	-139 dBc/Hz	+13	193	0.58	LP6C	3A001.a.11.b	HMC765LP6CE
11.5 - 12.5	Microwave VCO	-100 dBc/Hz	-134 dBc/Hz	+11	181	0.78	LP6C	3A001.a.11.b	HMC783LP6CE
12.4 - 13.4	Microwave VCO	-98 dBc/Hz	-134 dBc/Hz	+8	175	0.81	LP6C	3A001.a.11.b	HMC807LP6CE

\* Figure of merit (FOM) of synthesizer is -221/-226 dBc/Hz (fractional/integer).

## 电源管理器件 - 高PSRR四路线性电压调整器 - 新产品线!

Input Voltage (V)	Function	Output Voltage (V)	Output Current (mA)	Power Supply Rejection Ratio (PSRR) (dB)	Output Noise Spectral Density (nV/√Hz)	Regulated Outputs	Package	ECCN Code	Part Number
3.35 - 5.6	Quad High PSRR	2.5 - 5.2	15 - 100	80   60	7   3	4	LP3	EAR99	HMC860LP3E

## 功率检测器 - 对数检波 & SDLVA

Frequency (GHz)	Function	Dynamic Range (dB)	RSSI Slope (mV / dB)	RF Threshold Level (dBm)	Bias Supply	Package	ECCN Code	Part Number
0.05 - 8.0	Log Detector / Controller	54 ±1	17.5	-55	+5V @ 17mA	LP3	EAR99	HMC713LP3E
0.6 - 20	SDLVA	59	14	-54	+3.3V @ 80mA	LC4B	EAR99	HMC913LC4B

\* Successive Detection Log Video Amplifier

## 开关 - SPDT

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
DC - 4	SPDT, Hi Isolation	0.8	60	35	0/ +3 to +5V	LP4C	EAR99	HMC849LP4CE
DC - 4	SPDT T/R, 10W	0.4	30	40	0/ +3 to +8V	MS8G	EAR99	HMC784MS8GE

## 带接头集成频率综合器模块 - MicroSynth™

Frequency (GHz)	Function	Min. Step Size Resolution (Hz)	Reference Frequency (MHz)	Phase Noise @ 100 kHz Offset (dBc/Hz)	Output Power (dBm)	Bias Supply	Package	ECCN Code	Part Number
5.5 - 10.5	MicroSynth™ Synthesizer	1.2	10	-92	21	+20V @ 20mA +6V @ 300mA +3.6V @ 100mA	C-20 / SMA	3A001.a.11.b	HMC-C070

## 压控振荡器 - 带接头 VCO 模块光通信

Frequency (GHz)	Function	Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
38.4 - 43.2	Wideband VCO	13	-74	-98	+5V @ 350mA	C-19 / SMA	EAR99	HMC-C073

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# 按产品线选择产品指南

## 2010年01月号产品选择指南介绍!

Hittite Microwave 公司很高兴推出我们的2010年01月号产品选择指南. 该2009年12月号产品选择指南包括超过800款产品, 其中有54款新产品和5条新的产品线. 该产品选择指南除按照产品线归类以外, 还按照市场应用分类, 包括汽车电子, 宽带通信, 蜂窝移动通信, 光通信, 微波&毫米波通信, 以及测试&测量设备. 所有产品的详细指标可在我们的网站: [www.hittite.com](http://www.hittite.com) 上查到. 点击” My Subscription” 即可收到最新产品的发布通知.



### 放大器

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
<b>低噪声放大器</b>									
0.175 - 0.66	Low Noise	24	37	0.5	19	+5V @ 90mA	LP3	EAR99	HMC616LP3E
0.2 - 4.0	Low Noise, High IP3	13	38	2.3	22	+5V @ 110mA	ST89	EAR99	HMC639ST89E
0.2 - 4.0	Low Noise, High IP3	13	40	2.2	22	+5V @ 155mA	ST89	EAR99	HMC636ST89E
0.23 - 0.66	Low Noise, Dual Channel	22	37	0.5	19	+5V @ 97mA	LP4	EAR99	HMC816LP4E
0.3 - 3.0	Low Noise, High IP3	15	37	1.5	22	+5V @ 90mA	SOT26	EAR99	HMC374E
0.35 - 0.55	Low Noise	17	38	1	21	+5V @ 104mA	LP3	EAR99	HMC356LP3E
0.55 - 1.2	Low Noise	16	37	0.5	21	+5V @ 88mA	LP5	EAR99	HMC617LP3E
0.55 - 1.2	Low Noise, Dual Channel	16	37	0.5	20.5	+5V @ 95mA	LP4	EAR99	HMC817LP4E
0.6 - 1.4	Low Noise	32	40	0.9	21.5	+5V @ 254mA	LP4	EAR99	HMC718LP4E
0.7 - 1.0	Low Noise	15	34	1	21	+5V @ 100mA	LP3	EAR99	HMC372LP3E
0.7 - 1.0	Low Noise	15	36	0.7	21	+5V @ 73mA	LP3	EAR99	HMC376LP3E
0.7 - 1.0	Low Noise w/ Bypass	14	35	0.9	21	+5V @ 90mA	LP3	EAR99	HMC373LP3E
0.7 - 1.2	Low Noise w/ Failsafe Bypass	16	33	0.9	13	+5V @ 57mA	LP3	EAR99	HMC668LP3E
0.7 - 2.2	Low Noise	22	36	1.7	24	+5V @ 227mA	LP3	EAR99	HMC758LP3E
1 - 11	Low Noise	17	30	1.5	18	+5V @ 55mA	LP4	EAR99	HMC753LP4E
1 - 12	Low Noise	17	28	1.5	19	+5V @ 55mA	Chip	EAR99	HMC-ALH444
1.2 - 3.0	Low Noise	26	21	1.3	11.5	+5V @ 21mA	LP3	EAR99	HMC548LP3E
1.3 - 2.9	Low Noise	34	39	1	21.5	+5V @ 272mA	LP4	EAR99	HMC719LP4E
1.7 - 2.2	Low Noise	17	34	0.9	18	+5V @ 136mA	LP3	EAR99	HMC375LP3E
1.7 - 2.2	Low Noise	17	30	1	16	+5V @ 67mA	LP3	EAR99	HMC382LP3E
1.7 - 2.2	Low Noise	19	36	0.75	20	+5V @ 117mA	LP3	EAR99	HMC618LP3E
1.7 - 2.2	Low Noise w/ Failsafe Bypass	17	29	1.4	12	+5V @ 86mA	LP3	EAR99	HMC669LP3E
1.7 - 2.2	Low Noise, Dual Channel	20.5	35	0.85	21	+5V @ 112mA	LP4	EAR99	HMC818LP4E
2 - 4	Low Noise	10	36	2.6	21	+6V @ 100mA	Chip	EAR99	HMC594
2 - 4	Low Noise	10	36	3	21	+6V @ 100mA	LC3B	EAR99	HMC594LC3B
2 - 4	Low Noise	20.5	36	3	21	+6V @ 170mA	Chip	EAR99	HMC609
2 - 4	Low Noise	20	36.5	3.5	21.5	+6V @ 170mA	LC4	EAR99	HMC609LC4
2.1 - 2.9	Low Noise	19	33	0.9	19	+5V @ 95mA	LP3	EAR99	HMC715LP3E
2.2 - 12	Low Noise	15	25	1.8	13	+4V @ 45mA	LC4	EAR99	HMC772LC4
2.3 - 2.5	Low Noise	19	12	1.7	6	+3V @ 8.5mA	SOT26	EAR99	HMC286E
2.3 - 2.7	Low Noise	19	29.5	0.75	16.5	+5V @ 59mA	LP2	EAR99	HMC667LP2E
2.3 - 2.7	Low Noise w/ Bypass	20	31	1.1	17	+5V @ 74mA	LP3	EAR99	HMC605LP3E
2.4 - 2.5	Transceiver, Front End	13	10	3	5	+3V @ 24mA	MS8G	EAR99	HMC310MS8GE
3.1 - 3.9	Low Noise	18	33	1	19	+5V @ 65mA	LP3	EAR99	HMC716LP3E
3.3 - 3.8	Low Noise w/ Bypass	19	29	1.2	16	+5V @ 40mA	LP3	EAR99	HMC593LP3E
3.4 - 3.8	Low Noise w/ Bypass	16	18	2	7	+3V @ 9mA	LP3	EAR99	HMC491LP3E
3.5 - 7.0	Low Noise	15.5	28	2.4	16	+5V @ 50mA	Chip	EAR99	HMC392
3.5 - 7.0	Low Noise	16	30	2.5	16	+5V @ 55mA	LC4	EAR99	HMC392LC4
3.5 - 7.0	Low Noise	15	28	3	16	+5V @ 65mA	LH5	EAR99	HMC392LH5
4.8 - 6.0	Low Noise w/ Bypass	15	26	1.5	14	+5V @ 42mA	LP3	EAR99	HMC604LP3E
4.8 - 6.0	Low Noise	16.5	31.5	1.1	18.5	+5V @ 73mA	LP3	EAR99	HMC717LP3E
5 - 6	Low Noise	9	13	2.5	2	+3V @ 6mA	MS8G	EAR99	HMC318MS8GE
5 - 6	Low Noise	12	10	2.5	9	+3V @ 25mA	MS8G	EAR99	HMC320MS8GE
5 - 20	Low Noise	13	26	2.2	16	+5V @ 30mA	Chip	EAR99	HMC-ALH435
6 - 20	Low Noise	22	20	2.3	10	+3V @ 53mA	Chip	EAR99	HMC565
6 - 20	Low Noise	21	20	2.5	10	+3V @ 53mA	LC5	EAR99	HMC565LC5
7 - 13.5	Low Noise	17	24	1.8	12	+3V @ 51mA	Chip	EAR99	HMC564
7 - 14	Low Noise	17	25	1.8	13	+3V @ 51mA	LC4	EAR99	HMC564LC4
7 - 17	Low Noise	21	20	1.8	15	+3V @ 65mA	Chip	EAR99	HMC516
9 - 18	Low Noise	20	25	2	14	+3V @ 65mA	LC5	EAR99	HMC516LC5

**放大器**

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
12 - 16	Medium Power LNA	23	34	2.5	25	+5V @ 200mA	LP5	EAR99	HMC490LP5E
12 - 17	Medium Power LNA	27	35	2	26	+5V @ 200mA	Chip	EAR99	HMC490
13 - 25	Low Noise	21	13	3.5	5	+3V @ 41mA	Chip	EAR99	HMC342
13 - 25	Low Noise	22	20	3.5	9	+3V @ 43mA	LC4	EAR99	HMC342LC4
14 - 27	Low Noise	19.5	-	2.2	17	+4V @ 90mA	LC4B	5A991.h	HMC504LC4B
14 - 27	Low Noise	18	-	2.5	14	+4V @ 90mA	Chip	5A991.h	HMC-ALH216
14 - 27	Low Noise	20	-	2	14	+4V @ 90mA	Chip	5A991.h	HMC-ALH476
17 - 26	Low Noise	19	23	2.2	11	+3V @ 65mA	Chip	EAR99	HMC517
17 - 26	Low Noise	19	23	2.5	13	+3V @ 67mA	LC4	EAR99	HMC517LC4
17 - 27	Low Noise	25	25	2.2	13	+4V @ 73mA	LC4	EAR99	HMC751LC4
18 - 32	Low Noise	15	23	2.8	12	+3V @ 65mA	Chip	3A001.b.2.d	HMC519
18 - 31	Low Noise	15	23	3.5	11	+3V @ 75mA	LC4	EAR99	HMC519LC4
18 - 40	Low Noise	10	-	3.9	12	+5V @ 45mA	Chip	3A001.b.2.d	HMC-ALH445
20 - 32	Low Noise	15	23	3	12	+3V @ 65mA	Chip	3A001.b.2.d	HMC518
20 - 36	Low Noise	20	18	2.2	8	+3V @ 58mA	LP4	3A001.b.2.d	HMC263LP4E
21 - 29	Low Noise	13	19	2.5	8	+3V @ 35mA	LC3B	EAR99	HMC341LC3B
22 - 26.5	Low Noise	25	-	3	12	+2.5V @ 52mA	Chip	5A991.h	HMC-ALH311
24 - 28	Low Noise	25	26	2.5	13	+3V @ 70mA	LC4	EAR99	HMC752LC4
24 - 30	Low Noise	13	16	2.5	6	+3V @ 30mA	Chip	EAR99	HMC341
24 - 32	Low Noise	21	-	2	7	+5V @ 68mA	Chip	3A001.b.2.d	HMC-ALH364
24 - 36	Low Noise	23	17	2	8	+3V @ 58mA	Chip	3A001.b.2.d	HMC263
24 - 40	Low Noise	12	-	3.5	13	+4V @ 45mA	Chip	3A001.b.2.d	HMC-ALH244
24 - 40	Low Noise	22	-	2	11	+5V @ 66mA	Chip	3A001.b.2.d	HMC-ALH369
24 - 40	Low Noise	11.5	-	4	15	+4V @ 60mA	Chip	3A001.b.2.d	HMC-ALH140
27 - 33	Low Noise	20	-	3	12	+2.5V @ 52mA	Chip	3A001.b.2.d	HMC-ALH313
29 - 36	Low Noise	20	23.5	2.8	12	+3V @ 80mA	Chip	3A001.b.2.d	HMC566
28 - 36	Low Noise	21	24	2.8	12	+3V @ 82mA	LP4	3A001.b.2.d	HMC566LP4E
35 - 45	Low Noise	16	-	2	6	+4V @ 87mA	Chip	3A001.b.2.d	HMC-ALH376
37 - 42	Low Noise	22	-	3.5	12	+2.5V @ 52mA	Chip	3A001.b.2.d	HMC-ALH310
57 - 65	Low Noise	21	-	4	12	+2.5V @ 64mA	Chip	3A001.b.2.f	HMC-ALH382
71 - 86	Low Noise	13	-	5	7	+2.4V @ 30mA	Chip	3A001.b.2.f	HMC-ALH508
71 - 86	Low Noise	14	-	5	7	+2V @ 50mA	Chip	3A001.b.2.f	HMC-ALH509

**宽带增益放大器 (Listed by P1dB Output Power)**

DC - 6	SiGe Gain Block	15.5	22	3	8	+5V @ 25mA	MP86	EAR99	HMC474MP86E
DC - 6	SiGe Gain Block	15	20	3	8	+3V @ 25mA	SC70	EAR99	HMC474SC70E
DC - 6	SiGe Gain Block	20	25	2.5	12	+5V @ 35mA	MP86	EAR99	HMC476MP86E
DC - 6	SiGe Gain Block	19	24	2.5	12	+5V @ 35mA	SC70	EAR99	HMC476SC70E
DC - 10	HBT Gain Block	15	24	4.5	13	+5V @ 56mA	Chip	EAR99	HMC397
DC - 10	HBT Gain Block	15	25	4	13	+5V @ 50mA	Chip	EAR99	HMC405
DC - 6	HBT Gain Block	17	27	6.5	14	+5V @ 50mA	SOT26	EAR99	HMC313E
DC - 8	HBT Gain Block	12	30	6	14	+5V @ 56mA	Chip	EAR99	HMC396
DC - 4	HBT Gain Block	15	28	4.5	15	+5V @ 54mA	Chip	EAR99	HMC395
DC - 6	HBT Gain Block	14.5	32	4.5	15	+5V @ 56mA	LP3	EAR99	HMC311LP3E
DC - 8	HBT Gain Block	15	30	5	15	+5V @ 54mA	SC70	EAR99	HMC311SC70E
DC - 6	HBT Gain Block	16	31.5	4.5	15.5	+5V @ 54mA	ST89	EAR99	HMC311ST89E
DC - 4	SiGe Gain Block	24	31	2.5	16	+5V @ 62mA	SC70	EAR99	HMC478SC70E
DC - 4	SiGe Gain Block	22	32	2	18	+5V @ 62mA	MP86	EAR99	HMC478MP86E
DC - 4	SiGe Gain Block	22	33	3	18	+5V @ 62mA	ST89	EAR99	HMC478ST89E
DC - 5	SiGe Gain Block	15	34	4	18	+8V @ 72mA	MP86	EAR99	HMC479MP86E
DC - 5	SiGe Gain Block	15	34	4	18	+8V @ 75mA	ST89	EAR99	HMC479ST89E
DC - 5	SiGe Gain Block	20	33	3.5	19	+8V @ 79mA	ST89	EAR99	HMC481ST89E
DC - 5	SiGe Gain Block	19	34	2.9	20	+8V @ 82mA	ST89	EAR99	HMC480ST89E
DC - 5	SiGe Gain Block	20	33	3.5	20	+8V @ 74mA	MP86	EAR99	HMC481MP86E
DC - 4	HBT Gain Block	21	33	4	21	+5V @ 82mA	ST89	EAR99	HMC589ST89E
DC - 1	HBT Gain Block	22	37	2.8	22	+5V @ 88mA	ST89	EAR99	HMC580ST89E
DC - 4.5	HBT Gain Block	21	35	3.5	22	+8V @ 110mA	ST89	EAR99	HMC475ST89E
DC - 5	SiGe Gain Block	19	36	4	22.5	+8V @ 110mA	ST89	EAR99	HMC482ST89E
DC - 5	Dual SiGe Gain Block	15	34	4	18	+8V @ 75mA	MS8G	EAR99	HMC469MS8GE
DC - 5	Dual SiGe Gain Block	20	34	3.2	20	+8V @ 80mA	MS8G	EAR99	HMC471MS8GE

**CATV放大器**

0.04 - 0.96	Low Noise, Dual Output	5	27	3.5	12	+5V @ 120mA	MS8G	EAR99	HMC549MS8GE
0.05 - 0.96	Low Noise, 75 Ohm	14	39	2.2	19	+5V @ 120mA	ST89	EAR99	HMC599ST89E

## SMT表贴&管芯产品

### 放大器

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
DC - 1.0	50 / 75 Ohm Differential Gain Block	16	40	3.5	24	+8V @ 350mA	LP4B	EAR99	HMC771LP4BE
0.04 - 1.0	50 / 75 Ohm Differential Gain Block	16	40	2.5	23.5	+5V @ 270mA	LP4B	EAR99	HMC770LP4BE
0.05 - 3.0	HBT Gain Block	15	40	3.5	18	+5V @ 88mA	ST89	EAR99	HMC740ST89E
0.05 - 3.0	HBT Gain Block	20	42	2.5	18	+5V @ 96mA	ST89	EAR99	HMC741ST89E
DC - 1	HBT Gain Block, 75 Ohm	14	38	5.5	21	+5V @ 160mA	S8G	EAR99	HMC754S8GE
<b>驱动放大器</b>									
0.7 - 2.8	HBT Driver Amplifier	18	42	3.8	25	+5V @ 125mA	ST89	EAR99	HMC789ST89E
0.8 - 3.8	Driver Amplifier	18	30	7.5	17	+5V @ 53mA	SOT26	EAR99	HMC308E
3.0 - 4.5	HBT Driver Amplifier	21	36	5	23.5	+5V @ 130mA	MS8G	EAR99	HMC326MS8GE
17.5 - 41	Driver Amplifier	21	27	-	20	+5V @ 295mA	Chip	3A001.b.2.d	HMC-AUH256
<b>线形&amp;功率放大器</b>									
0.4 - 2.5	High IP3 Amp, 1/2 Watt	12.5	42	6	27	+5V @ 150mA	ST89	EAR99	HMC454ST89E
1.7 - 2.5	High IP3 Amp, 1/2 Watt	13	42	6	27	+5V @ 150mA	LP3	EAR99	HMC455LP3E
0.8 - 1.0	Medium Power Amplifier	26	40	8	26	+4V @ 310mA	QS16G	EAR99	HMC450QS16GE
1.6 - 2.2	Medium Power Amplifier	22	40	5.5	27	+3.6V @ 270mA	QS16G	EAR99	HMC413QS16GE
4.9 - 5.9	Medium Power Amplifier	20	32	6	23	+3V @ 285mA	LP3	EAR99	HMC415LP3E
5 - 6	Medium Power Amplifier	18	38	6	26	+5V @ 300mA	MS8G	EAR99	HMC406MS8GE
5 - 7	Medium Power Amplifier	15	40	5.5	25	+5V @ 230mA	MS8G	EAR99	HMC407MS8GE
5 - 18	Medium Power Amplifier	18	28	7	19.5	+5V @ 120mA	LP3	EAR99	HMC451LP3E
5 - 20	Medium Power Amplifier	22	30	6.5	20	+5V @ 127mA	Chip	EAR99	HMC451
5 - 20	Medium Power Amplifier	19	30	7	19	+5V @ 114mA	LC3	EAR99	HMC451LC3
6 - 18	Medium Power Amplifier	15.5	32	4.5	20	+5V @ 95mA	Chip	EAR99	HMC441
6 - 18	Medium Power Amplifier	17	32	4.5	20	+5V @ 95mA	LC3B	EAR99	HMC441LC3B
6.5 - 13.5	Medium Power Amplifier	14	29	4.5	18	+5V @ 95mA	LP3	EAR99	HMC441LP3E
7 - 15.5	Medium Power Amplifier	15	32	4.8	20	+5V @ 95mA	LH5 Hermetic	EAR99	HMC441LH5
7 - 15.5	Medium Power Amplifier	15	30	4.5	19	+5V @ 90mA	LM1	EAR99	HMC441LM1
9.5 - 11.5	Medium Power Amplifier	29.5	33	6	27	+5V @ 310mA	LC4	EAR99	HMC608LC4
12 - 30	Medium Power Amplifier	16	25	7	16	+5V @ 101mA	Chip	EAR99	HMC383
12 - 30	Medium Power Amplifier	15	25	7.5	16.5	+5V @ 100mA	LC4	EAR99	HMC383LC4
16 - 33	Medium Power Amplifier	17	33	-	24	+5V @ 400mA	Chip	5A991.h	HMC-APH596
17 - 24	Medium Power Amplifier	24	34	4	25	+5V @ 250mA	Chip	EAR99	HMC498
17 - 24	Medium Power Amplifier	22	36	4	25	+5V @ 250mA	LC4	EAR99	HMC498LC4
17 - 30	Medium Power Amplifier	20	31	-	22	+4.5V @ 400mA	Chip	EAR99	HMC-APH196
17.5 - 24	Medium Power Amplifier	14	28	6.5	21.5	+5V @ 85mA	LM1	EAR99	HMC442LM1
17.5 - 25.5	Medium Power Amplifier	13	27	8	22	+5V @ 84mA	LC3B	EAR99	HMC442LC3B
17.5 - 25.5	Medium Power Amplifier	15	28	5.5	22	+5V @ 85mA	Chip	EAR99	HMC442
21 - 32	Medium Power Amplifier	16	33	5	24	+5V @ 200mA	Chip	3A001.b.2.b	HMC499
21 - 32	Medium Power Amplifier	17	34	5	23	+5V @ 200mA	LC4	3A001.b.2.b	HMC499LC4
34 - 42	Medium Power Amplifier	18.5	29	6.5	18	+5V @ 120mA	Chip	3A001.b.2.d	HMC-ABH264
37 - 40	Medium Power Amplifier	20	35	-	26	+5V @ 640mA	Chip	3A001.b.2.d	HMC-APH510
37 - 45	Medium Power Amplifier	21	32	-	23	+5V @ 475mA	Chip	3A001.b.2.d	HMC-APH403
50 - 66	Medium Power Amplifier	24	25	-	17	+5V @ 220mA	Chip	3A001.b.2.f	HMC-ABH241
55 - 65	Medium Power Amplifier	13	25	-	16	+5V @ 80mA	Chip	3A001.b.2.f	HMC-ABH209
71 - 76	Medium Power Amplifier	24	-	-	17.5	+4V @ 130mA	Chip	3A001.b.2.f	HMC-AUH318
71 - 76	Medium Power Amplifier	13	-	-	20	+4V @ 240mA	Chip	3A001.b.2.f	HMC-APH633
71 - 86	Medium Power Amplifier	15	-	-	15	+4V @ 130mA	Chip	3A001.b.2.f	HMC-AUH320
81 - 86	Medium Power Amplifier	22	-	-	17.5	+4V @ 160mA	Chip	3A001.b.2.f	HMC-AUH317
0.4 - 2.2	Power Amplifier, 1 Watt	21	49	6.5	30	+5V @ 510mA	ST89	EAR99	HMC452ST89E
0.4 - 2.2	Power Amplifier, 1.6 Watt	20.5	49	6.5	32	+5V @ 725mA	ST89	EAR99	HMC453ST89E
0.45 - 2.2	Power Amplifier, 1 Watt	22.5	48	7	30	+5V @ 485mA	QS16G	EAR99	HMC452QS16GE
0.45 - 2.2	Power Amplifier, 1.6 Watt	21.5	51	6.5	33	+5V @ 725mA	QS16G	EAR99	HMC453QS16GE
1.7 - 2.2	Power Amplifier, 1 Watt	27	46	5	30.5	+5V @ 500mA	QS16G	EAR99	HMC457QS16GE
1.7 - 2.2	Power Amplifier, 1 Watt	12	45	6	29.5	+5V @ 300mA	LP3	EAR99	HMC461LP3E
2.2 - 2.8	Power Amplifier, 1/2 Watt	20	39	7	27	+5V @ 300mA	MS8G	EAR99	HMC414MS8GE
2.3 - 2.8	Power Amplifier, 2 Watt	31	45	5	32.5	+5V @ 430mA	LP4	EAR99	HMC755LP4E
3 - 4	Power Amplifier, 1/2 Watt	21	40	5	27	+5V @ 250mA	MS8G	EAR99	HMC327MS8GE
3.3 - 3.8	Power Amplifier, 1 Watt	31	45.5	5.8	30.5	+5V @ 615mA	LP4	EAR99	HMC409LP4E
5.1 - 5.9	Power Amplifier, 1 Watt	20	43	6	30	+5V @ 750mA	LP3	EAR99	HMC408LP3E
6 - 9.5	Power Amplifier, 1 Watt	21	40	-	30.5	+7V @ 820mA	LP5	3A001.b.2.d	HMC590LP5E
6 - 9.5	Power Amplifier, 2 Watt	18	41	-	33	+7V @ 1340mA	LP5	3A001.b.2.d	HMC591LP5E
6 - 10	Power Amplifier, 1 Watt	25	41	-	31.5	+7V @ 820mA	Chip	3A001.b.2.d	HMC590
6 - 10	Power Amplifier, 2 Watt	23	43	-	33.5	+7V @ 1340mA	Chip	3A001.b.2.d	HMC591

集成电路产品

放大器

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
7 - 9	Power Amplifier, 2 Watt	26	40	6.5	33.5	+7V @ 1.3A	Chip	3A001.b.2.b	HMC486
7 - 9	Power Amplifier, 2 Watt	22	40	7	32	+7V @ 1.3A	LP5	3A001.b.2.b	HMC486LP5E
9 - 12	Power Amplifier, 2 Watt	20	36	8	32	+7V @ 1.3A	LP5	3A001.b.2.b	HMC487LP5E
10 - 13	Power Amplifier, 1 Watt	19	38	-	31	+7V @ 750mA	Chip	3A001.b.2.b	HMC592
12 - 16	Power Amplifier, 1 Watt	13	34	9	31	+7V @ 1.3A	LP5	3A001.b.2.b	HMC489LP5E
15 - 27	Power Amplifier, 1 Watt	17	37	-	29	+5V @ 1.44A	Chip	3A001.b.2.c	HMC-APH462
16 - 24	Power Amplifier, 1 Watt	23	41	-	31	+7V @ 790mA	Chip	3A001.b.2.c	HMC756
16 - 24	Power Amplifier, 1/2 Watt	22	37	-	29	+7V @ 395mA	Chip	3A001.b.2.c	HMC757
18 - 20	Power Amplifier, 1 Watt	17.5	38.5	-	30	+5V @ 900mA	Chip	3A001.b.2.c	HMC-APH478
21 - 24	Power Amplifier, 1 Watt	17	39	-	30.5	+5V @ 950mA	Chip	3A001.b.2.c	HMC-APH518
22.5 - 26.5	Power Amplifier, 1 Watt	17	40	-	30	+5V @ 950mA	Chip	3A001.b.2.c	HMC-APH608
24 - 29.5	Power Amplifier, 1/2 Watt	22	-	-	26.5	+6V @ 360mA	Chip	EAR99	HMC863
24 - 29.5	Power Amplifier, 1 Watt	23	-	-	29.8	+6V @ 720mA	Chip	3A001.b.2.c	HMC864
27 - 31.5	Power Amplifier, 1 Watt	14	37	-	28	+5V @ 900mA	Chip	3A001.b.2.c	HMC-APH460
27 - 34	Power Amplifier, 1 Watt	17.5	37	-	29	+5V @ 800mA	Chip	3A001.b.2.d	HMC693
37 - 40	Power Amplifier, 1 Watt	15	37	-	28	+5V @ 1.08A	Chip	3A001.b.2.d	HMC-APH473

宽带 (分布式) 放大器

DC - 20	Wideband LNA	14	28	2.5	16	+8V @ 60mA	Chip	EAR99	HMC460
DC - 20	Wideband LNA	14	29.5	2.5	17	+8V @ 75mA	LC5	EAR99	HMC460LC5
2 - 20	Wideband LNA	15.5	26.5	2.5	15	+5V @ 63mA	Chip	EAR99	HMC462
2 - 20	Wideband LNA	13	25	2.5	14	+5V @ 66mA	LP5	EAR99	HMC462LP5E
2 - 20	Wideband LNA w/AGC	14	28	2.5	19	+5V @ 60mA	Chip	EAR99	HMC463
2 - 20	Wideband LNA w/AGC	13	26	3	18	+5V @ 60mA	LP5	EAR99	HMC463LP5E
2 - 20	Wideband LNA w/AGC	14	28	2.5	18	+5V @ 60mA	LH250	EAR99	HMC463LH250
2 - 20	Wideband LNA	10	-	3.5	10	+2V @ 55mA	Chip	EAR99	HMC-ALH102
2 - 22	Wideband LNA	16	-	1.7	14	+4V @ 45mA	Chip	EAR99	HMC-ALH482
2 - 18	Wideband, Low Phase Noise	14	27	4.5	15	+5V @ 64mA	Chip	EAR99	HMC606
2 - 18	Wideband, Low Phase Noise	13.5	27	7	15	+5V @ 64mA	LC5	EAR99	HMC606LC5
DC - 20	Wideband Driver	17	30	2.5	22	+8V @ 160mA	Chip	EAR99	HMC465
DC - 20	Wideband Driver	15	28	3	23	+8V @ 160mA	LP5	EAR99	HMC465LP5E
2 - 35	Wideband Driver	12.5	27	3	18	+8V @ 80mA	Chip	3A001.b.2.d	HMC562
5 - 17	Wideband Driver	31	30	8	23	+5V @ 180mA	Chip	EAR99	HMC633
5.5 - 17	Wideband Driver	30	30	8	23	+5V @ 180mA	LC4	EAR99	HMC633LC4
5 - 20	Wideband Driver	22	31	7.5	23	+5V @ 180mA	Chip	EAR99	HMC634
5 - 20	Wideband Driver	21	29	7.5	22	+5V @ 180mA	LC4	EAR99	HMC634LC4
18 - 40	Wideband Driver	19.5	29	8	23	+5V @ 280mA	Chip	3A001.b.2.e	HMC635
18 - 40	Wideband Driver	18.5	27	7	22	+5V @ 280mA	LC4	3A001.b.2.d	HMC635LC4
DC - 35	Wideband Driver	15	-	-	21	+5V @ 200mA	Chip	3A001.b.2.d	HMC-AUH249
DC - 43	Wideband Driver	14	-	5.4	16.5	+5V @ 180mA	Chip	3A001.b.2.d	HMC-AUH232
0.5 - 65	Wideband Driver	10	-	-	-	+8V @ 60mA	Chip	3A001.b.2.d	HMC-AUH312
DC - 6	Wideband Power Amplifier	14	45	5	29	+12V @ 400mA	Chip	EAR99	HMC637
DC - 6	Wideband Power Amplifier	13	40	5	29	+12V @ 400mA	LP5	EAR99	HMC637LP5E
DC - 10	Wideband Power Amplifier	12	41	6	28.5	+12V @ 300mA	Chip	EAR99	HMC619
DC - 10	Wideband Power Amplifier	12	41	6	28	+12V @ 300mA	LP5	EAR99	HMC619LP5E
DC - 15	Wideband Power Amplifier	19	35	2	26.5	+8V @ 300mA	Chip	EAR99	HMC659
DC - 15	Wideband Power Amplifier	19	35	2.5	27.5	+8V @ 300mA	LC5	EAR99	HMC659LC5
DC - 18	Wideband Power Amplifier	17	32	3	25	+8V @ 290mA	Chip	EAR99	HMC459
DC - 20	Wideband Power Amplifier	14	36	4	28	+10V @ 400mA	Chip	3A001.b.2.c	HMC559
2 - 20	Wideband Power Amplifier	16	30	4	26	+8V @ 290mA	Chip	EAR99	HMC464
2 - 20	Wideband Power Amplifier	14	30	4	26	+8V @ 290mA	LP5	EAR99	HMC464LP5E

放大器 - 微波&光 驱动

Frequency (GHz)	Function	Gain (dB)	Group Variation Delay (ps)	Additive Jitter (ps)	P1dB (dBm)	Output Voltage Level (V-p-p)	Package	ECCN Code	Part Number
DC - 20	10 Gbps Modulator Driver	18	±15	1.3	23	3 - 9	LC5	EAR99	HMC870LC5
DC - 20	12.5 Gbps EML Modulator Driver	15	±16	1.5	16.5	1 - 4	LC5	EAR99	HMC871LC5

放大器 - LIA

Data Rate (Gbps)	Function	Small Signal Bandwidth (GHz)	Differential Gain (dB)	Deterministic Jitter (ps p-p)	Additive Random Jitter (ps rms)	Supply Current	Package	ECCN Code	Part Number
12.5	Limiting Amplifier	11	44	5	0.2	+5V @ 106mA	LP4	EAR99	HMC750LP4E
32	Limiting w/ DC Offset	25	30	5	0.3	+3.3V @ 90mA	LC3C	EAR99	HMC865LC3C
32	Limiting w/o DC Offset	25	29	7	0.3	+3.3V @ 85mA	LC3C	EAR99	HMC866LC3C

## SMT表贴&管芯产品

### 放大器 - TIA

Data Rate (Gbps)	Function	Transimpedance (k $\Omega$ )	Input Overload (mApp)	Small Signal Bandwidth (GHz)	Deterministic Jitter (ps)	Noise (pA/ $\sqrt$ Hz)	Package	ECCN Code	Part Number
0.1 - 1.0	10 k $\Omega$ Low Noise TIA	10	20	0.7	<100	4.6	LP3	EAR99	HMC799LP3E
1 - 10	10 Gbps Transimpedance	1.25	3	7.5	<10	11	Chip	EAR99	HMC690

### 衰减器

Frequency (GHz)	Function	Insertion Loss (dB)	Attenuation Range (dB)	IIP3 (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
0.45 - 2.2	Analog VVA	1.9	0 to 48	20	0 to +3V	MS8	EAR99	HMC473MS8E
1.5 - 2.3	Analog VVA	3.3	0 to 40	15	0 to +2.5V	MS8	EAR99	HMC210MS8E
DC - 8	Analog VVA	1.5	0 to 32	10	0 to -3V	MS8G	EAR99	HMC346MS8GE
DC - 8	Analog VVA	2	0 to 30	10	0 to -3V	C8	EAR99	HMC346C8
DC - 8	Analog VVA	2	0 to 30	10	0 to -3V	G8 Hermetic	EAR99	HMC346G8
DC - 14	Analog VVA	2	0 to 30	10	0 to -3V	LP3	EAR99	HMC346LP3E
DC - 18	Analog VVA	1.5	0 to 30	10	0 to -3V	LC3B	EAR99	HMC346LC3B
DC - 20	Analog VVA	2.2	0 to 25	10	0 to -3V	Chip	EAR99	HMC346
5 - 26.5	Analog VVA	3.5	0 to 28	32	0 to -3V	LP3C	EAR99	HMC712LP3CE
5 - 30	Analog VVA	2.5	0 to 30	32	0 to -3V	Chip	EAR99	HMC712
5 - 30	Analog VVA	2	0 to 28	28	0 to -3V	LC4	EAR99	HMC812LC4
17 - 27	Analog VVA	1.5	0 to 22	17	-4 to +4V	Chip	5A991.h	HMC-VVD102
36 - 50	Analog VVA	1.5	0 to 22	17	0 to +4V	Chip	5A991.h	HMC-VVD106
70 - 86	Analog VVA	2	0 to 14	-	-5 to +5V	Chip	5A991.h	HMC-VVD104

### 衰减器 - 模拟

DC - 5	1-Bit Digital	1	10	50	TTL/CMOS	LP3	EAR99	HMC541LP3E
0.7 - 4.0	2-Bit Digital	0.5	2 to 6	52	0 / +3V	SOT26	EAR99	HMC290E
0.7 - 4.0	2-Bit Digital	0.9	4 to 12	54	0 / +3V	SOT26	EAR99	HMC291E
DC - 6	2-Bit Digital	0.5	2 to 6	50	TTL/CMOS	LP3	EAR99	HMC467LP3E
0.75 - 2.0	3-Bit Digital	1.8	4 to 28	45	0 / +3V	MS8	EAR99	HMC230MS8E
0.7 - 3.7	3-Bit Digital	1.3	2 to 14	51	0 / +3V	MS8	EAR99	HMC288MS8E
DC - 6	3-Bit Digital	0.7	1 to 7	50	TTL/CMOS	LP3	EAR99	HMC468LP3E
DC - 5.5	4-Bit Digital	0.8	1 to 15	50	TTL/CMOS	LP3	EAR99	HMC540LP3E
DC - 6	4-Bit Digital, Serial & Parallel Control	2.5	3 to 45	50	0 / +5V	LP4	EAR99	HMC629LP4E
0.7 - 2.7	5-Bit Digital	2.3	1 to 31	54	0 / +3V	QS16	EAR99	HMC274QS16E
0.7 - 3.0	5-Bit Digital	1.3	0.5 to 15.5	48	0 / +3V	MS10	EAR99	HMC603MS10E
0.7 - 3.0	5-Bit Digital	1.3	0.5 to 15.5	48	0 / +3V	QS16	EAR99	HMC603QS16E
0.7 - 3.7	5-Bit Digital, Serial Control	2.1	1 to 31	48	Serial TTL/CMOS	LP4	EAR99	HMC271LP4E
0.7 - 3.8	5-Bit Digital	2.1	1 to 31	48	0 / +3V	MS10G	EAR99	HMC273MS10GE
0.7 - 3.8	5-Bit Digital, Serial Control	1.5	0.5 to 15.5	52	Serial TTL/CMOS	LP4	EAR99	HMC305LP4E
0.7 - 3.8	5-Bit Digital	1.5	0.5 to 15.5	52	0 / +3V	MS10	EAR99	HMC306MS10E
DC - 3	5-Bit Digital	2.0	1 to 31	44	0 / -5V	G16 Hermetic	EAR99	HMC335G16
DC - 3	5-Bit Digital	1.3	1 to 31	45	TTL/CMOS	LP3	EAR99	HMC470LP3E
DC - 4	5-Bit Digital	1.9	1 to 31	44	0 / -5V	QS16G	EAR99	HMC307QS16GE
DC - 4	5-Bit Digital	0.7	0.25 to 7.75	50	TTL/CMOS	LP3	EAR99	HMC539LP3E
DC - 3.8	6-Bit Digital	1.5	0.5 to 31.5	45	TTL/CMOS	LP4	EAR99	HMC472LP4E
DC - 3	6-Bit Digital	3.0	0.5 to 31.5	32	0 / -5V	G16 Hermetic	EAR99	HMC424G16
DC - 3	6-Bit Digital, Serial Control	1.2	0.5 to 31.5	45	Serial TTL/CMOS	LP4	EAR99	HMC542LP4E
DC - 6	6-Bit Digital, Serial & Parallel Control	1.8	31.5	55	0 / +5V	LP4	EAR99	HMC624LP4E
DC - 6	6-Bit Digital	2.2	15.75	55	TTL/CMOS	LP4	EAR99	HMC792LP4E
DC - 13	6-Bit Digital	4.0	0.5 to 31.5	32	0 / -5V	Chip	EAR99	HMC424
DC - 13	6-Bit Digital	3.2	0.5 to 31.5	32	0 / -5V	LH5 Hermetic	EAR99	HMC424LH5
DC - 13	6-Bit Digital	4.0	0.5 to 31.5	32	0 / -5V	LP3	EAR99	HMC424LP3E
2.4 - 8.0	6-Bit Digital	3.5	0.5 to 31.5	40	0 / +5V	Chip	EAR99	HMC425
2.2 - 8.0	6-Bit Digital	3.2	0.5 to 31.5	40	0 / +5V	LP3	EAR99	HMC425LP3E
0.01 - 0.3	7-Bit Digital	3.3	31.75	40	TTL/CMOS	LP3	EAR99	HMC759LP3E

### 高速比较器 - 新产品线!

Analog Input B/W (GHz) / Clock Rate (Gbps)	Function	Deterministic Jitter (ps)	Propagation Delay (ps)	Output Voltage Swing (Vdc)	DC Power (mW)	Vcc / V <sub>term</sub> Power Supply (Vdc)	Package	ECCN Code	Part Number
10 / 20	Clocked Comparator-RSPECL	<3	120	0.4	150	+3.3 / +1.3	LC3C	3A001.a.11.b	HMC874LC3C
10 / 20	Clocked Comparator-RSCML	<3	120	0.4	130	0 / 0	LC3C	3A001.a.11.b	HMC875LC3C
10 / 20	Clocked Comparator-RSECL	<3	120	0.4	150	0 / -2.0	LC3C	3A001.a.11.b	HMC876LC3C
9.7 / [1]	Latched Comparator-RSPECL	2	85	0.4	140	+3.3 / 3.0	LC3C	3A001.a.11.b	HMC674LC3C

### 锁存比较器

高速比较器 - 新产品线!

Analog Input B/W (GHz) /Clock Rate (Gbps)	Function	Deterministic Jitter (ps)	Propagation Delay (ps)	Output Voltage Swing (Vdc)	DC Power (mW)	Vcc / V <sub>term</sub> Power Supply (Vdc) <sup>[2]</sup>	Package	ECCN Code	Part Number
9.7 / [1]	Latched Comparator-RSCML	2	100	0.4	100	0 / 0	LC3C	3A001.a.11.b	HMC675LC3C
9.7 / [1]	Latched Comparator-RSECL	2	100	0.35	120	0 / -2.0	LC3C	3A001.a.11.b	HMC676LC3C

[1] Note that HMC674/675/676LC3C is a family of Level Latched Comparators  
 [2] V<sub>ee</sub> = -3.0V & V<sub>cc</sub> = +3.3V

数据转换器

Input Freq. (GHz)	Function	Single Tone THD/SFDR (dB)	Maximum Clock Rate (GS/s)	Output Noise (mV RMS)	Hold Mode Feed-through Rejection (dB)	Package	ECCN Code	Part Number
DC - 4.5	Track-and-Hold	-66 / 67	3.0	0.95	>60	LC4B	3A001.a.11.b	HMC660LC4B

分频器 (预分频器) & 检测器

Input Freq. (GHz)	Function	Input Power (dBm)	Output Power (dBm)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
DC - 8	Divide-by-2	-12 to +12	-6	-148	+3V @ 42mA	SOT26	3A001.a.11.b	HMC432E
DC - 10	Divide-by-2	-15 to +10	3	-148	+5V @ 83mA	S8G	3A001.a.11.b	HMC361S8GE
DC - 11	Divide-by-2	-15 to +10	3	-148	+5V @ 105mA	Chip	3A001.a.11.b	HMC361
DC - 12.5	Divide-by-2	-15 to +10	2	-145	+5V @ 105mA	S8G	3A001.a.11.b	HMC364S8GE
DC - 13	Divide-by-2	-15 to +10	1	-145	+5V @ 105mA	Chip	3A001.a.11.b	HMC364
DC - 13	Divide-by-2	-15 to +10	5	-145	+5V @ 110mA	G8 Hermetic	3A001.a.11.b	HMC364G8
DC - 18	Divide-by-2	-15 to +10	-4	-150	+5V @ 77mA	LP3	3A001.a.11.b	HMC492LP3E
DC - 8	Divide-by-3	-12 to +12	-2	-153	+5V @ 69mA	MS8G	3A001.a.11.b	HMC437MS8GE
DC - 4	Divide-by-4	-15 to +10	3.5	-146	+3V @ 13mA	MS8	3A001.a.11.b	HMC426MS8E
DC - 8	Divide-by-4	-12 to +12	-3	-150	+3V @ 53mA	SOT26	3A001.a.11.b	HMC433E
DC - 11	Divide-by-4	-15 to +10	-6	-149	+5V @ 68mA	Chip	3A001.a.11.b	HMC362
DC - 12	Divide-by-4	-15 to +10	-6	-149	+5V @ 68mA	S8G	3A001.a.11.b	HMC362S8GE
DC - 13	Divide-by-4	-15 to +10	2	-151	+5V @ 110mA	Chip	3A001.a.11.b	HMC365
DC - 13	Divide-by-4	-15 to +10	7	-151	+5V @ 120mA	G8 Hermetic	3A001.a.11.b	HMC365G8
DC - 13	Divide-by-4	-15 to +10	2	-151	+5V @ 110mA	S8G	3A001.a.11.b	HMC365S8GE
DC - 18	Divide-by-4	-15 to +10	-4	-150	+5V @ 96mA	LP3	3A001.a.11.b	HMC493LP3E
10 - 26	Divide-by-4	-15 to +10	-4	-150	+5V @ 96mA	LC3	3A001.a.11.b	HMC447LC3
DC - 7	Divide-by-5	-12 to +12	-1	-153	+5V @ 80mA	MS8G	3A001.a.11.b	HMC438MS8GE
DC - 8	Divide-by-8	-5 to +12	-2	-150	+3V @ 62mA	SOT26	3A001.a.11.b	HMC434E
DC - 12	Divide-by-8	-15 to +10	-9	-153	+5V @ 70mA	Chip	3A001.a.11.b	HMC363
DC - 12	Divide-by-8	-15 to +10	4	-153	+5V @ 90mA	G8 Hermetic	3A001.a.11.b	HMC363G8
DC - 12	Divide-by-8	-15 to +10	-9	-153	+5V @ 70mA	S8G	3A001.a.11.b	HMC363S8GE
DC - 18	Divide-by-8	-15 to +10	-4	-150	+5V @ 105mA	LP3	3A001.a.11.b	HMC494LP4E
0.01 - 6.5	Programmable Divider (N = 1 to 17)	-15 to +10	0	-153	+5V @ 200mA	LP4	3A001.a.11.b	HMC705LP4E
0.2 - 2.0	Programmable Divider (N = 1 to 4)	-2 to +10	10	-160	+5V @ 135mA	LP3	3A001.a.11.b	HMC794LP3E
DC - 2.2	5-bit Counter, ±2 to 32	-15 to +10	4	-153	+5V @ 194mA	LP4	3A001.a.11.b	HMC394LP4E

相位/频率检测器

0.01 - 1.3	Phase Frequency Detector	-10 to +10	2 Vpk-pk	-153	+5V @ 96mA	QS16G	3A001.a.11.b	HMC439QS16GE
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倍频器 - 有源

Input Frequency (GHz)	Function	Output Frequency (GHz)	Input Power (dBm)	Output Power (dBm)	100 kHz SSB Phase Noise (dBc/Hz)	Package	ECCN Code	Part Number
3 - 4	x2 Active	6 - 9	0	17	-140	LP4	EAR99	HMC575LP4E
4.0 - 10.5	x2 Active	8 - 21	5	17	-139	Chip	EAR99	HMC561
4.0 - 10.5	x2 Active	8 - 21	5	14	-139	LP3	EAR99	HMC561LP3E
4 - 11	x2 Active	8 - 22	5	12	-134	LC3B	EAR99	HMC573LC3B
4.5 - 8.0	x2 Active	9 - 16	2	15	-140	LP4	EAR99	HMC368LP4E
4.95 - 6.35	x2 Active	9.9 - 12.7	0	4	-142	LP3	EAR99	HMC369LP3E
6.5 - 12.3	x2 Active	13.0 - 24.6	4	17	-136	Chip	EAR99	HMC814
6.85 - 12.0	x2 Active	13.5 - 24.0	3	17	-136	LC3B	EAR99	HMC814LC3B
9.0 - 14.5	x2 Active	18 - 29	3	17	-132	Chip	EAR99	HMC576
9.0 - 14.5	x2 Active	18 - 29	3	15	-132	LC3B	EAR99	HMC576LC3B
9.5 - 12.5	x2 Active	19 - 25	0	11	-135	Chip	EAR99	HMC448
10.0 - 12.5	x2 Active	20 - 25	0	11	-135	LC3B	EAR99	HMC448LC3B
11 - 23	x2 Active	22 - 46	5	15	-	Chip	EAR99	HMC598
12.0 - 16.5	x2 Active	24 - 33	3	17	-132	Chip	EAR99	HMC578
12.0 - 16.5	x2 Active	24 - 33	3	15	-132	LC3B	EAR99	HMC578LC3B
13.5 - 15.5	x2 Active	27 - 31	0	9	-132	LC3B	EAR99	HMC449LC3B
13.5 - 15.5	x2 Active	27 - 31	5	20	-128	LC4B	EAR99	HMC577LC4B
13.5 - 16.5	x2 Active	27 - 33	0	10	-132	Chip	EAR99	HMC449

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倍频器 - 有源

Input Frequency (GHz)	Function	Output Frequency (GHz)	Input Power (dBm)	Output Power (dBm)	100 kHz SSB Phase Noise (dBc/Hz)	Package	ECCN Code	Part Number
16 - 23	x2 Active	32 - 46	3	13	-127	Chip	EAR99	HMC579
2.45 - 2.8	x4 Active	9.8 - 11.2	-15	3	-142	LP4	EAR99	HMC443LP4E
2.85 - 3.3	x4 Active	11.4 - 13.2	-15 to +5	7	-140	LP4	EAR99	HMC695LP4E
3.6 - 4.1	x4 Active	14.4 - 16.4	-15	0	-140	LP4	EAR99	HMC370LP4E
14 - 16	x4 Active	56 - 64	2	-6	-	Chip	3A001.b.2.f	HMC-XDH158
1.2375 - 1.4	x8 Active	9.9 - 11.2	-15	6	-136	LP4	EAR99	HMC444LP4E
0.61875 - 0.6875	x16 Active	9.9 - 11	-15	7	-130	LP4	EAR99	HMC445LP4E

倍频器 - 无源

Input Frequency (GHz)	Function	Output Frequency (GHz)	Conversion Loss (dB)	1Fo / 4Fo Isolation (dBm)	Input Drive (dBm)	Package	ECCN Code	Part Number
0.7 - 2.4	x2 Passive	1.4 - 4.8	15	47 / 38	10 to 20	Chip	EAR99	HMC156
0.7 - 2.4	x2 Passive	1.4 - 4.8	15	47 / 38	10 to 20	C8	EAR99	HMC156C8
0.85 - 2.0	x2 Passive	1.7 - 4.0	15	45 / 40	10 to 20	MS8	EAR99	HMC187MS8E
1.25 - 3.0	x2 Passive	2.5 - 6.0	15	45 / 45	10 to 20	MS8	EAR99	HMC188MS8E
1.3 - 4.0	x2 Passive	2.6 - 8.0	15	45 / 40	10 to 20	Chip	EAR99	HMC158
1.3 - 4.0	x2 Passive	2.6 - 8.0	15	45 / 40	10 to 20	C8	EAR99	HMC158C8
2 - 4	x2 Passive	4 - 8	13	34 / 40	10 to 15	MS8	EAR99	HMC189MS8E
4 - 8	x2 Passive	8 - 16	20	45 / 38	10 to 15	Chip	EAR99	HMC204
4 - 8	x2 Passive	8 - 16	17	41 / 40	10 to 15	C8	EAR99	HMC204C8
4 - 8	x2 Passive	8 - 16	17	42 / 50	10 to 15	MS8G	EAR99	HMC204MS8GE
6 - 12	x2 Passive	12 - 24	17	32 / 32	10 to 15	Chip	EAR99	HMC205
10 - 15	x2 Passive	20 - 30	13	30	+13	Chip	5A991.h	HMC-XDB112
12 - 18	x2 Passive	24 - 36	14	50 / 60	11 to 15	Chip	EAR99	HMC331
24 - 30	x3 Passive	72 - 90	19	-	+13	Chip	5A991.h	HMC-XTB110

高速数字逻辑

Data / Clock Rate (Gbps / GHz)	Function	Rise / Fall Time (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power (mW)	DC Power Supply (Vdc)	Package	ECCN Code	Part Number
<b>1:2 Fanout Buffer</b>									
13 / 13	1:2 Fanout Buffer*	22 / 20	<1	0.4 - 1.1	240	-3.3	LC3C	3A001.a.11.b	HMC670LC3C
13 / 13	Fast Rise Time 1:2 Fanout Buffer*	19 / 18	2	0.6 - 1.1	300	-3.3	LC3C	3A001.a.11.b	HMC720LC3C
13 / 13	Fast Rise Time 1:2 Fanout Buffer	19 / 18	2	1.1	300	-3.3	LC3C	3A001.a.11.b	HMC724LC3C
13 / 13	Fast Rise Time 1:2 Fanout Buffer*	22 / 20	2	0.6 - 1.2	290	+3.3	LC3C	3A001.a.11.b	HMC744LC3C
<b>2:1 Selector</b>									
13 / 13	2:1 Selector*	17 / 15	2	0.6 - 1.2	250	-3.3	LC3C	3A001.a.11.b	HMC678LC3C
13 / 13	2:1 Selector	17 / 15	2	1.1	250	-3.3	LC3C	3A001.a.11.b	HMC728LC3C
13 / 13	2:1 Selector*	22 / 22	2	0.6 - 1.2	250	+3.3	LC3C	3A001.a.11.b	HMC748LC3C
<b>AND / NAND / OR / NOR</b>									
13 / 13	AND / NAND / OR / NOR*	22 / 20	<1	0.4 - 1.1	180	-3.3	LC3C	3A001.a.11.b	HMC672LC3C
13 / 13	Fast Rise Time AND / NAND / OR / NOR*	19 / 18	2	0.6 - 1.1	230	-3.3	LC3C	3A001.a.11.b	HMC722LC3C
13 / 13	Fast Rise Time AND / NAND / OR / NOR	19 / 18	2	1.1	230	-3.3	LC3C	3A001.a.11.b	HMC726LC3C
13 / 13	Fast Rise Time AND / NAND / OR / NOR*	22 / 21	2	0.6 - 1.2	230	+3.3	LC3C	3A001.a.11.b	HMC746LC3C
<b>Clock Divider</b>									
28 / 28	Clock Divide-by-2/4	12 / 14	-	0.6	660	-3.3	LC4B	3A001.a.11.b	HMC791LC4B
<b>D-Type Flip-Flop</b>									
13 / 13	D-Type Flip-Flop*	22 / 20	<1	0.4 - 1.1	210	-3.3	LC3C	3A001.a.11.b	HMC673LC3C
13 / 13	Fast Rise Time D-Type Flip-Flop*	19 / 17	2	0.7 - 1.3	260	-3.3	LC3C	3A001.a.11.b	HMC723LC3C
13 / 13	Fast Rise Time D-Type Flip-Flop	19 / 17	2	1.1	260	-3.3	LC3C	3A001.a.11.b	HMC727LC3C
13 / 13	Fast Rise Time D-Type Flip-Flop*	22 / 20	2	0.7 - 1.2	264	+3.3	LC3C	3A001.a.11.b	HMC747LC3C
28 / 28	D-Type Flip-Flop*	15 / 14	2	0.7 - 1.3	260	-3.3	LC3C	3A001.a.11.b	HMC853LC3C
<b>NRZ-to-RZ Converter</b>									
13 / 13	NRZ-to-RZ Converter	15 / 13	2	0.3 - 1.2	594	+3.3	LC3C	3A001.a.11.b	HMC706LC3C
<b>T Flip-Flop</b>									
26 / 26	T Flip-Flop w/ Reset*	18 / 17	2	0.4 - 1.1	270	-3.3	LC3C	3A001.a.11.b	HMC679LC3C
26 / 26	T Flip-Flop w/Reset	18 / 17	2	1.1	270	-3.3	LC3C	3A001.a.11.b	HMC729LC3C
26 / 26	T Flip-Flop w/ Reset*	18 / 17	2	0.6 - 1.2	270	+3.3	LC3C	3A001.a.11.b	HMC749LC3C
<b>XOR / XNOR</b>									
13 / 13	XOR / XNOR*	22 / 20	<1	0.4 - 1.1	180	-3.3	LC3C	3A001.a.11.b	HMC671LC3C
13 / 13	Fast Rise Time XOR / XNOR*	19 / 18	2	0.6 - 1.2	230	-3.3	LC3C	3A001.a.11.b	HMC721LC3C

高速数字逻辑

Data / Clock Rate (Gbps / GHz)	Function	Rise / Fall Time (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power (mW)	DC Power Supply (Vdc)	Package	ECCN Code	Part Number
13 / 13	Fast Rise Time XOR / XNOR	19 / 18	2	1.1	230	-3.3	LC3C	3A001.a.11.b	HMC725LC3C
13 / 13	Fast Rise Time XOR / XNOR*	21 / 19	2	0.6 - 1.2	240	+3.3	LC3C	3A001.a.11.b	HMC745LC3C

\* These products feature programmable output voltage swing.

接口产品 - 驱动器

Bit Rate (mbps)	Function	Input	Output Voltage (V)	Output Current (mA)	Bias Supply	Package	ECCN Code	Part Number
10	6-Bit Switch Driver / Controller	TTL/CMOS	-5 / +2.2	1	+5V @ 1.5mA	LP5	EAR99	HMC677LP5E

I/Q 混频器/IRMs & I/Q下变频器/接收器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Image Rejection (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
<b>I/Q 混频器/IRMs</b>								
3 - 7	I/Q Mixer / IRM	DC - 3.5	-7.5	33	23	Chip	EAR99	HMC620
3 - 7	I/Q Mixer / IRM	DC - 3.5	-7.5	32	22	LC4	EAR99	HMC620LC4
4 - 8.5	I/Q Mixer / IRM	DC - 3.5	-7.5	40	23	Chip	EAR99	HMC525
4 - 8.5	I/Q Mixer / IRM	DC - 3.5	-7.5	40	23	LC4	EAR99	HMC525LC4
5.9 - 12.0	I/Q Mixer / IRM	DC - 1.5	-8	30	18	Chip	EAR99	HMC256
6 - 10	I/Q Mixer / IRM	DC - 3.5	-7	40	22	Chip	EAR99	HMC520
6 - 10	I/Q Mixer / IRM	DC - 3.5	-7	40	23	LC4	EAR99	HMC520LC4
6 - 10	I/Q Mixer / IRM	DC - 3.5	-7.5	40	28	Chip	EAR99	HMC526
6 - 10	I/Q Mixer / IRM	DC - 3.5	-7.5	40	28	LC4	EAR99	HMC526LC4
8.5 - 13.5	I/Q Mixer / IRM	DC - 3.5	-7.5	40	24	Chip	EAR99	HMC521
8.5 - 13.5	I/Q Mixer / IRM	DC - 2	-7.5	35	28	Chip	EAR99	HMC527
8.5 - 13.5	I/Q Mixer / IRM	DC - 2	-7.5	34	28	LC4	EAR99	HMC527LC4
8.5 - 13.6	I/Q Mixer / IRM	DC - 3.5	-7.5	38	24	LC4	EAR99	HMC521LC4
10 - 16	I/Q Mixer / IRM, 0 LO	DC - 3.5	-8	25	25	LC5	EAR99	HMC775LC5
11 - 16	I/Q Mixer / IRM	DC - 3.5	-7.5	35	24	Chip	EAR99	HMC522
11 - 16	I/Q Mixer / IRM	DC - 3.5	-7.5	35	24	LC4	EAR99	HMC522LC4
11 - 16	I/Q Mixer / IRM	DC - 3.5	-8	35	27	Chip	EAR99	HMC528
11 - 16	I/Q Mixer / IRM	DC - 3.5	-8	35	26	LC4	EAR99	HMC528LC4
15 - 23	I/Q Mixer / IRM	DC - 3.5	-8	25	25	LC4	EAR99	HMC523LC4
15 - 23.6	I/Q Mixer / IRM	DC - 3.5	-8	27	25	Chip	EAR99	HMC523
19 - 33	I/Q Mixer / IRM	DC - 5	-8	25	17	Chip	5A001.h	HMC-MDB172
22 - 32	I/Q Mixer / IRM	DC - 3.5	-10	23	20	Chip	EAR99	HMC524
22 - 32	I/Q Mixer / IRM	DC - 4.5	-10	20	20	LC3B	EAR99	HMC524LC3B
31 - 38	I/Q Mixer / IRM	DC - 3.5	-10.5	17	21	Chip	EAR99	HMC555
35 - 45	I/Q Mixer / IRM	DC - 5	-8	25	17	Chip	5A991.h	HMC-MDB171
36 - 41	I/Q Mixer / IRM	DC - 3.5	-11	18	23	Chip	EAR99	HMC556
55 - 64	I/Q Mixer / IRM	DC - 3	-9	30	16	Chip	5A991.h	HMC-MDB207
26 - 33 RF	Sub-Harmonic, I/Q Mixer / IRM	DC - 3	-11	22	16	Chip	EAR99	HMC404
54 - 64 RF	Sub-Harmonic, I/Q Mixer / IRM	DC - 3	-12.5	30	7	Chip	5A991.h	HMC-MDB218

I/Q 下变频器/接收器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Noise Figure (dB)	Image Rejection (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
7 - 9	I/Q Downconverter / Receiver	DC - 3.5	10	2.5	35	1.5	LC5	EAR99	HMC567LC5
9 - 12	I/Q Downconverter / Receiver	DC - 3.5	14	2	33	-1	LC5	EAR99	HMC568LC5
12 - 16	I/Q Downconverter / Receiver	DC - 3.5	14	2.5	32	-0.5	LC5	EAR99	HMC569LC5
12 - 16	I/Q Downconverter / Receiver	DC - 3.5	14	2.5	32	-1	LC5	EAR99	HMC869LC5
17 - 21	I/Q Downconverter / Receiver	DC - 3.5	10	3	17	3	Chip	EAR99	HMC570
17 - 21	I/Q Downconverter / Receiver	DC - 3.5	10	3	18	2	LC5	EAR99	HMC570LC5
21 - 25	I/Q Downconverter / Receiver	DC - 3.5	11	3	24	5	Chip	EAR99	HMC571
21 - 25	I/Q Downconverter / Receiver	DC - 3.5	10	2	20	5	LC5	EAR99	HMC571LC5
24 - 28	I/Q Downconverter / Receiver	DC - 3.5	8	3.5	20	5	Chip	EAR99	HMC572
24 - 28	I/Q Downconverter / Receiver	DC - 3.5	8	3.5	18	5	LC5	EAR99	HMC572LC5

I/Q 上变频器/发射器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Sideband Rejection (dB)	OIP3 (dBm)	Package	ECCN Code	Part Number
11 - 17	I/Q Upconverter / Transmitter	DC - 2.0	13	20	26	LC5	EAR99	HMC709LC5
16 - 21	I/Q Upconverter / Transmitter	DC - 3.5	12	20	30	LC5	EAR99	HMC710LC5
17.7 - 23.6	I/Q Upconverter / Transmitter	DC - 3.5	15	35	35	LC5	EAR99	HMC819LC5

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### I/Q 上变频器/发射器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Sideband Rejection (dB)	OIP3 (dBm)	Package	ECCN Code	Part Number
21 - 27	I/Q Upconverter / Transmitter	DC - 3.75	12	20	27	LC5	EAR99	HMC815LC5

### 混频器

RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
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#### 高IP3混频器

0.45 - 0.5	High IP3, SGL-END	DC - 0.15	-9.5	20	32	MS8	EAR99	HMC387MS8E
0.4 - 0.65	High IP3, 0 LO	DC - 0.25	-9	7	33	MS8G	EAR99	HMC585MS8GE
0.5 - 2.7	High IP3, DBL-BAL, +2 LO	DC - 1	-8	28	28	LP4	EAR99	HMC915LP4E
0.6 - 1.2	High IP3, SGL-BAL	DC - 0.3	-7.5	22	27	MS8	EAR99	HMC350MS8E
0.7 - 1.0	High IP3, SGL-END	DC - 0.25	-8.5	24	35	MS8	EAR99	HMC399MS8E
0.7 - 1.0	High IP3, DBL-BAL, 0 LO	DC - 0.45	-7	23	32	LP4	EAR99	HMC684LP4E
0.7 - 1.1	High IP3, DBL-BAL, 0 LO	0.05 - 0.25	-7.5	24	40	LP4	EAR99	HMC786LP4
0.7 - 1.2	High IP3, DBL-BAL	DC - 0.3	-9	42	25	S8	EAR99	HMC351S8E
0.7 - 1.4	High IP3, 0 LO	DC - 0.35	-9	20	33	MS8G	EAR99	HMC483MS8GE
0.7 - 1.5	High IP3, DBL-BAL, 0 LO	DC - 0.5	-7.5	24	34	LP4	EAR99	HMC686LP4E
0.8 - 1.2	High IP3, DBL-BAL, 0 LO	DC - 0.3	-8	27	27	LP4	EAR99	HMC551LP4E
1.1 - 1.7	High IP3, DBL-BAL	DC - 0.7	-7	40	24	MS8	EAR99	HMC296MS8E
1.3 - 2.5	High IP3, DBL-BAL	DC - 0.65	-9	30	25	MS8	EAR99	HMC216MS8E
1.5 - 3.5	High IP3, DBL-BAL	DC - 1	-8	38	25	MS8	EAR99	HMC316MS8E
1.6 - 3.0	High IP3, DBL-BAL, 0 LO	DC - 1	-8	30	25	LP4	EAR99	HMC552LP4E
1.7 - 2.2	High IP3, SGL-END	DC - 0.3	-8.8	30	36	MS8	EAR99	HMC400MS8E
1.7 - 2.2	High IP3, 0 LO	0.05 - 0.3	-9.2	9	35	MS8G	EAR99	HMC485MS8GE
1.7 - 2.2	High IP3, DBL-BAL, 0 LO	DC - 0.5	-8	30	35	LP4	EAR99	HMC685LP4E
1.7 - 2.2	High IP3, DBL-BAL, 0 LO	DC - 0.5	-8	31	34	LP4	EAR99	HMC687LP4E
1.7 - 2.2	High IP3, DBL-BAL, 0 LO	0.05 - 0.30	-8	30	38	LP4	EAR99	HMC785LP4E
1.7 - 3.0	High IP3, SGL-BAL	DC - 0.8	-9	30	30	MS8	EAR99	HMC304MS8E
1.7 - 4.0	High IP3, DBL-BAL, +4 LO	DC - 1	-8	32	25	LP4	EAR99	HMC215LP4E
1.8 - 2.2	High IP3, SGL-END	DC - 0.5	-8.5	25	31	MS8	EAR99	HMC402MS8E
2.2 - 2.7	High IP3, DBL-BAL, 0 LO	DC - 0.45	-7.5	25	31	LP4	EAR99	HMC688LP4E
2.2 - 2.7	High IP3, DBL-BAL, 0 LO	DC - 0.45	-7.5	26	31	LP4	EAR99	HMC689LP4E
2.3 - 4.0	High IP3, +4 LO	DC - 1	-10	15	35	LP4	EAR99	HMC615LP4E
2.4 - 4.0	High IP3, SGL-END	DC - 1	-10	30	34	MS8	EAR99	HMC214MS8E
3.3 - 3.9	High IP3, DBL-BAL, 0 LO	DC - 0.6	-8.5	28	30	LP4	EAR99	HMC666LP4E
6 - 12	High IP3, DBL-BAL	DC - 4	-8	40	30	LC3	EAR99	HMC663LC3
9 - 15	High IP3, DBL-BAL	DC - 2.5	-7.5	40	24	MS8G	EAR99	HMC410MS8GE

#### 集成下变频器

0.7 - 1.0	Downconverter	0.05 - 0.25	12.5	25	15	QS16	EAR99	HMC420QS16E
0.7 - 1.0	High IP3, Dual Downconverter	0.06 - 0.5	7.5	16	23	LP6C	EAR99	HMC683LP6CE
0.9 - 1.6	Hi-IP3 Downconverter w/RF Amplifier	0.05 - 0.5	30	45	6	LP4	EAR99	HMC621LP4E
0.8 - 0.96	Hi-IP3 Dual Downconverter	0.05 - 0.3	9	4	26	LP6	EAR99	HMC581LP6E
0.8 - 1.0	Hi-IP3 Downconverter	0.05 - 0.25	13.8	28	15	QS16G	EAR99	HMC377QS16GE
0.8 - 2.7	Hi-IP3 Wideband Downconverter	0.001 - 0.6	-1	48	26	LP4	EAR99	HMC334LP4E
1.4 - 2.3	Hi-IP3 Downconverter	0.05 - 0.3	9	33	19	QS16G	EAR99	HMC421QS16E
1.7 - 2.2	Hi-IP3 Downconverter	0.05 - 0.3	11	25	19	QS16G	EAR99	HMC380QS16GE
1.7 - 2.2	Hi-IP3 Dual Downconverter	50 - 300	9	10	27	LP6	EAR99	HMC381LP6E
1.7 - 2.2	Hi-IP3, Dual Downconverter	0.06 - 0.4	6	25	25	LP6C	EAR99	HMC682LP6CE
1.8 - 2.7	Hi-IP3 Downconverter w/RF Amplifier	0.05 - 0.65	33	45	11	LP4	EAR99	HMC623LP4E

#### 0 to +7 dBm LO 双平衡 & 单平衡混频器

0.6 - 1.3	Low LO, DBL-BAL	DC - 0.4	-8	35	15	MS8	EAR99	HMC423MS8E
0.7 - 1.2	0 LO, DBL-BAL	0.25 - 0.45	10	36	23	LP4	EAR99	HMC665LP4E
1.8 - 3.9	+3 LO, DBL-BAL	0.2 - 0.55	9	33	23	LP4	EAR99	HMC622LP4E
1.2 - 2.5	Low LO, DBL-BAL	DC - 1	-8	30	15	MS8	EAR99	HMC422MS8E
3 - 3.8	Low LO, SGL-BAL	DC - 1	-8.5	15	10	SOT26	EAR99	HMC333E
4 - 7	0 LO, DBL-BAL	DC - 2.5	-7	32	15	MS8G	EAR99	HMC488MS8GE
4.5 - 6.0	+7 LO, DBL-BAL	DC - 1.6	-7	30	18	MS8	EAR99	HMC218MS8E

#### +10 dBm LO 双平衡 & 单平衡混频器

0.7 - 2.0	+10 LO, DBL-BAL	DC - 0.3	-9	45	17	S8	EAR99	HMC207S8E
0.7 - 2.0	+10 LO, DBL-BAL	DC - 0.5	-9	24	17	MS8	EAR99	HMC208MS8E
1.5 - 4.5	+10 LO, DBL-BAL	DC - 1.5	-8.5	40	19	MS8	EAR99	HMC213MS8E
1.7 - 3.0	+10 LO, SGL-BAL	DC - 0.8	-9	30	21	MS8	EAR99	HMC272MS8E
1.7 - 3.5	+10 LO, SGL-BAL	DC - 0.9	-9	30	21	SOT26	EAR99	HMC285E

混频器

RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
4.5 - 8.0	+10 LO, DBL-BAL	DC - 2	-8.2	35	16	C8	EAR99	HMC168C8
5 - 12	+10 LO, DBL-BAL	DC - 4	-7.5	25	17	MS8	EAR99	HMC220MS8E
7 - 10	+10 LO, DBL-BAL	DC - 2	-9	32	16	C8	EAR99	HMC171C8
<b>+13 dBm LO 双平衡 &amp; 单平衡混频器</b>								
0.7 - 1.2	+13 LO, SGL-BAL	DC - 0.3	-9	26	21	MS8	EAR99	HMC277MS8E
1.7 - 4.5	+13 LO, DBL-BAL	DC - 1	-8	30	20	MS8	EAR99	HMC175MS8E
1.7 - 4.5	+13 LO, Dual Channel	DC - 1.5	-8	-	23	LP5	EAR99	HMC340LP5E
2.5 - 4.0	+13 LO, DBL-BAL	DC - 2	-9	45	18	C8	EAR99	HMC170C8
4.5 - 9.0	+13 LO, DBL-BAL	DC - 2.5	-8.5	25	21	MS8	EAR99	HMC219MS8E
6 - 26	+13 LO, DBL-BAL	DC - 10	-9	32	20	Chip	EAR99	HMC773
6 - 26	+13 LO, DBL-BAL	DC - 8	-9	38	22	LC3B	EAR99	HMC773LC3B
7 - 14	+13 LO, DBL-BAL	DC - 5	-7	48	22	Chip	EAR99	HMC553
7 - 14	+13 LO, DBL-BAL	DC - 5	-7	50	22	LC3B	EAR99	HMC553LC3B
7 - 34	+13 LO, DBL-BAL	DC - 8	-11	32	22	LC3B	EAR99	HMC774LC3B
7 - 43	+13 LO, DBL-BAL	DC - 10	-9	35	22	Chip	EAR99	HMC774
9 - 15	+13 LO, DBL-BAL	DC - 2.5	-7.5	40 - 50	17	MS8G	EAR99	HMC412MS8GE
10 - 15	+13 LO, SGL-BAL	DC - 3	-9	27	16	MS8G	EAR99	HMC411MS8GE
11 - 20	+13 LO, DBL-BAL	DC - 6	-7	46	18	Chip	EAR99	HMC554
11 - 20	+13 LO, DBL-BAL	DC - 6	-7	46	18	LC3B	EAR99	HMC554LC3B
14 - 26	+13 LO, DBL-BAL	DC - 8	-7.5	39	20	Chip	EAR99	HMC260
14 - 26	+13 LO, DBL-BAL	DC - 8	-7.5	38	20	LC3B	EAR99	HMC260LC3B
16 - 30	+13 LO, DBL-BAL	DC - 8	-8	40	21	LC3B	EAR99	HMC292LC3B
17 - 31	+13 LO, DBL-BAL	DC - 6	-8	32	19	LM3C	EAR99	HMC292LM3C
18 - 32	+13 LO, DBL-BAL	DC - 8	-7.5	38	19	Chip	EAR99	HMC292
24 - 32	+13 LO, DBL-BAL	DC - 8	-10	38	19	LC3B	EAR99	HMC329LC3B
24 - 40	+13 LO, DBL-BAL	DC - 18	-8	35	21	Chip	EAR99	HMC560
24 - 40	+13 LO, DBL-BAL	DC - 17	-10	35	21	LM3	EAR99	HMC560LM3
25 - 40	+13 LO, DBL-BAL	DC - 8	-9.5	42	19	Chip	EAR99	HMC329
26 - 40	+13 LO, DBL-BAL	DC - 8	-8	37	19	LM3	EAR99	HMC329LM3
54 - 64	+13 LO, DBL-BAL	DC - 5	-8	30	13	Chip	5A991.h	HMC-MDB169
<b>+15 to +20 dBm LO 双平衡 &amp; 单平衡混频器</b>								
2.5 - 7	+15 LO, DBL-BAL	DC - 3	-7	48	22	Chip	EAR99	HMC557
2.5 - 7	+15 LO, DBL-BAL	DC - 3	-7	48	22	LC4	EAR99	HMC557LC4
70 - 90	+14 LO, DBL-BAL	DC - 18	-12	-	-	Chip	5A991.h	HMC-MDB277
1.8 - 5.0	+15 LO, DBL-BAL	DC - 3	-7	42	18	Chip	EAR99	HMC128
1.8 - 5.0	+15 LO, DBL-BAL	DC - 2	-10	40	18	G8 Hermetic	EAR99	HMC128G8
4 - 8	+15 LO, DBL-BAL	DC - 3	-7	40	17	Chip	EAR99	HMC129
4 - 8	+15 LO, DBL-BAL	DC - 3	-8	30	18	G8 Hermetic	EAR99	HMC129G8
4 - 8	+15 LO, DBL-BAL	DC - 3	-7	40	17	LC4	EAR99	HMC129LC4
5.5 - 14	+15 LO, DBL-BAL	DC - 6	-7	45	24	Chip	EAR99	HMC558
5.5 - 14	+15 LO, DBL-BAL	DC - 6	-7	45	24	LC3B	EAR99	HMC558LC3B
6 - 11	+15 LO, DBL-BAL	DC - 2	-7	40	17	Chip	EAR99	HMC130
6 - 15	+15 LO, DBL-BAL	DC - 2	-8.5	35	20	C8	EAR99	HMC141C8 / 142C8
6 - 18	+15 LO, DBL-BAL	DC - 6	-10	25	21	Chip	EAR99	HMC141 / 142
7 - 14	+15 LO, DBL-BAL	DC - 2	-10	35	20	LH5 Hermetic	EAR99	HMC141LH5
14 - 23	+15 LO, DBL-BAL	DC - 2	-10.5	38	18	Chip	EAR99	HMC203
5 - 20	+20 LO, DBL-BAL	DC - 3	-10	30	25	Chip	EAR99	HMC143 / 144
6 - 20	+20 LO, DBL-BAL	DC - 3	-10	35	23	LC4	EAR99	HMC144LC4
6 - 20	+20 LO, DBL-BAL	DC - 3	-10	35	24	LH5 Hermetic	EAR99	HMC144LH5
<b>谐波混频器</b>								
14 - 20	Sub-Harmonic	DC - 3	-10	40	7	LM3	EAR99	HMC258LM3
14 - 21	Sub-Harmonic	DC - 3	-10	40	7	Chip	EAR99	HMC258
14.5 - 19.5	Sub-Harmonic	DC - 3.5	-10	45	5	LC3B	EAR99	HMC258LC3B
17 - 25	Sub-Harmonic	DC - 3	-9	25 - 30	10	Chip	EAR99	HMC337
17.1 - 25.1	Sub-Harmonic, Upconverter	DC - 3.5	15	10	14	LC5	EAR99	HMC711LC5
20 - 30	Sub-Harmonic	DC - 6	-10	40	13	Chip	EAR99	HMC264
21 - 31	Sub-Harmonic	DC - 6	-9	40	13	LC3B	EAR99	HMC264LC3B
20 - 30	Sub-Harmonic	DC - 4	-9	30	10	LM3	EAR99	HMC264LM3
20 - 31	Sub-Harmonic, Downconverter	0.7 - 3.0	3	28	8	LM3	EAR99	HMC265LM3
20 - 32	Sub-Harmonic, Downconverter	0.7 - 3.0	3	20 - 40	10	Chip	EAR99	HMC265
20 - 40	Sub-Harmonic	1 - 3	-12	24	13	Chip	EAR99	HMC266
24 - 34	Sub-Harmonic	DC - 3	-11	33	13	LC3B	5A991.b	HMC338LC3B

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混频器

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RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Package	ECCN Code	Part Number
24 - 34	Sub-Harmonic	DC - 3	-10	30	22	LC4	EAR99	HMC798LC4
26 - 33	Sub-Harmonic	DC - 2.5	-9	33	11	Chip	5A991.b	HMC338
33 - 42	Sub-Harmonic	DC - 3	-10	37	10	Chip	EAR99	HMC339

解调器 - I/Q 解调器

Input Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Noise Figure (dB)	IIP3 / IIP2 (dBm)	Package	ECCN Code	Part Number
0.1 - 4.0	I/Q Demodulator	DC - 0.6	-3.5	15	+25 / +60	LP4	EAR99	HMC597LP4E

调制器 - 二相调制器

Input Frequency (GHz)	Function	Loss (dB)	Amp / Phase Balance (dB/Deg)	Carrier Suppression (dBc)	Bias Control (mA)	Package	ECCN Code	Part Number
1.8 - 5.2	Bi-Phase	8	0.2 / 2.5	30	+/- 5	Chip	EAR99	HMC135
4 - 8	Bi-Phase	8	0.1 / 4.0	30	+/- 5	Chip	EAR99	HMC136
6 - 11	Bi-Phase	9	0.25 / 10.0	20	+/- 5	Chip	EAR99	HMC137

调制器 - 直接四相调制器

Input Freq. (GHz)	Function	OIP3 (dBm) / Carrier Suppression (dBc)	Modulation Bandwidth (MHz)	Output Noise Floor (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
0.02 - 2.7	Direct Quadrature	23 / 42	DC - 700	-162	+5V @ 160mA	LP4	EAR99	HMC696LP4E
0.1 - 4	Direct Quadrature	23 / 42	DC - 700	-159	+5V @ 170mA	LP4	EAR99	HMC497LP4E
0.25 - 3.8	Direct Quadrature	14 / 38	DC - 250	-158	+3.3V @ 108mA	LP3	EAR99	HMC495LP3E
0.45 - 4.0	Direct Quadrature	22 / 43	DC - 700	-165	+5V @ 168mA	LP4	EAR99	HMC697LP4E
4 - 7	Direct Quadrature	17 / 34	DC - 250	-157	+3V @ 93mA	LP3	EAR99	HMC496LP3E

调制器 - 矢量调制器

Frequency (GHz)	Function	Gain Range (dB)	Continuous Phase Control (deg)	IP3 / Noise Floor (Ratio)	IIP3 @ Max. Gain (dBm)	Package	ECCN Code	Part Number
0.7 - 1.0	Vector	-50 to -10	360	186.5	34	LP3	EAR99	HMC630LP3E
1.8 - 2.7	Vector	-50 to -10	360	186	35	LP3	EAR99	HMC631LP3E
1.8 - 2.2	Vector	-50 to -10	360	185	33	LP3	EAR99	HMC500LP3E

无源产品 - 固定衰减器

Frequency (GHz)	Function	Attenuation Accuracy (dB)	Nominal Attenuation (dB)	Maximum Input Power (dBm)	Chip Size	Package	ECCN Code	Part Number
DC - 50	Thru Line	±0.2	0.15	-	17 x 18	Chip	EAR99	HMC650
DC - 50	Thru Line	±0.3	0.15	-	23 x 18	Chip	EAR99	HMC651
DC - 50	Passive	±0.2	2	27	17 x 18	Chip	EAR99	HMC652
DC - 50	Passive	±0.2	3	26	17 x 18	Chip	EAR99	HMC653
DC - 50	Passive	±0.2	4	25	17 x 18	Chip	EAR99	HMC654
DC - 50	Passive	±0.2	6	26	17 x 18	Chip	EAR99	HMC655
DC - 50	Passive	±0.1	10	25	17 x 18	Chip	EAR99	HMC656
DC - 25	Passive	±1.5	10	25	N/A	LP2	EAR99	HMC656LP2E
DC - 50	Passive	±0.4	15	25	17 x 18	Chip	EAR99	HMC657
DC - 25	Passive	±2	15	25	N/A	LP2	EAR99	HMC657LP2E
DC - 50	Passive	±0.5	20	25	23 x 18	Chip	EAR99	HMC658
DC - 25	Passive	±2	20	25	N/A	LP2	EAR99	HMC658LP2E

移相器 - 模拟

Frequency (GHz)	Function	Insertion Loss (dB)	Phase Range (deg)	2nd harmonic Pin = 10 dBm (dBc)	Control Voltage Range (Vdc)	Package	ECCN Code	Part Number
5 - 18	Analog	4	500° @ 5 GHz 100° @ 18 GHz	80	0V to +10V	Chip	EAR99	HMC247
6 - 15	Analog	7	750° @ 6 GHz 500° @ 15 GHz	40	0V to +5V	LP4	EAR99	HMC538LP4E

移相器 - 数字

Frequency (GHz)	Function	Insertion Loss (dB)	Phase Range (deg)	IIP3 (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
8 - 12	4-Bit Digital	5	22.5 to 360	40	0 / -3V	Chip	EAR99	HMC543
8 - 12	4-Bit Digital	6.5	22.5 to 360	37	0 / -3V	LC4B	EAR99	HMC543LC4B
15 - 18.5	5-Bit Digital	7	11.25 to 360	40	0 / -3	Chip	EAR99	HMC644
15 - 18.5	5-Bit Digital	7	11.25 to 360	40	0 / -3	LC5	EAR99	HMC644LC5
2.5 - 3.1	6-Bit Digital	4	5.625 to 360	54	0 / +5	Chip	EAR99	HMC647
2.5 - 3.1	6-Bit Digital	4	5.625 to 360	54	0 / +5	LP6	EAR99	HMC647LP6E
2.9 - 3.9	6-Bit Digital	4	5.625 to 360	45	0 / +5	Chip	EAR99	HMC648

**移相器 - 数字**

Frequency (GHz)	Function	Insertion Loss (dB)	Phase Range (deg)	IIP3 (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
2.9 - 3.9	6-Bit Digital	5	5.625 to 360	45	0 / +5	LP6	EAR99	HMC648LP6E
3 - 6	6-Bit Digital	6.5	5.625 to 360	44	0 / +5	Chip	EAR99	HMC649
3 - 6	6-Bit Digital	8	5.625 to 360	44	0 / +5	LP6	EAR99	HMC649LP6E
9 - 12	6-Bit Digital	6.5	5.625 to 360	38	0 / -3	Chip	EAR99	HMC643
9 - 12	6-Bit Digital	7	5.625 to 360	38	0 / -3	LC5	EAR99	HMC643LC5
9 - 12.5	6-Bit Digital	6.5	5.625 to 360	41	0 / +5	Chip	EAR99	HMC642
9 - 12.5	6-Bit Digital	7	5.625 to 360	41	0 / +5	LC5	EAR99	HMC642LC5

**锁相环 - 集成频综**

Frequency (GHz)	Function	Max. PFD Freq. (MHz)	Max. Reference Freq. (MHz)	Figure of Merit (Frac/Int) (dBc/Hz)	Frequency Resolution w/ 50 MHz Ref.	Bias Supply	Package	ECCN Code	Part Number
10 kHz - 8 GHz	Fractional-N w/ Int. Sweeper	75	200	-221 / -227	3 Hz	+5V @ 37mA +3.3V @ 90mA	LP6C	3A001.a.11.b	HMC701LP6CE
10 kHz - 14 GHz	Fractional-N w/ Int. Sweeper	75	200	-221 / -227	6 Hz	+5V @ 37mA +3.3V @ 136mA	LP6C	3A001.a.11.b	HMC702LP6CE
10 MHz - 8 GHz	Fractional-N	70	200	-221 / -226	3 Hz	+5V @ 7mA +3.3V @ 95mA	LP4	3A001.a.11.b	HMC700LP4E
80 MHz - 7 GHz	Integer-N	1300	1300	-233	50 MHz	+5V @ 310mA	LP5	3A001.a.11.b	HMC698LP5E
160 MHz - 7 GHz	Integer-N	1300	1300	-233	50 MHz	+5V @ 310mA	LP5	3A001.a.11.b	HMC699LP5E
10 MHz - 2.8 GHz	Integer-N	1300	1300	-233	50 MHz	+5V @ 250mA	QS16G	3A001.a.11.b	HMC440QS16GE

**带集成VCOS的PLLs - 新产品线!**

Frequency (GHz)	Function	Closed Loop SSB Phase Noise @ 10 kHz Offset	Open Loop VCO Phase Noise @ 1 MHz Offset	Pout (dBm)	RMS Jitter Fractional Mode (fs)	Integrated PN Fractional Mode (deg rms)	Package	ECCN Code	Part Number
新! 0.66 - 3.3	Tri-Band RF VCO	-115 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	3A001.a.11.b	HMC822LP6CE
新! 0.78 - 0.87	RF VCO	-120 dBc/Hz	-147 dBc/Hz	+12	190	0.05	LP6C	3A001.a.11.b	HMC824LP6CE
新! 0.86 - 4.16	Tri-Band RF VCO	-113 dBc/Hz	-140 dBc/Hz	+10	190	0.12	LP6C	3A001.a.11.b	HMC821LP6CE
新! 0.99 - 1.105	RF VCO	-118 dBc/Hz	-145 dBc/Hz	+10	190	0.07	LP6C	3A001.a.11.b	HMC826LP6CE
新! 1.095 - 5.10	Tri-Band RF VCO	-110 dBc/Hz	-139 dBc/Hz	+10	190	0.17	LP6C	3A001.a.11.b	HMC820LP6CE
新! 1.285 - 1.415	RF VCO	-116 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	3A001.a.11.b	HMC828LP6CE
新! 1.815 - 2.01	RF VCO	-112 dBc/Hz	-141 dBc/Hz	+9	190	0.13	LP6C	3A001.a.11.b	HMC831LP6CE
新! 3.365 - 3.705	RF VCO	-107 dBc/Hz	-135 dBc/Hz	0	190	0.25	LP6C	3A001.a.11.b	HMC836LP6CE
新! 7.3 - 8.2	Microwave VCO	-102 dBc/Hz	-140 dBc/Hz	+15	196	0.55	LP6C	3A001.a.11.b	HMC764LP6CE
新! 7.8 - 8.8	Microwave VCO	-102 dBc/Hz	-139 dBc/Hz	+13	193	0.58	LP6C	3A001.a.11.b	HMC765LP6CE
新! 11.5 - 12.5	Microwave VCO	-100 dBc/Hz	-134 dBc/Hz	+11	181	0.78	LP6C	3A001.a.11.b	HMC783LP6CE
新! 12.4 - 13.4	Microwave VCO	-98 dBc/Hz	-134 dBc/Hz	+8	175	0.81	LP6C	3A001.a.11.b	HMC807LP6CE

\* Figure of merit (FOM) of synthesizer is -221/-226 dBc/Hz (fractional/integer).

**电源管理器件 - 高PSRR四路线性电压调整器 - 新产品线!**

Input Voltage (V)	Function	Output Voltage (V)	Output Current (mA)	Power Supply Rejection Ratio (PSRR) (dB)		Output Noise Spectral Density (nV/√Hz)		Regulated Outputs	Package	ECCN Code	Part Number
				1 kHz	1 MHz	1 kHz	10 kHz				
新! 3.35 - 5.6	Quad High PSRR	2.5 - 5.2	15 - 100	80	60	7	3	4	LP3	EAR99	HMC860LP3E

**功率检测器**

Frequency (GHz)	Function	Dynamic Range (dB)	RSSI Slope (mV / dB)	RF Threshold Level (dBm)	Bias Supply	Package	ECCN Code	Part Number
<b>对数检测器</b>								
50 Hz - 3.0	Log Detector / Controller	74 ±3	19	-66	+3.3V @ 29mA	LP4	EAR99	HMC612LP4E
0.001 - 8.0	Log Detector / Controller	70 ±3	-25	-61	+5V @ 113mA	LP4	EAR99	HMC602LP4E
0.001 - 10.0	Log Detector / Controller	73 ±3	-25	-65	+5V @ 103mA	Chip	EAR99	HMC611
0.001 - 10.0	Log Detector / Controller	70 ±3	-25	-65	+5V @ 106mA	LP4	EAR99	HMC611LP4E
0.01 - 4.0	Log Detector / Controller	70 ±3	19	-68	+3.3V @ 30mA	LP4	EAR99	HMC601LP4E
0.05 - 4.0	Log Detector / Controller	70 ±3	19	-69	+3.3V @ 29mA	LP4	EAR99	HMC600LP4E
新! 0.05 - 8.0	Log Detector / Controller	54 ±1	17.5	-55	+5V @ 17mA	LP3	EAR99	HMC713LP3E
0.1 - 2.7	Log Detector / Controller	54 ±1	17.5	-52	+5V @ 17mA	MS8	EAR99	HMC713MS8E
8 - 30	Log Detector	54 ±3	13.3	-55	+3.3V @ 88mA	LP3	EAR99	HMC662LP3E
<b>均值功率检测器</b>								
DC - 3.9	True RMS Power Detector	69 ±1	37	-60	+5V @ 65 mA	LP4	EAR99	HMC610LP4E
0.1 - 3.9	RMS / PAR Power Detector	69 ±1	37	-57	+5V @ 65mA	LP4	EAR99	HMC614LP4E
0.1 - 3.9	Dual RMS Power Detector	71 ±1	37	-56	+5V @ 138mA	LP5	EAR99	HMC714LP5E

**连续检测对数视频放大器 (SDLVA)**

## SMT表贴&管芯产品

### 功率检测器

Frequency (GHz)	Function	Dynamic Range (dB)	RSSI Slope (mV / dB)	RF Threshold Level (dBm)	Bias Supply	Package	ECCN Code	Part Number
0.1 - 20	SDLVA	59	14	-54	+3.3V @ 83mA	LC4B	EAR99	HMC613LC4B
0.6 - 20	SDLVA	59	14	-54	+3.3V @ 80mA	LC4B	EAR99	HMC913LC4B

### 射频

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
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#### SPST & SPDT 射频

DC - 6	SPST, Failsafe	0.7	25	27	0 / +2.2 to +5V	SOT26	EAR99	HMC550E
DC - 6	SPST, Hi Isolation	1.4	52	27	0 / -5V	G7 Hermetic	EAR99	HMC231G7
DC - 2.5	SPDT, Reflective	0.4	36	29	0 / -5V	S8	EAR99	HMC239S8E
DC - 3	SPDT, Reflective	0.4	27	30	0 / +3V	MS8	EAR99	HMC190MS8E
DC - 3	SPDT, Hi Isolation	0.7	50	23	0 / +5V	MS8	EAR99	HMC194MS8E
DC - 3	SPDT, Reflective	0.4	28	30	0 / +3V	SOT26	EAR99	HMC197E
DC - 3	SPDT, Reflective	0.4	28	30	0 / +3V	SOT26	EAR99	HMC221E
DC - 3	SPDT, Reflective	0.3	31	34	0 / +3 to +8V	SOT26	EAR99	HMC545E
DC - 3.5	SPDT, Hi Isolation	0.5	45	25	0 / +5V	MS8G	EAR99	HMC284MS8GE
DC - 4	SPDT, Reflective	0.5	28	29	0 / -5V or +5V / 0	Chip	EAR99	HMC240
DC - 4	SPDT, Hi Isolation	0.8	60	35	0 / +3 to +5V	LP4C	EAR99	HMC849LP4CE
DC - 4	SPDT, Hi Isolation	0.9	65	31	0 / +5V	LP4C	EAR99	HMC349LP4CE
DC - 4	SPDT, Hi Isolation	0.9	57	31	0 / +5V	MS8G	EAR99	HMC349MS8GE
DC - 4	SPDT, Hi Isolation	1.1	47	31	0 / +5V	MS8G	EAR99	HMC435MS8GE
DC - 6	SPDT, Hi Isolation	1.4	50	26	0 / -5V	G7 Hermetic	EAR99	HMC232G7
DC - 6	SPDT, Hi Isolation	1.4	43	26	0 / -5V	G8 Hermetic	EAR99	HMC232G8
DC - 6	SPDT, Hi Isolation	1.4	43	26	0 / -5V	G8 Hermetic	EAR99	HMC233G8
DC - 6	SPDT, Hi Isolation	1.6	42	25	0 / +5V	MS8G	EAR99	HMC336MS8GE
DC - 6	SPDT, Hi Isolation	1.4	46	27	0 / -5V	G7	EAR99	HMC607G7
DC - 8	SPDT, Hi Isolation	1.4	50	26	0 / -5V	C8	EAR99	HMC232C8
DC - 8	SPDT, Hi Isolation	1.5	45	26	0 / -5V	C8	EAR99	HMC234C8
DC - 8	SPDT, Hi Isolation	1.2	48	23	0 / -5V	MS8G	EAR99	HMC270MS8GE
DC - 8	SPDT, Hi Isolation	2.0	44	23	0 / -5V	C8	EAR99	HMC347C8
DC - 8	SPDT, Hi Isolation	2.2	35	23	0 / -5V	G8 Hermetic	EAR99	HMC347G8
DC - 12	SPDT, Hi Isolation	1.5	55	27	0 / -5V	LP4	EAR99	HMC232LP4E
DC - 15	SPDT, Hi Isolation	1.4	50	26	0 / -5V	Chip	EAR99	HMC232
DC - 15	SPDT, Hi Isolation	1.6	44	23	0 / -5V	LP3	EAR99	HMC347LP3E
DC - 15	SPDT, Hi Isolation	1.7	60	26	0 / -5V	Chip	EAR99	HMC607
DC - 20	SPDT, Hi Isolation	1.7	45	23	0 / -5V	Chip	EAR99	HMC347
DC - 20	SPDT, Hi Isolation	1.8	47	23	0 / -5V	LP3	EAR99	HMC547LP3E
55 - 86	SPDT, Reflective	2	30	-	-5 / +5	Chip	5A991.h	HMC-SDD112
0.1 - 2.1	SPDT, 40W, Failsafe	0.4	22	46	0 / +3V to +8V	LP2	EAR99	HMC646LP2E
0.2 - 2.2	SPDT, 10W, Failsafe	0.4	40	> 40	0 / +3 to +8V	MS8G	EAR99	HMC546MS8GE
0.2 - 2.7	SPDT, 10W, Failsafe	0.4	35	43	0 / +3 to +8V	LP2	EAR99	HMC546LP2E
0.824 - 0.894	SPDT, 10W, T/R	0.6	22	> 40	0 / +5V	SOT26	EAR99	HMC446E
DC - 2.5	SPDT, CATV	0.6	58	28	0 / +5V	LP3	EAR99	HMC348LP3E
DC - 3	SPDT T/R	0.5	25	39	TTL/CMOS	MS8	EAR99	HMC174MS8E
DC - 3	SPDT, 5W, T/R	0.3	30	39	0 / +3 to +10V	MS8	EAR99	HMC574MS8E
DC - 3	SPDT, 3W, T/R	0.3	30	37	0 / +3 to +10V	SOT26	EAR99	HMC595E
DC - 4	SPDT T/R	0.25	23	39	0 / +3 to +5V	SOT26	EAR99	HMC544E
DC - 4	SPDT, 10W, T/R	0.4	30	40	0 / +3 to +5V	MS8G	EAR99	HMC784MS8GE
DC - 6	SPDT T/R	0.5	27	37	0 / +3 to +5V	MS8G	EAR99	HMC536MS8GE
DC - 6	SPDT T/R	0.6	27	37	0 / +3 to +5V	LP2	EAR99	HMC536LP2E
5 - 6	SPDT T/R	1.2	31	33	TTL/CMOS	MS8	EAR99	HMC224MS8E

#### 多掷开关

DC - 3.5	SP3T	0.5	44	26	TTL/CMOS	QS16	EAR99	HMC245QS16E
DC - 2	SP4T	0.8	32	24	0 / -5V	S14	EAR99	HMC182S14E
DC - 3.5	SP4T	0.5	45	25	TTL/CMOS	QS16	EAR99	HMC241QS16E
DC - 4	SP4T	0.6	47	26	TTL/CMOS	LP3	EAR99	HMC241LP3E
DC - 4	SP4T	0.7	40	25	TTL/CMOS	G16 Hermetic	EAR99	HMC244G16
DC - 8	SP4T	1.8	42	21	0 / -5V	Chip	EAR99	HMC344
DC - 8	SP4T	2.0	45	26	0 / -5V	LC3	EAR99	HMC344LC3
DC - 8	SP4T	1.8	40	21	0 / -5V	LP3	EAR99	HMC344LP3E

射频

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Control Input (Vdc)	Package	ECCN Code	Part Number
DC - 8	SP4T	2.2	32	21	0 / 5V	LP3	EAR99	HMC345LP3E
DC - 12	SP4T	1.8	42	27	0 / -5V	LH5 Hermetic	EAR99	HMC344LH5
DC - 18	SP4T	2.1	42	24	0 / -5V	Chip	EAR99	HMC641
DC - 3	SP6T	0.8	41	24	TTL/CMOS	QS24	EAR99	HMC252QS24E
DC - 2	SP8T	1.3	30	20	0 / -5V	QS24	EAR99	HMC183QS24E
DC - 2.5	SP8T	1.1	36	23	TTL/CMOS	QS24	EAR99	HMC253QS24E
DC - 3.5	SP8T	1.2	36	24	TTL/CMOS	LC4	EAR99	HMC253LC4
DC - 8	SP8T	2.3	40	23	0 / 5V	LP4	EAR99	HMC321LP4E
DC - 10	SP8T	2	38	23	0 / -5V	Chip	EAR99	HMC322
DC - 8	SP8T	2.5	25	23	0 / -5V	LP4	EAR99	HMC322LP4E

旁路开关, 开关矩阵 & 转换开关

DC - 2.5	Bypass DPDT	0.3	25	23	0 / +5V	MS8	EAR99	HMC199MS8E
4.9 - 5.9	DPDT or SP3T	1	23	30	0 / +3V	MS8G	EAR99	HMC436MS8GE
5 - 6	Diversity DPDT	1.2	20	30	0 / +5V	MS8G	EAR99	HMC393MS8GE
0.2 - 3.0	4x2 Matrix	6	44	26	0 / +5V	LP4	EAR99	HMC276LP4E
0.2 - 3.0	4x2 Matrix	6.5	43	22	0 / +3 to +5V	LP4	EAR99	HMC596LP4E
0.7 - 3.0	4x2 Matrix	5.8	33	26	0 / +5V	QS24	EAR99	HMC276QS24E
DC - 8.0	Transfer	1.2	42	26	0 / +5V	LP3	EAR99	HMC427LP3E

可变增益放大器

Frequency (GHz)	Function	Gain Control Range (dB)	NF * (dB)	OIP3 * (dBm)	P1dB (dBm)	Bias Supply	Package	ECCN Code	Part Number
2.3 - 2.5	Analog	-8 to 22	2.5	7	3	+3V @ 9mA	MS8	EAR99	HMC287MS8E
6 - 17	Analog	23	5	30	22	+5V @ 170mA	Chip	EAR99	HMC694
6 - 17	Analog	23	6	30	22	+5V @ 175mA	LP4	EAR99	HMC694LP4E
0.03 - 0.4	5-Bit digital, Differential Outputs	-4 to +19	5	40	25	+5V @ 240mA	LP4	EAR99	HMC680LP4E
0.05 - 0.8	5-Bit Digital	-8 to 15	5	35	18	+5V @ 65mA	LP4	EAR99	HMC628LP4E
0.07 - 4.0	6-Bit Digital, Serial & Parallel Control	-19.5 to 12	4	39	23	+5V @ 150mA	LP5	EAR99	HMC742LP5E
0.7 - 1.2	6-Bit Digital, Serial & Parallel Control	-2.5 to +29	0.8	38.5	21	+5V @ 236mA	LP5	EAR99	HMC707LP5E
1.7 - 2.2	6-Bit Digital, Serial & Parallel Control	-2.5 to +29	1.0	37.5	21.5	+5V @ 252mA	LP5	EAR99	HMC708LP5E
DC - 1	6-Bit Digital, Serial & Parallel Control	-11.5 to 20	4.3	36	20	+5V @ 90mA	LP5	EAR99	HMC627LP5E
DC - 1	6-Bit Digital, Parallel Control	8.5 to 40	2.8	36	20	+5V @ 176mA	LP5	EAR99	HMC626LP5E
DC - 1	6-Bit Digital, Serial Control	13.5 to 45	2.7	36	20	+5V @ 176mA	LP5	EAR99	HMC681LP5E
DC - 6	6-Bit Digital, Serial & Parallel Control	-13.5 to 18	6	33	19	+5V @ 88mA	LP5	EAR99	HMC625LP5E
DC - 4	12-Bit Digital, Serial Control	-45 to +18	6	33	18	+5V @ 82mA	LP6C	EAR99	HMC743LP6CE

\* Maximum Gain State

压控振荡器 (VCOs)\*

Fo Frequency (GHz)	Function	Fo Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
2.05 - 2.25	VCO with Buffer	3.5	-89	-112	+3V @ 35mA	LP4	EAR99	HMC384LP4E
2.25 - 2.5	VCO with Buffer	4.5	-89	-115	+3V @ 35mA	LP4	EAR99	HMC385LP4E
2.6 - 2.8	VCO with Buffer	5	-88	-115	+3V @ 35mA	LP4	EAR99	HMC386LP4E
2.75 - 3.0	VCO with Buffer	4.5	-89	-114	+3V @ 37mA	LP4	EAR99	HMC416LP4E
3.15 - 3.4	VCO with Buffer	4.9	-88	-113	+3V @ 39mA	LP4	EAR99	HMC388LP4E
3.35 - 3.55	VCO with Buffer	4.7	-89	-112	+3V @ 41mA	LP4	EAR99	HMC389LP4E
3.55 - 3.9	VCO with Buffer	4.7	-87	-112	+3V @ 42mA	LP4	EAR99	HMC390LP4E
3.9 - 4.45	VCO with Buffer	5	-81	-106	+3V @ 30mA	LP4	EAR99	HMC391LP4E
4.45 - 5.0	VCO with Buffer	4	-79	-105	+3V @ 30mA	LP4	EAR99	HMC429LP4E
5.0 - 5.5	VCO with Buffer	2	-80	-103	+3V @ 27mA	LP4	EAR99	HMC430LP4E
5.5 - 6.1	VCO with Buffer	2	-80	-102	+3V @ 27mA	LP4	EAR99	HMC431LP4E
5.8 - 6.8	VCO with Buffer	10	-82	-105	+3V @ 100mA	MS8G	EAR99	HMC358MS8GE
6.1 - 6.72	VCO with Buffer	4.5	-73	-101	+3V @ 31mA	LP4	EAR99	HMC466LP4E
6.8 - 7.4	VCO with Buffer	11	-80	-106	+3V @ 80mA	LP4	EAR99	HMC505LP4E
7.1 - 7.9	VCO with Buffer	14	-80	-101	+3V @ 85mA	LP4	EAR99	HMC532LP4E
7.8 - 8.7	VCO with Buffer	14	-80	-103	+3V @ 77mA	LP4	EAR99	HMC506LP4E
8.6 - 10.2	VCO with ±4	18	-70	-100	+5V @ 220mA	LP5	3A001.a.11.b	HMC734LP5E
10.5 - 12.2	VCO with ±4	17	-75	-100	+5V @ 220mA	LP5	3A001.a.11.b	HMC735LP5E
13.2 - 13.5	VCO with ±8	-8	-83	-110	+5V @ 230mA	QS16G	3A001.a.11.b	HMC401QS16GE
14.0 - 15.0	VCO with ±8	6	-75	-110	+5V @ 260mA	QS16G	3A001.a.11.b	HMC398QS16GE

带缓冲放大器的压控振荡器

新!

SMT表贴&管芯产品

压控振荡器 (VCOs)\*

Fo Frequency (GHz)	Function	Fo Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
23.8 - 24.8	VCO with $\pm 16$	12	-70	-95	+5V @ 220mA	LP4	3A001.a.11.b	HMC533LP4E

宽带压控振荡器

4 - 8	Wideband VCO	5	-75	-100	+5V @ 55mA	LC4B	EAR99	HMC586LC4B
5 - 10	Wideband VCO	5	-65	-95	+5V @ 55mA	LC4B	EAR99	HMC587LC4B
8 - 12.5	Wideband VCO	5	-65	-93	+5V @ 55mA	LC4B	EAR99	HMC588LC4B

\* HMC VCOs integrate resonator, negative resistance generator and tuning varactor circuits on-chip. No external components are required.

带分频器压控振荡器

Fo Frequency (GHz)	Fo/2 Frequency (GHz)	Function	Fo Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
6.65 - 7.65	3.325 - 3.825	VCO with Fo/2	13	-90	-115	+5V @ 230mA	LP5	EAR99	HMC507LP5E
7.3 - 8.2	3.65 - 4.1	VCO with Fo/2	15	-90	-116	+5V @ 240mA	LP5	EAR99	HMC508LP5E
7.8 - 8.8	3.9 - 4.4	VCO with Fo/2	13	-90	-115	+5V @ 250mA	LP5	EAR99	HMC509LP5E
9.05 - 10.15	4.525 - 5.075	VCO with Fo/2	13	-88	-115	+5V @ 265mA	LP5	EAR99	HMC511LP5E
14.5 - 15.0	7.25 - 7.5	VCO with Fo/2	9	-80	-105	+4.2V @ 150mA	LP4	EAR99	HMC736LP4E
14.9 - 15.5	7.45 - 7.75	VCO with Fo/2	9	-80	-105	+4.2V @ 150mA	LP4	EAR99	HMC737LP4E

带Fo/2 &  $\div 4$  压控振荡器

8.45 - 9.55	4.225 - 4.775	VCO with Fo/2 & $\div 4$	13	-92	-116	+5V @ 315mA	LP5	3A001.a.11.b	HMC510LP5E
9.5 - 10.8	4.75 - 5.4	VCO with Fo/2 & $\div 4$	11	-85	-110	+5V @ 350mA	LP5	3A001.a.11.b	HMC530LP5E
9.6 - 10.8	4.8 - 5.4	VCO with Fo/2 & $\div 4$	9	-85	-111	+5V @ 330mA	LP5	3A001.a.11.b	HMC512LP5E
10.43 - 11.46	5.215 - 5.73	VCO with Fo/2 & $\div 4$	7	-85	-110	+3V @ 275mA	LP5	3A001.a.11.b	HMC513LP5E
10.6 - 11.8	5.3 - 5.9	VCO with Fo/2 & $\div 4$	11	-82	-110	+5V @ 350mA	LP5	3A001.a.11.b	HMC534LP5E
11.1 - 12.4	5.55 - 6.2	VCO with Fo/2 & $\div 4$	9	-83	-110	+5V @ 350mA	LP5	3A001.a.11.b	HMC582LP5E
11.17 - 12.02	5.585 - 6.01	VCO with Fo/2 & $\div 4$	7	-87	-110	+3V @ 275mA	LP5	3A001.a.11.b	HMC514LP5E
11.5 - 12.5	5.75 - 6.25	VCO with Fo/2 & $\div 4$	10	-83	-110	+5V @ 200mA	LP5	3A001.a.11.b	HMC515LP5E
11.5 - 12.8	5.75 - 6.4	VCO with Fo/2 & $\div 4$	11	-80	-110	+5V @ 350mA	LP5	3A001.a.11.b	HMC583LP5E
12.4 - 13.4	6.2 - 6.7	VCO with Fo/2 & $\div 4$	8	-83	-110	+5V @ 260mA	LP5	3A001.a.11.b	HMC529LP5E
12.5 - 13.9	6.25 - 6.95	VCO with Fo/2 & $\div 4$	10	-81	-110	+5V @ 330mA	LP5	3A001.a.11.b	HMC584LP5E
13.6 - 14.9	6.8 - 7.45	VCO with Fo/2 & $\div 4$	7	-82	-110	+5V @ 260mA	LP5	3A001.a.11.b	HMC531LP5E
14.25 - 15.65	7.125 - 7.825	VCO with Fo/2 & $\div 4$	9	-80	-107	+5V @ 350mA	LP5	3A001.a.11.b	HMC632LP5E

带Fo/2 &  $\div 16$  压控振荡器

20.9 - 23.9	10.45 - 11.95	VCO with Fo/2 & $\div 16$	9	-65	-95	+5V @ 200mA	LP4	3A001.a.11.b	HMC738LP4E
23.8 - 26.8	11.9 - 13.4	VCO with Fo/2 & $\div 16$	8	-64	-93	+5V @ 200mA	LP4	3A001.a.11.b	HMC739LP4E

PLO

Fo Frequency (GHz)	Function	Fo Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package	ECCN Code	Part Number
14.7 - 15.4	Phase Locked Oscillator	9	-80	-110	+5V @ 340mA +12V @ 28mA	LP4	3A001.a.11.b	HMC535LP4E

高可靠, 高性能模块 (射频到光应用)

我们的金属密封模块产品和测试仪器产品系列新增加了两类模块产品。新近推出的DR0模块和MicroSynth™集成频率综合器模块加入了我们既有的放大器、衰减器、高速数字逻辑、混频器、移相器、分频器、信号发生器、射频开关和VCO模块产品系列。我们采用我们标准的MMIC产品, 利用我们在设计、生产和质量控制方面的技术和经验设计和生产模块类产品。请联系我们讨论您订制模块产品的要求。



### 特点:

- ◆ 现货供应
- ◆ 金属密封封装
- ◆ 内部DC电源整形
- ◆ 接头现场可替换
- ◆ 提供订制服务

### 放大器

Frequency (GHz)	Function	Gain (dB)	OIP3 (dBm)	NF (dB)	P1dB (dBm)	Bias Supply	Package / Connector	ECCN Code	Part Number
1 - 12	Low Noise	16	30	1.8	16	+6V @ 60mA	C-10B / SMA	EAR99	HMC-C059
1.8 - 4.2	Low Noise	26	26	0.7	15.5	+8V @ 112mA	C-10 / SMA	EAR99	HMC-C045
5 - 9	Low Noise	24	25	1.4	15	+12V @ 105mA	C-10 / SMA	EAR99	HMC-C048
29 - 36	Low Noise	20	22	2.9	11	+3V @ 80mA	C-10 / 2.92mm	3A001.b.4.c	HMC-C027
2 - 20	Wideband LNA	15	25	2.5	14	+12V @ 65mA	C-1 / SMA	EAR99	HMC-C001
2 - 20	Wideband LNA	14	26	2	18	+12V @ 60mA	C-2 / SMA	EAR99	HMC-C002
2 - 20	Wideband LNA	14	27	2	16	+8V @ 75mA	C-2B / SMA	EAR99	HMC-C022
7 - 17	Wideband LNA	22	25	2	14	+8V @ 93mA	C-1 / SMA	EAR99	HMC-C016
17 - 27	Wideband LNA	18	25	3	14	+8V @ 96mA	C-1B / 2.92mm	EAR99	HMC-C017
0.01 - 15	Wideband Driver	16	33	3	23	+12V @ 195mA	C-3 / SMA	3A001.b.4.f	HMC-C004
0.01 - 15	Wideband Driver	15	30	3	23	+12V @ 225mA	C-3B / SMA	3A001.b.4.f	HMC-C024
2 - 35	Wideband Driver	12	29	3	18	+11V @ 92mA	C-10 / 2.92mm	3A001.b.4.c	HMC-C038
新! 0.01 - 6.0	Power Amplifier, 1 Watt	13	40	5	29.5	-5V @ 5mA +15V @ 450mA	C-17 / SMA	EAR99	HMC-C074
新! 0.01 - 6.0	Power Amplifier, 1 Watt	24	42	5	29.5	-5V @ 5mA +15V @ 740mA	C-17 / SMA	EAR99	HMC-C075
0.05 - 15	Wideband Power Amplifier, 1/2 Watt	12	36	4	28	+11V @ 360mA	C-10B / SMA	3A001.b.4.f	HMC-C036
0.05 - 15	Wideband Power Amplifier, 1/2 Watt	12	36	4	28	+11V @ 360mA	C-12 / SMA	3A001.b.4.f	HMC-C037
2 - 20	Wideband Power Amplifier	15	34	4	26	+12V @ 310mA	C-2 / SMA	3A001.b.4.f	HMC-C003
2 - 20	Wideband Power Amplifier	15	34	4	26	+12V @ 310mA	C-2B / SMA	3A001.b.4.f	HMC-C023
2 - 20	Wideband Power Amplifier	31	33	3	26	+12V @ 400mA	C-3B / SMA	3A001.b.4.f	HMC-C026
17 - 24	Wideband Power Amplifier	22	33	3.5	24	+8V @ 250mA	C-10 / 2.92mm	3A001.b.4.f	HMC-C020
21 - 31	Wideband Power Amplifier	15	32	5	24	+8V @ 215mA	C-10 / 2.92mm	3A001.b.4.c	HMC-C021
0.4 - 1.0	10 Watt Power Amplifier	40	54	12	40	+12V @ 6.5A	C-7 / SMA	EAR99	HMC-C012
0.8 - 2.0	10 Watt Power Amplifier	43	56	12	40	+12V @ 6.5A	C-7 / SMA	EAR99	HMC-C013
1.8 - 2.2	15 Watt Power Amplifier	42	53	6	42	+14V @ 6.5A	C-7 / SMA	EAR99	HMC-C008

### 放大器 - 低相位噪声

Frequency (GHz)	Function	Gain / NF (dB)	OIP3 (dBm)	Phase Noise (dBc/Hz)	P1dB / Psat (dBm)	Bias Supply	Package / Connector	ECCN Code	Part Number
新! 1.5 - 5.0	Low Phase Noise	14 / 4.5	26.5	-157	17 / 22	+7V @ 170mA	C-16 / SMA	EAR99	HMC-C077
2 - 18	Low Phase Noise	13.5 / 5	22.5	-150	15 / 18.5	+5V @ 80mA	C-1 / SMA	EAR99	HMC-C050
6 - 12	Low Phase Noise	11 / 4.5	34	-174	20 / 22	+7V @ 170mA	C-16 / SMA	EAR99	HMC-C072
新! 7 - 11	Low Phase Noise	9 / 6	33	-180	22 / 25	+7V @ 300mA	C-16 / SMA	EAR99	HMC-C076

### 衰减器 - 模拟&数字

Frequency (GHz)	Function	Loss (dB)	Attenuation Range (dB)	IIP3 (dBm)	Control Input (Vdc)	Package / Connector	ECCN Code	Part Number
DC - 20	Analog VVA	5.5	35	10	-5	C-10 / SMA	EAR99	HMC-C053
DC - 13	6-Bit Digital, Serial Control	3.6	0.5 to 31.5	32	Serial TTL/CMOS	C-6 / SMA	EAR99	HMC-C018
DC - 13	6-Bit Digital	3.2	0.5 to 31.5	38	0 / +5V	C-6 / SMA	EAR99	HMC-C025

# 带接头模块

高可靠, 高性能模块 (射频到光应用)

## DROs - 新产品线!

Frequency (GHz)	Function	Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Frequency Drift (ppm/°C)	Bias Supply	Package	ECCN Code	Part Number
8.0 - 8.3	Dielectric Resonator Oscillator	14.5	-122	-140	2	+6 to +15V @ 125mA	C-18 / SMA	EAR99	HMC-C200

新!

## 分频器 - 预分频器

Input Freq. (GHz)	Function	Input Power (dBm)	Output Power (dBm)	100kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package / Connector	ECCN Code	Part Number
DC - 18	Divide-by-2	-15 to +10	-4	-150	+5V @ 75mA	C-1 / SMA	3A001.a.11.b	HMC-C005
DC - 18	Divide-by-4	-15 to +10	-4	-150	+5V @ 93mA	C-1 / SMA	3A001.a.11.b	HMC-C006
0.5 - 8	Divide-by-5	-15 to +10	-1	-155	+5V @ 80 mA	C-1 / SMA	3A001.a.11.b	HMC-C039
DC - 18	Divide-by-8	-15 to +10	-4	-150	+5V @ 98mA	C-1 / SMA	3A001.a.11.b	HMC-C007
0.5 - 17	Divide-by-10	-15 to +10	-1	-155	+5V @ 152mA	C-1 / SMA	3A001.a.11.b	HMC-C040

## 倍频器 - 有源

Input Freq. (GHz)	Function	Output Freq. (GHz)	Input Power (dBm)	Output Power (dBm)	100kHz SSB Phase Noise (dBc/Hz)	Package / Connector	ECCN Code	Part Number
3 - 5	x2 Active	6 - 10	3	17	-140	C-10 / SMA	EAR99	HMC-C031
9.0 - 14.5	x2 Active	18 - 29	3	16	-132	C-10 / 2.92mm	EAR99	HMC-C032
12.0 - 16.5	x2 Active	24 - 33	3	17	-132	C-10 / 2.92mm	EAR99	HMC-C033
16 - 23	x2 Active	32 - 46	3	13	-130	C-10 / 2.92mm	EAR99	HMC-C034
4.0 - 10.5	x2 Active	8 - 21	6	14	-142	C-10 / SMA	EAR99	HMC-C056

## 高速数字逻辑产品

Data / Clock Rate (Gbps / GHz)	Function	Rise / Fall Time (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power (mW)	Vee Power Supply (Vdc)	Package / Connector	ECCN Code	Part Number
50 / 25	AND / NAND / OR / NOR	9 / 10	2	0.5	560	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C065
50 / 30	1:2 Fanout Buffer	9.5 / 11	2	0.5	455	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C062
43 / 43	D-Type Flip-Flop	9 / 10	1.5	0.5	580	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C060
50 / 25	D-Type Flip-Flop Double Edge Triggered	8.5 / 10	1.5	0.5	690	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C061
50 / 25	XOR / XNOR	6.5 / 10	2	0.5	550	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C064

## I/Q 混频器

RF / LO Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	Image Rejection (dB)	IIP3 (dBm)	Package / Connector	ECCN Code	Part Number
4 - 8.5	I/Q Mixer / IRM	DC - 3.5	-7.5	35	23	C-4 / SMA	EAR99	HMC-C009
6 - 10	I/Q Mixer / IRM	DC - 3.5	-7.5	35	25	C-4 / SMA	EAR99	HMC-C041
8.5 - 13.5	I/Q Mixer / IRM	DC - 2	-8	28	25	C-4 / SMA	EAR99	HMC-C042
11 - 16	I/Q Mixer / IRM	DC - 3.5	-9	30	28	C-4 / SMA	EAR99	HMC-C043
15 - 23	I/Q Mixer / IRM	DC - 3.5	-8	30	25	C-4 / 2.92mm & SMA	EAR99	HMC-C044
20 - 31	I/Q Mixer / IRM	DC - 4.5	-10	24	22.5	C-4B / 2.92mm & SMA	EAR99	HMC-C046
30 - 38	I/Q Mixer / IRM	DC - 3.5	-10.5	15	19	C-4 / 2.92mm & SMA	EAR99	HMC-C047

## 混频器

RF Frequency (GHz)	Function	IF Frequency (GHz)	Conversion Gain (dB)	LO/RF Isolation (dB)	IIP3 (dBm)	Package / Connector	ECCN Code	Part Number
7 - 14	+13 LO, DBL-BAL	DC - 5	-7	48	20	C-11 / SMA	EAR99	HMC-C049
11 - 20	+13 LO, DBL-BAL	DC - 6	-7	43	18	C-11 / SMA	EAR99	HMC-C051
16 - 32	+13 LO, DBL-BAL	DC - 8	-8	35	19	C-11 / 2.92mm & SMA	EAR99	HMC-C014
23 - 37	+13 LO, DBL-BAL	DC - 13	-9	35	19	C-11 / 2.92mm & SMA	EAR99	HMC-C035
24 - 38	+13 LO, DBL-BAL	DC - 8	-8.5	35	20	C-11 / 2.92mm & SMA	EAR99	HMC-C015

## 移相器 - 模拟

Frequency (GHz)	Function	Insertion Loss (dB)	Phase Range (deg)	2nd harmonic Pin = 10 dBm (dBc)	Control Voltage Range (Vdc)	Package / Connector	ECCN Code	Part Number
6 - 15	Analog	7	750° @ 6 GHz 450° @ 15 GHz	40	0V to +5V	C-1 / SMA	EAR99	HMC-C010

## 移相器 - 数字

Frequency (GHz)	Function	Insertion Loss (dB)	Phase Range (deg)	IIP3 (dBm)	Control Voltage Range (Vdc)	Package / Connector	ECCN Code	Part Number
8 - 12	4-Bit Digital	7	22.5 to 360	38	0V to +5V	C-6 / SMA	EAR99	HMC-C055

高可靠, 高性能模块 (射频到光应用)

## 功率检测器

Frequency (GHz)	Function	Dynamic Range (dB)	RSSI Slope (mV / dB)	RF Threshold Level (dBm)	Bias Supply	Package / Connector	ECCN Code	Part Number
0.1 - 3.9	True RMS Power Detector	70±1	37	-72	+12V @ 81mA	C-6 / SMA	EAR99	HMC-C054
1 - 20	SDLVA *	59	14	-67	+12V @ 86mA	C-10 / 2.92mm	EAR99	HMC-C052

\* Successive Detection Log Video Amplifier

## 射频开关 - SPST, SPDT & SP4T

Frequency (GHz)	Function	Insertion Loss (dB)	Isolation (dB)	Input P1dB (dBm)	Control Input (Vdc)	Package / Connector	ECCN Code	Part Number
DC - 20	SPST, Hi Isolation	3	100	23	0 / +5V	C-9 / SMA	EAR99	HMC-C019
DC - 18	SPDT, Hi Isolation	2	55	27	0 / +5V	C-14 / SMA	EAR99	HMC-C058
DC - 20	SPDT, Hi Isolation	2	40	23	0 / -5V	C-5 / SMA	EAR99	HMC-C011
DC - 20	SP4T, Hi Isolation	3	40	24	0 / +5V	C-15 / SMA	EAR99	HMC-C071

## 带接头频率综合器模块 - MicroSynth™

Frequency (GHz)	Function	Min. Step Size Resolution (Hz)	Reference Frequency (MHz)	Phase Noise @ 100 kHz Offset (dBc/Hz)	Output Power (dBm)	Bias Supply	Package	ECCN Code	Part Number
新! 5.5 - 10.5	Microsynth™ Synthesizer	1.2	10	-92	21	+20V @ 20mA +6V @ 300mA +3.6V @ 100mA	C-20 / SMA	3A001.a.11.b	HMC-C070

## 压控振荡器\*

Frequency (GHz)	Function	Output Power (dBm)	10k Hz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Bias Supply	Package / Connector	ECCN Code	Part Number
4 - 8	Wideband VCO	20	-75	-95	+12V @ 185mA	C-1 / SMA	EAR99	HMC-C028
5 - 10	Wideband VCO	20	-64	-93	+12V @ 195mA	C-1 / SMA	EAR99	HMC-C029
8 - 12.5	Wideband VCO	21	-59	-83	+12V @ 195mA	C-1 / SMA	EAR99	HMC-C030
新! 38.4 - 43.2	Wideband VCO	13	-74	-98	+5V @ 350mA	C-19 / SMA	EAR99	HMC-C073

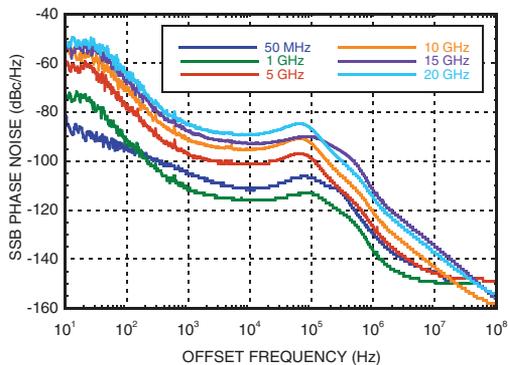
### HMC-T2100



#### 性能

- ◆ 10 MHz to 20 GHz
- ◆ 输出功率: +27 dBm
- ◆ 功率步进: 0.1 dB
- ◆ 频率步进: 10 kHz
- ◆ SSB 相位噪声 @ 100 kHz: -113 dBc/Hz @ 1 GHz
- ◆ 杂散@ 1 GHz: -80 dBc
- ◆ USB, GPIB & Ethernet Control

#### 单边带相位噪声 vs. 频率



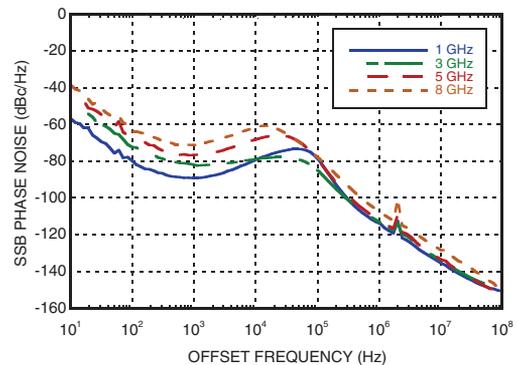
### HMC-T2000



#### 性能

- ◆ 700MHz to 8 GHz
- ◆ 输出功率: +17 dBm
- ◆ 功率步进: 0.5 dB
- ◆ 频率步进: 1 MHz
- ◆ SSB 相位噪声 @ 100 KHz: -78 dBc/Hz @ 1 GHz
- ◆ 杂散@ 1 GHz: -57 dBc
- ◆ USB 控制

#### 单边带相位噪声 vs. 频率



#### 应用

- ◆ 自动化测试设备ATE
- ◆ 测试&测量
- ◆ R&D实验室

#### 优势

- ◆ 通用性: 高输出简化测试设置
- ◆ 高效性: 快速频率切换
- ◆ 精确性: 集成Hittite高质量MMIC
- ◆ 灵活性: USB手动和软件控制

#### 可选安装架套件!



双路支架安装平台 19" 2u底盘

如果您有订制测试仪器要求, 请即联系我们: [TE@hittite.com](mailto:TE@hittite.com)

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

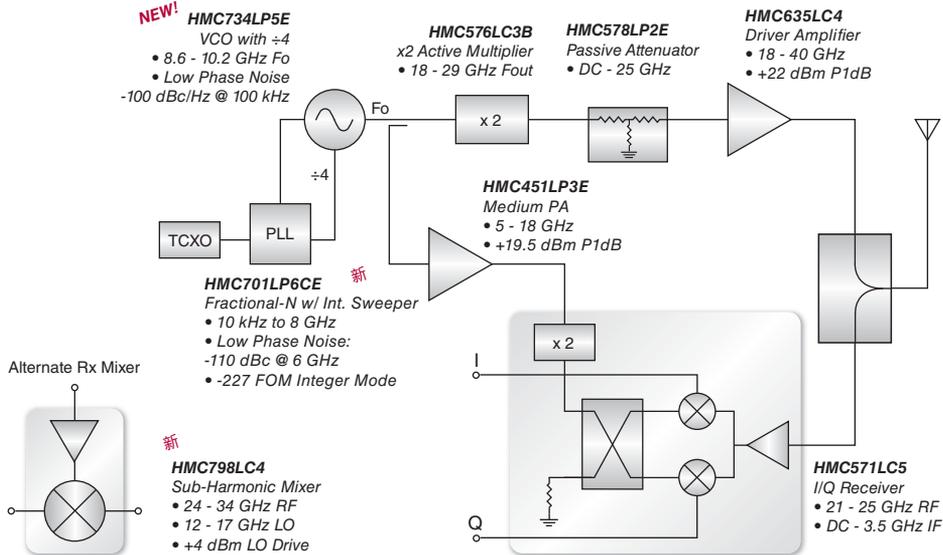
## 汽车电子: DC - 6 GHz 和 6 - 80 GHz

Function	DC - 6 GHz			6 - 80 GHz		
	Chip	SMT		Chip	SMT	
<b>Amplifiers Gain Blocks &amp; Drivers</b>	HMC396 HMC405 HMC397	HMC311LP3E HMC311ST89E HMC313E HMC770LP4BE	HMC474MP86E HMC478MP86E HMC480ST89E	HMC562 HMC465 HMC606	HMC383LC4 HMC442LC3B HMC451LC3 HMC462LP5E HMC463LP5E	HMC464LP5E HMC465LP5E HMC489LP5E HMC490LP5E HMC635LC4
<b>Low Noise Amplifier</b>	HMC392 HMC609 HMC594	HMC374E HMC392LH5 HMC548LP3E HMC667LP2E HMC758LP3E	HMC594LC3B HMC604LP3E HMC605LP3E HMC617LP3E	HMC565 HMC518 HMC263 HMC566 HMC-ALH508 HMC-ALH509	HMC341LC3B HMC504LC4B HMC516LC5 HMC519LC4	HMC517LC4 HMC565LC5
<b>Linear &amp; Power Amplifier</b>	HMC459 HMC559 HMC606	HMC318MS8GE HMC320MS8GE HMC327MS8GE	HMC407MS8GE HMC409LP4E HMC606LC5	HMC464 HMC562 HMC592 HMC693 HMC-ABH264	HMC383LC4 HMC464LP5E	HMC489LP5E HMC498LC4 HMC499LC4
<b>Attenuator: Analog</b>		HMC346C8		HMC712	HMC812LC4	HMC712LP3CE
<b>Attenuator: Digital</b>		HMC425LP3E HMC467LP3E HMC468LP3E HMC540LP3E HMC629LP4E	HMC759LP3E HMC792LP4E			
<b>Frequency Divider &amp; Detector</b>	HMC361 HMC362	HMC432E HMC433E	HMC437MS8GE HMC438MS8GE HMC794LP3E	HMC363 HMC365	HMC447LC3 HMC492LP3E	HMC493LP3E HMC494LP4E
<b>Frequency Multipliers: Active</b>	HMC561	HMC369LP3E HMC370LP4E HMC443LP4E HMC695LP4E	HMC444LP4E HMC575LP4E HMC561LP3E HMC695LP4E	HMC449 HMC576 HMC579 HMC-XDH158	HMC370LP4E HMC449LC3B HMC573LC3B	HMC576LC3B HMC577LC4B HMC578LC3B
<b>Frequency Multipliers: Passive</b>	HMC156	HMC187MS8E	HMC188MS8E	HMC205 HMC-XTB110	HMC204MS8GE	
<b>Mixer Fundamental</b>	HMC128 HMC129	HMC175MS8E HMC213MS8E HMC218MS8E	HMC285E HMC488MS8GE HMC615LP4E	HMC292 HMC554 HMC560 HMC-MDB169 HMC-MDB277	HMC144LC4 HMC260LC3B HMC292LC3B	HMC329LC3B HMC554LC3B HMC560LM3
<b>Mixers: I/Q, IRM, Sub-Harmonic &amp; I/Q Upconverters/ Downconverters</b>	HMC525 HMC620	HMC340LP5E HMC525LC4	HMC620LC4	HMC339 HMC404 HMC556 HMC572 HMC-MDB171 HMC-MDB172 HMC-MDB207 HMC-MDB218	HMC258LM3 HMC264LC3B HMC265LM3 HMC338LC3B HMC709LC5 HMC815LC5 HMC869LC5	HMC522LC4 HMC523LC4 HMC528LC4 HMC572LC5 HMC710LC5 HMC798LC4
<b>Modulator</b>		HMC495LP3E HMC696LP4E HMC697LP4E	HMC497LP3E HMC696LP4E HMC697LP4E		HMC496LP3E	
<b>PLLs: Synthesizer ICs</b>		HMC698LP5E HMC699LP5E	HMC700LP4E HMC701LP6CE		HMC698LP5E HMC699LP5E	HMC700LP4E HMC701LP6CE
<b>Power Detector</b>		HMC601LP4E HMC713LP3E	HMC610LP4E		HMC602LP4E HMC713MS8E HMC714LP5E	HMC611LP4E HMC662LP3E
<b>Switch: SPST, SPNT, SPDT, SPDT T/R, Bypass, Diversity, Matrix &amp; Transfer</b>	HMC240 HMC322 HMC344 HMC641	HMC321LP4E HMC332E HMC336MS8GE HMC544E HMC436MS8GE	HMC536MS8GE HMC550E HMC784MS8GE HMC849LP4CE	HMC232 HMC347 HMC607 HMC-SDD112	HMC232LP4E HMC321LP4E HMC344LP3E	HMC347LP3E HMC427LP3E HMC547LP3E
<b>VGAs: Digital</b>		HMC625LP4E HMC743LP6CE	HMC742LP5E			
<b>VCO * Requires x2 or x4</b>		HMC388LP4E HMC389LP4E HMC390LP4E	HMC391LP4E HMC431LP4E HMC586LC4B		HMC515LP5E* HMC531LP5E* HMC534LP4E HMC736LP4E	HMC535LP5E HMC587LC4B HMC588LC4B HMC737LP4E

# 市场 & 应用指南

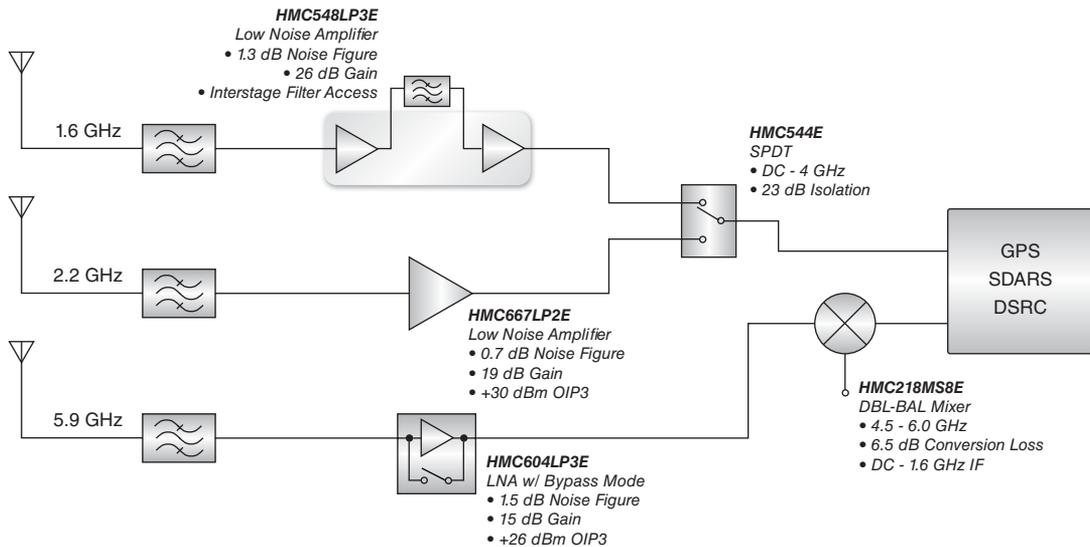
汽车电子: 远程通信 & 传感, 2 - 110 GHz

## 24GHz FMCW 汽车传感



典型的汽车电子应用框图。  
更多针对每一级应用的HMC产品请参考我们详细的产品列表。

## GPS, SDARS & DSRC 射频前端, 用于远程通信



典型的汽车电子应用框图。  
更多针对每一级应用的HMC产品请参考我们详细的产品列表。

汽车电子

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 宽带通信, DC-11 GHz - CATV, DBS, VoIP, Wimax, WiBro & WLAN

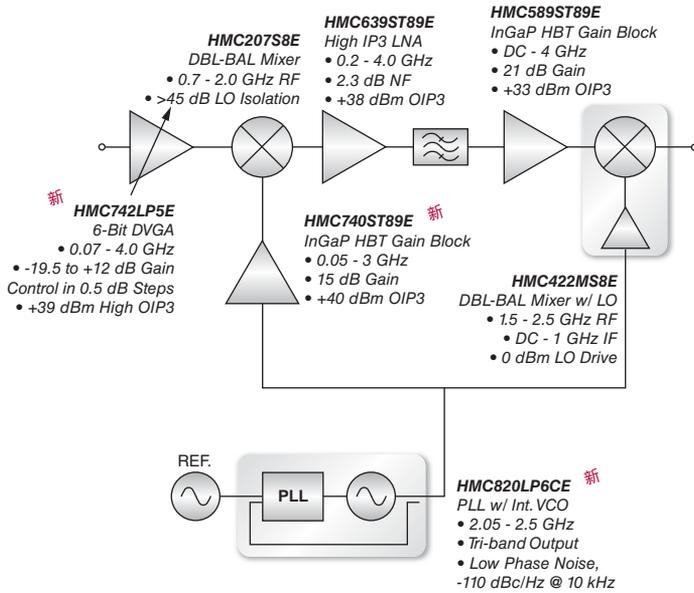
Function	0.005 - 2.15 GHz CATV & DBS	1.8 - 2.7 GHz WiMAX / WiBro	3.3 - 3.9 GHz WiMAX / WiBro	4.9 - 5.9 GHz WiMAX / Fixed
<b>Low Noise Amplifier</b>	HMC548LP3E HMC549MS8GE HMC599ST89E	HMC286E HMC287MS8GE HMC605LP3E HMC636ST89E HMC639ST89E HMC715LP3E	HMC476SC70E HMC491LP3E HMC593LP3E HMC636ST89E HMC639ST89E HMC716LP3E	HMC318MS8GE HMC320MS8GE HMC476SC70E HMC604LP3E HMC717LP3E
<b>Driver Amplifier &amp; Gain Block</b>	HMC311SC70E HMC454ST89E HMC474SC70E HMC475ST89E HMC476SC70E HMC589ST89E HMC770LP4BE	HMC308E HMC311SC70E HMC474SC70E HMC475ST89E HMC476SC70E HMC589ST89E HMC755LP4E	HMC311SC70E HMC326MS8GE HMC327MS8GE HMC474SC70E HMC475ST89E HMC476SC70E	HMC311SC70E HMC406MS8GE HMC407MS8GE HM415LP3E HMC474SC70E HMC476SC70E
<b>Linear &amp; Power Amplifier</b>	HMC453QS16GE HMC636ST89E	HMC454ST89E HMC636ST89E	HMC409LP4E HMC636ST89E	HMC408LP3E
<b>Attenuator: Analog</b>	HMC473MS8E	HMC346MS8GE	HMC346MS8GE	HMC346MS8GE
<b>Attenuator: Digital</b>	HMC467LP3E HMC468LP3E HMC542LP4E HMC624LP4E HMC629LP4E HMC759LP3E	HMC305LP4E HMC540LP3E HMC542LP4E HMC624LP4E HMC629LP4E HMC792LP4E	HMC424LP3E HMC467LP3E HMC539LP3E HMC624LP4E HMC629LP4E HMC792LP4E	HMC425LP3E HMC467LP3E HMC468LP3E HMC624LP4E HMC629LP4E HMC792LP4E
<b>Mixer</b>	HMC207S8E HMC208MS8E HMC216MS8E HMC400MS8E HMC483MS8GE	HMC215LP4E HMC285E HMC316MS8E HMC334LP4E HMC552LP4E HMC557 HMC557LC4 HMC557LC4 HMC622LP4E HMC688LP4E HMC689LP4E	HMC214MS8E HMC215LP4E HMC333E HMC340LP5E HMC557 HMC557LC4 HMC615LP4E HMC622LP4E HMC666LP4E	HMC220MS8E HMC218MS8E HMC219MS8E HMC488MS8GE HMC525LC5 HMC557 HMC557LC4
<b>Demodulator</b>	HMC597LP4E	HMC597LP4E HMC631LP3E	HMC597LP4E	
<b>Modulator</b>	HMC495LP3E HMC497LP4E HMC696LP4E	HMC495LP3E HMC497LP4E HMC696LP4E HMC697LP4E	HMC495LP3E HMC497LP4E HMC697LP4E	HMC496LP3E
<b>Phase Shifter: Digital</b>		HMC647 HMC647LP6E	HMC648 HMC648LP6E HMC649 HMC649LP6E	HMC649 HMC649LP6E HMC638LP5E
<b>PLL</b>	HMC700LP4E	HMC700LP4E	HMC700LP4E	HMC700LP4E
<b>Power Detector</b>	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E
<b>Switch: SPST &amp; SPNT</b>	HMC253QS24E HMC536MS8GE HMC536LP2E HMC544E HMC550E HMC646LP2E HMC784MS8GE HMC849LP4CE	HMC241LP3E HMC536MS8GE HMC546LP2E HMC550E HMC784MS8GE HMC849LP4CE	HMC241LP3E HMC349MS8GE HMC536MS8GE HMC544E HMC550E HMC784MS8GE HMC849LP4CE	HMC224MS8E HMC321LP4 HMC536LP2E HMC536MS8GE HMC550E
<b>Switch: Bypass, Diversity, Matrix &amp; Transfer</b>	HMC276LP4E HMC427LP3E HMC596LP4E	HMC276LP4E HMC427LP3E HMC596LP4E	HMC427LP3E	HMC436MS8GE HMC427LP3E
<b>VCO</b>	HMC384LP4E	HMC384LP4E HMC385LP4E	HMC388LP4E HMC389LP4E	HMC430LP4E HMC431LP4E
<b>VGA</b>	HMC625LP5E HMC626LP5E HMC627LP5E HMC628LP4E	HMC625LP5E HMC680LP4E HMC681LP5E	HMC625LP5E HMC680LP4E HMC681LP5E	HMC625LP5E HMC680LP4E HMC681LP5E

# 市场 & 应用指南

宽带通信, DC - 11 GHz

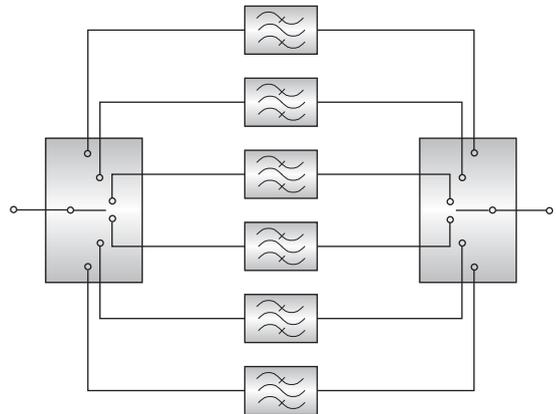
## Cable Modem, CATV, DBS & VoIP 解决方案, 5 - 2150 MHz

Cable Modem Termination System (CMTS)



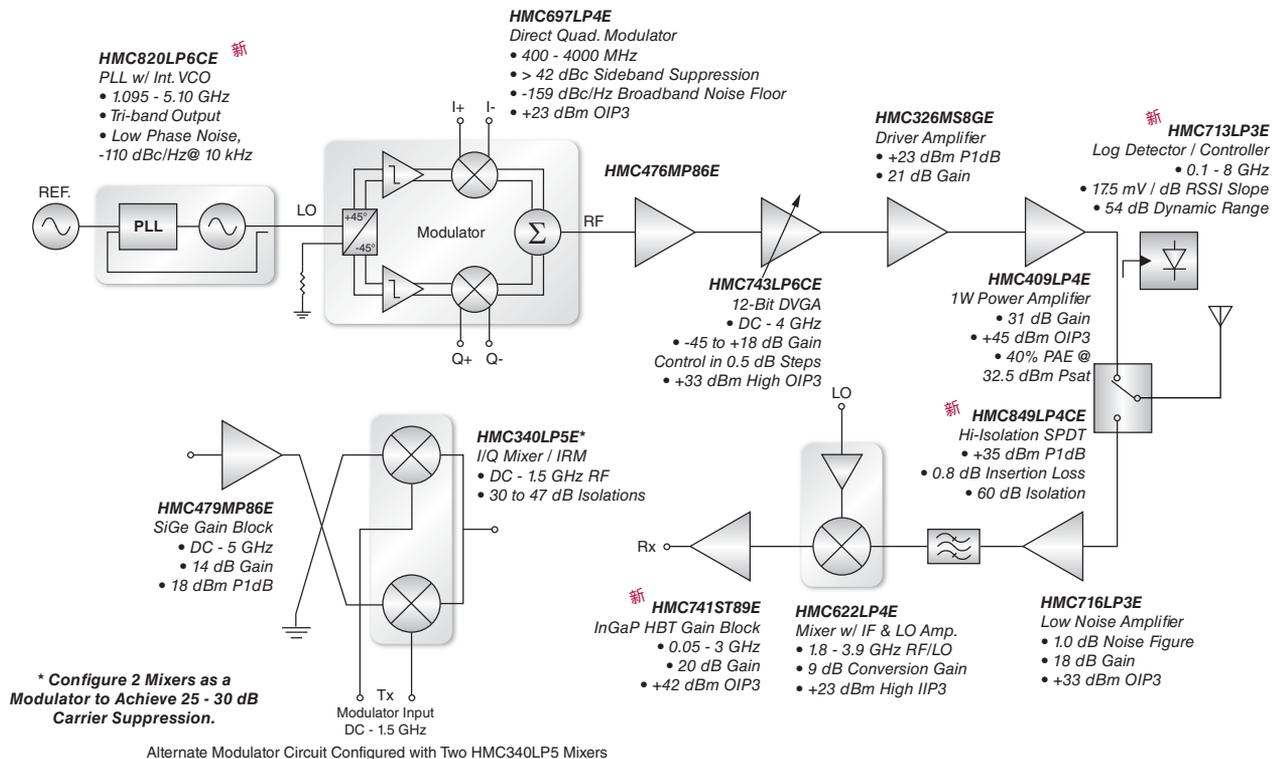
A Selection of SPNT Switches for CATV Filter & Signal Routing

Part Number	Frequency (GHz)	Function	1 GHz Loss / Isolation (dB)
HMC348LP3E	DC - 2.5	SPDT, 75 Ω	0.6 / 58
HMC349LP4CE	DC - 4	SPDT	0.9 / 65
HMC347LP3E	DC - 15	SPDT	1.4 / 65
HMC245QS16GE	DC - 3.5	SP3T	0.5 / 44
HMC345LP3E	DC - 8	SP4T	2.0 / >50
HMC252QS24E	DC - 3	SP6T	2.0 / >45
HMC321LP4E	DC - 8	SP8T	2.0 / >45



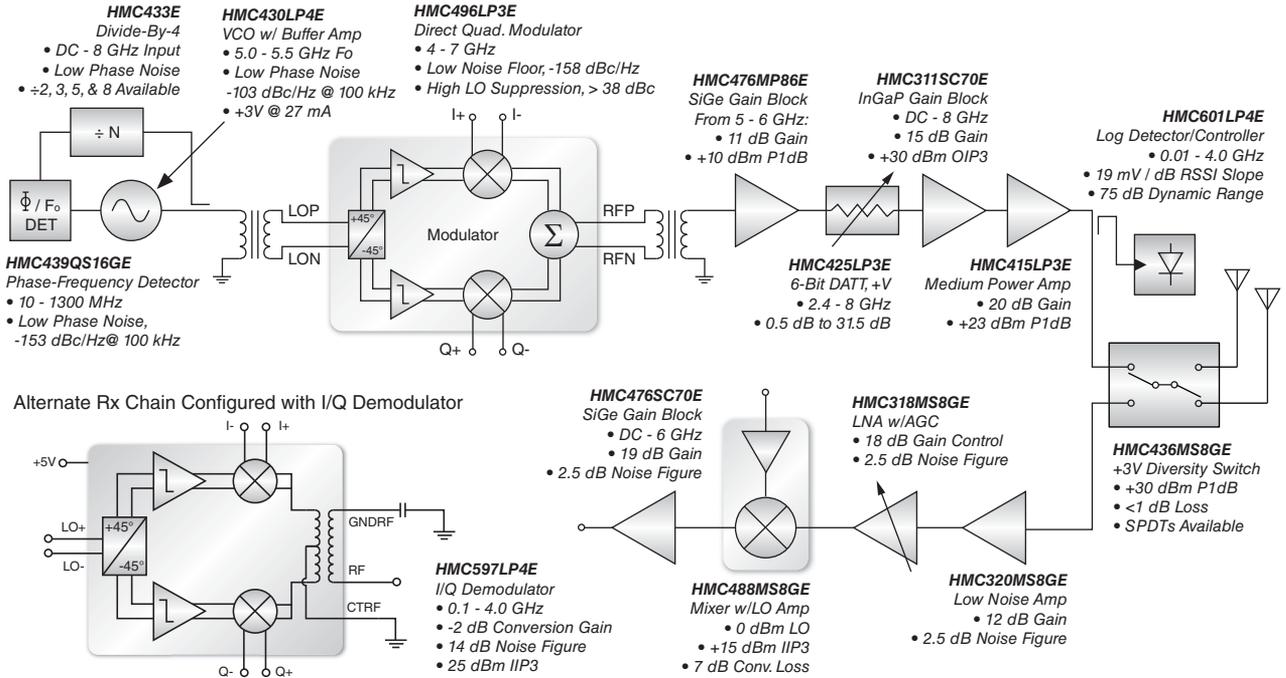
插图为典型宽带通信应用。请参考全部产品列表选择各个功能块的备选方案。

## WiMAX & Fixed Wireless, 2 - 6 GHz



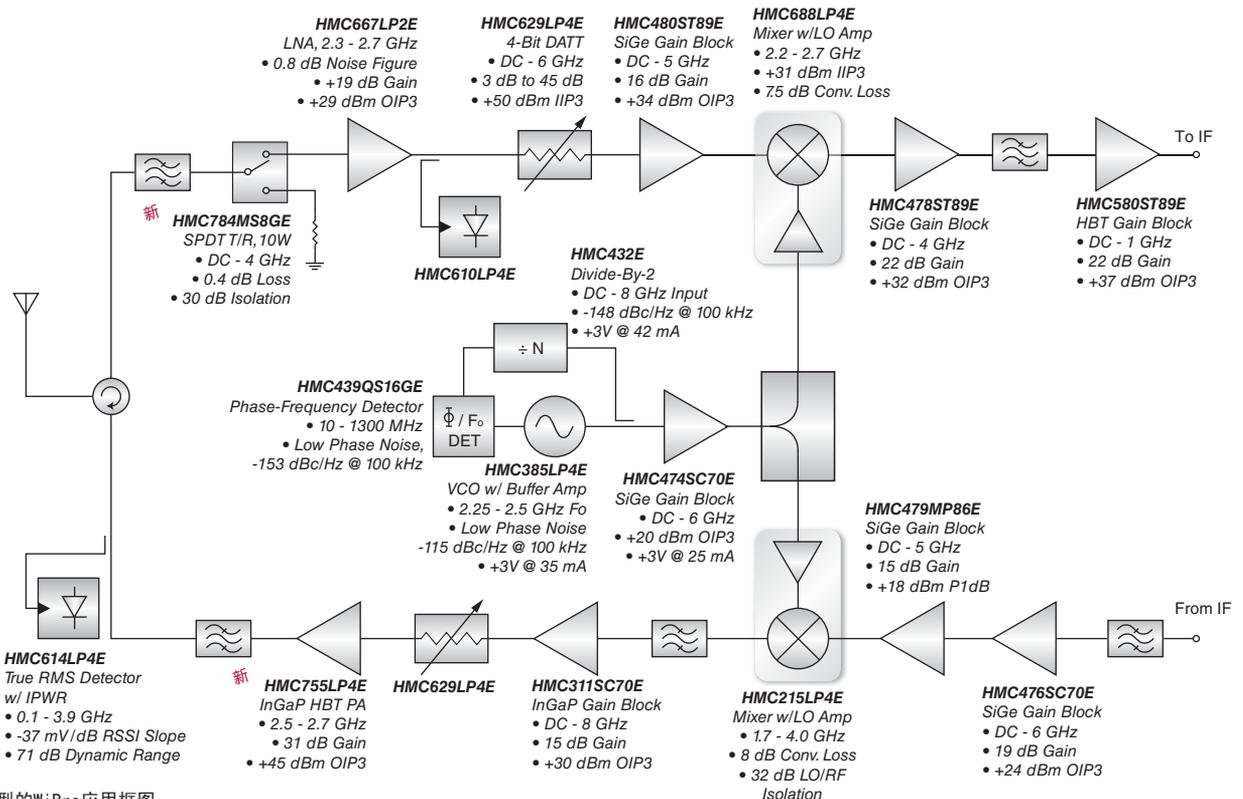
插图为典型的WiMAX / FWA 接收机应用。请参考全部产品列表选择各个功能块的备选方案。

## WIRELESSLAN, UWB, UNII & ISM 解决方案, 2.4, 4.9, 5.4, 5.8 & 3 - 11 GHz



典型的4.9~9.9GHz Wi-Fi接入设备应用框图。  
 更多针对每一级应用的HMC产品请参考我们详细的产品列表。

## WiBro “Wireless Broadband”, 1.82 - 1.87, 2.3 - 2.5 & 3.48 - 3.52 GHz



典型的WiBro应用框图。  
 更多针对每一级应用的HMC产品请参考我们详细的产品列表。

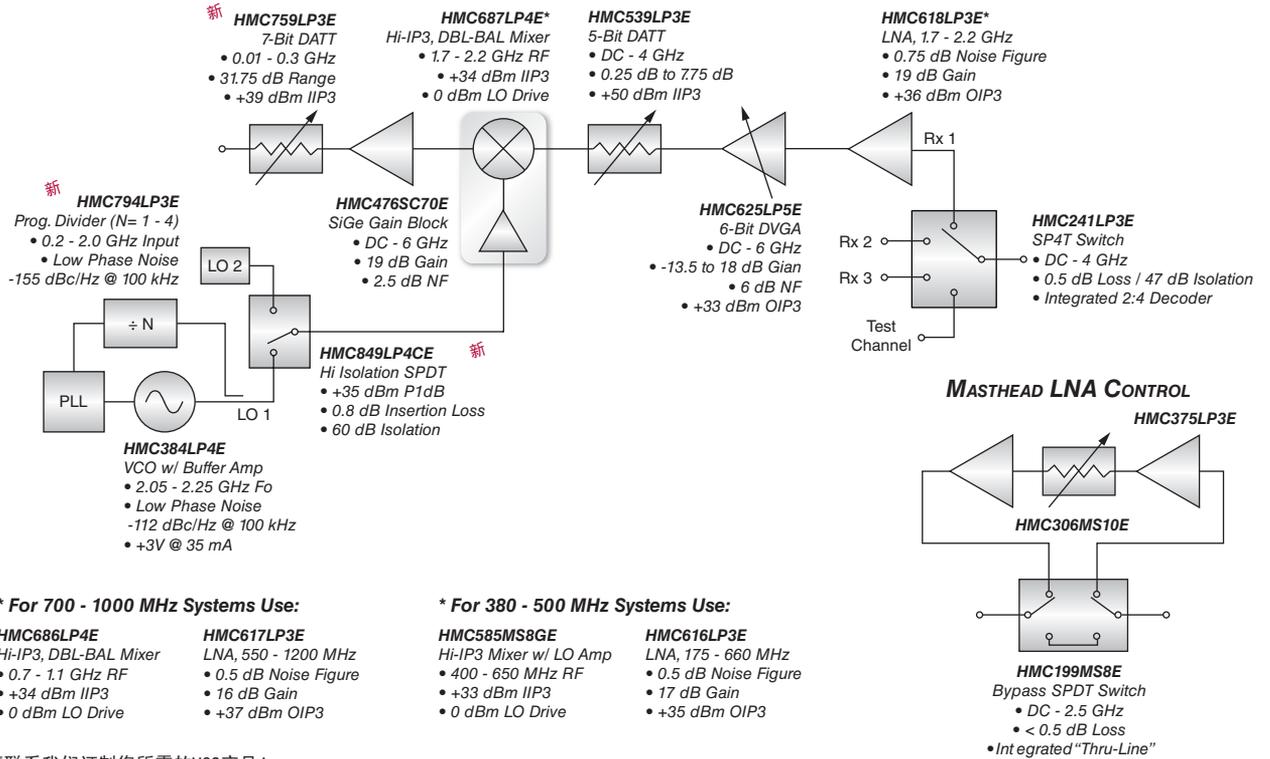
# 市场 & 应用指南

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 蜂窝移动通信, 380 - 2200 MHz- GSM, GPRS, CDMA, TD-SCDMA, WCDMA, UMTS & 4G/ LTE

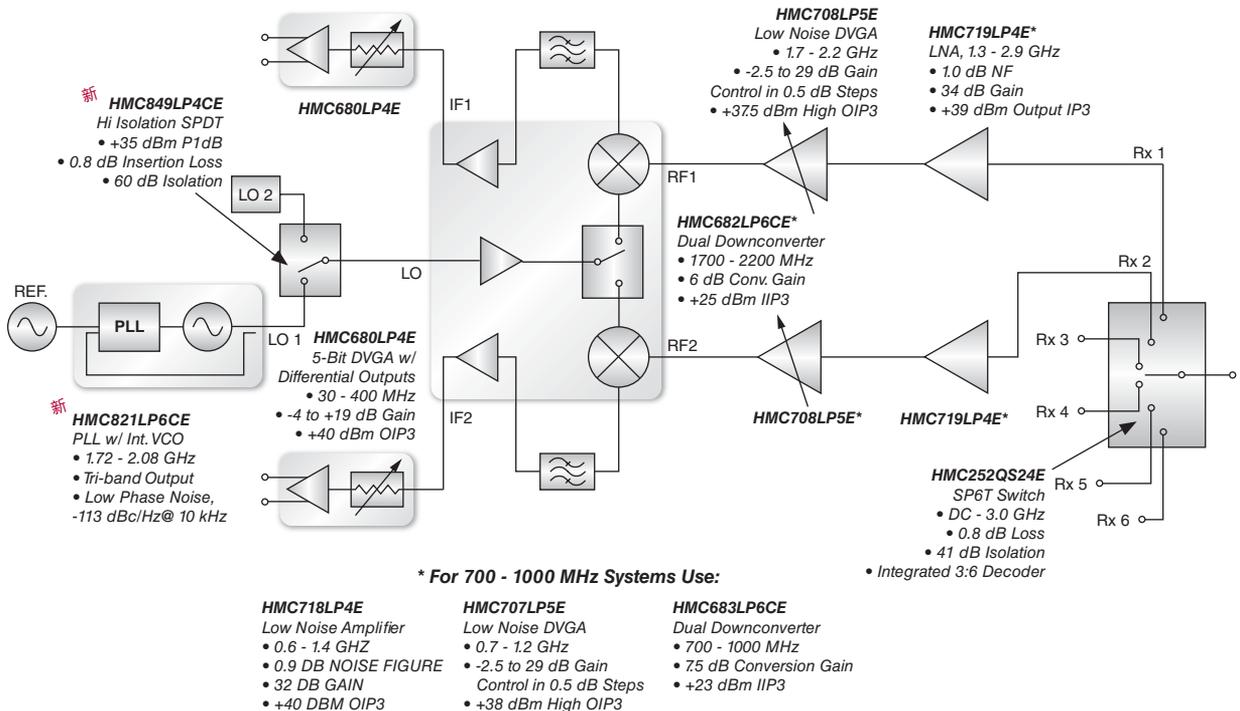
Function	400 MHz	700 / 800 / 900 MHz	1800 / 1900 MHz	2100 / 2200 MHz
<b>Low Noise Amplifier</b>	HMC356LP3E HMC374E HMC616LP3E HMC636ST89E	HMC372LP3E HMC376LP3E HMC617LP3E HMC636ST89E HMC718LP4E	HMC375LP3E HMC382LP3E HMC618LP3E HMC636ST89E HMC719LP4E	HMC375LP3E HMC382LP3E HMC618LP3E HMC636ST89E
<b>Driver Amplifier &amp; Gain Block</b>	HMC311SC70E HMC454ST89E HMC474SC70E HMC475ST89E HMC476SC70E HMC478ST89E HMC580ST89E	HMC308E HMC311SC70E HMC454ST89E HMC474SC70E HMC475ST89E HMC476SC70E HMC589ST89E	HMC308E HMC311SC70E HMC454ST89E HMC474SC70E HMC475ST89E HMC476SC70E HMC589ST89E	HMC308E HMC311SC70E HMC454ST89E HMC474SC70E HMC475ST89E HMC476SC70E HMC589ST89E
<b>Linear &amp; Power Amplifier</b>	HMC452ST89E HMC453ST89E HMC454ST89E HMC636ST89E	HMC450QS16GE HMC452ST89E HMC453ST89E HMC454ST89E HMC636ST89E	HMC452ST89E HMC453ST89E HMC454ST89E HMC457QS16GE HMC636ST89E	HMC452ST89E HMC453ST89E HMC454ST89E HMC455LP3E HMC636ST89E
<b>Attenuator: Analog</b>	HMC473MS8E	HMC473MS8E	HMC210MS8E	HMC210MS8E
<b>Attenuator: Digital</b>	HMC540LP3E HMC541LP3E HMC472LP4E HMC542LP4E HMC624LP4E HMC629LP4E HMC759LP3E HMC792LP4E	HMC540LP3E HMC541LP3E HMC467LP3E HMC542LP4E HMC624LP4E HMC629LP4E HMC759LP3E HMC792LP4E	HMC539LP3E HMC541LP3E HMC468LP3E HMC542LP4 HMC624LP4E HMC629LP4E HMC759LP3E HMC792LP4E	HMC539LP3E HMC541LP3E HMC542LP4E HMC624LP4E HMC629LP3E HMC792LP4E
<b>Frequency Divider &amp; Detector</b>	HMC394LP4E HMC434E HMC439QS16GE HMC705LP5E	HMC394LP4E HMC434E HMC439QS16GE HMC705LP5E	HMC394LP4E HMC434E HMC439QS16GE HMC705LP5E	HMC394LP4E HMC434E HMC439QS16GE HMC705LP5E
<b>Mixer</b>	HMC387MS8E HMC585MS8GE	HMC334LP4E HMC399MS8E HMC423MS8E HMC483MS8GE HMC551LP4E HMC581LP6E HMC621LP4E HMC665LP4E HMC683LP6E HMC684LP4E HMC686LP4E	HMC215LP4E HMC334LP4E HMC381LP6E HMC400MS8E HMC485MS8GE HMC552LP4E HMC622LP4E HMC623LP4E HMC682LP6E HMC685LP4E HMC687LP4E	HMC215LP4E HMC334LP4E HMC400MS8E HMC421QS16GE HMC422MS8E HMC615LP4 HMC622LP4E HMC688LP4E HMC689LP4E
<b>Demodulator</b>	HMC597LP4E	HMC597LP4E	HMC597LP4E	HMC597LP4E
<b>Modulator: Direct Quadrature &amp; Vector</b>	HMC495LP3E HMC497LP4E HMC696LP4E HMC697LP4E	HMC495LP3E HMC497LP4E HMC630LP3E HMC696LP4E HMC697LP4E	HMC495LP3E HMC497LP4E HMC631LP3E HMC696LP4E HMC697LP4E	HMC495LP3E HMC497LP4E HMC631LP3E HMC696LP4E HMC697LP4E
<b>PLL: Synthesizer ICs</b>	HMC700LP4E	HMC700LP4E	HMC700LP4E	HMC700LP4E
<b>Power Detector</b>	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC611LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC611LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC611LP4E HMC612LP4E HMC614LP4E	HMC600LP4E HMC601LP4E HMC602LP4E HMC610LP4E HMC611LP4E HMC612LP4E HMC614LP4E
<b>Switch: SPST &amp; SPNT</b>	HMC546MS8GE HMC550E HMC646LP2E HMC784MS8GE HMC849LP4CE	HMC550E HMC574MS8E HMC646LP2E HMC784MS8GE HMC849LP4CE	HMC545E HMC546MS8GE HMC646LP2E HMC784MS8GE HMC849LP4CE	HMC546LP2E HMC550E HMC646LP2E HMC784MS8GE HMC849LP4CE
<b>Switch: Bypass, Diversity, Matrix &amp; Transfer</b>	HMC199MS8E HMC596LP4E	HMC199MS8E HMC596LP4E	HMC199MS8E HMC596LP4E	HMC199MS8E HMC596LP4E
<b>VGA</b>	HMC625LP5E HMC626LP5E HMC627LP5E HMC628LP4E HMC680LP4E HMC681LP5E	HMC625LP5E HMC626LP5E HMC627LP5E HMC628LP4E HMC680LP4E HMC681LP5E	HMC625LP5E HMC626LP5E HMC627LP5E HMC628LP4E HMC680LP4E HMC681LP5E	HMC625LP5E HMC626LP5E HMC627LP5E HMC628LP4E HMC680LP4E HMC681LP5E

## 使用高IP3混频器的BTS接收机解决方案



请联系我们订制您所需的VCO产品！

## 使用RFIC下变频器的BTS接收机解决方案

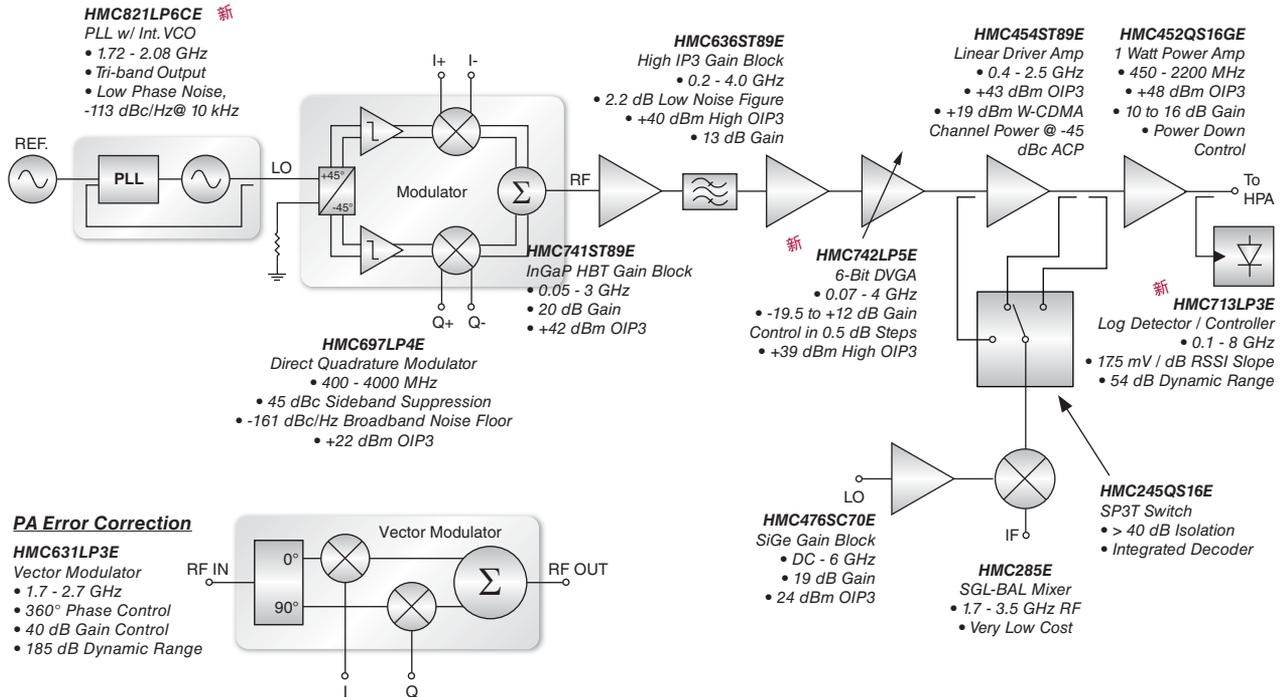


插图均为蜂窝移动通信/PCS/3G应用。请参考全部产品列表选择各个功能块的备选方案

# 市场 & 应用指南

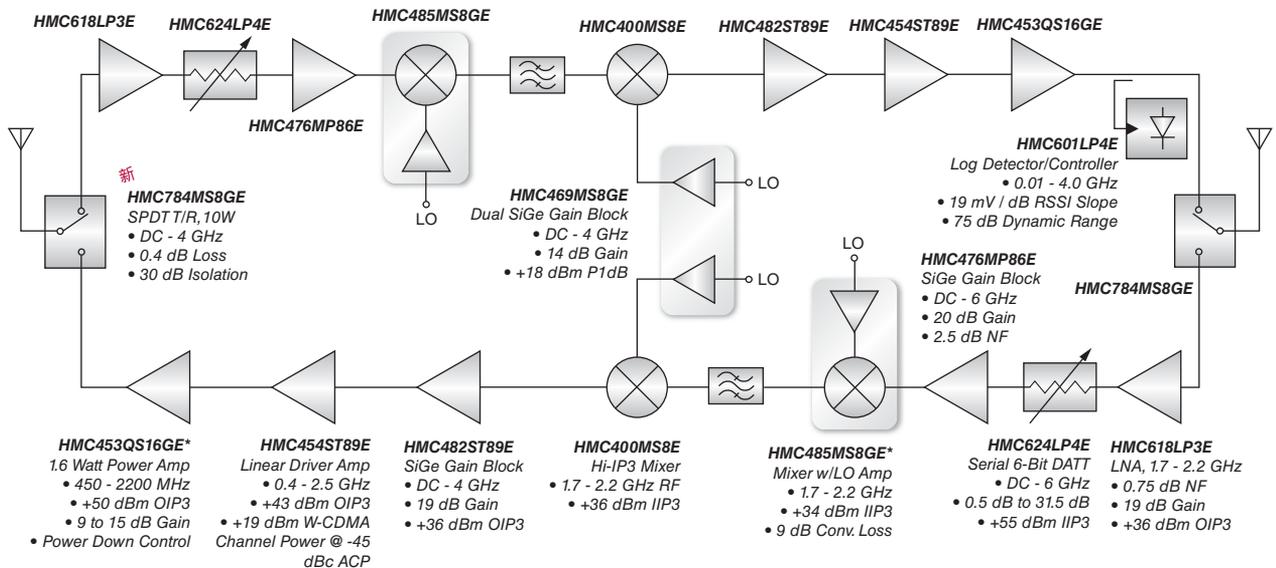
蜂窝移动通信, 380 - 2200 MHz

## BTS 发射机解决方案



蜂窝移动通信

## CDMA/GSM/ TD-SCDMA直放站解决方案



\* High Gain Option:

- HMC457QS16GE**  
1 Watt Power Amp  
• 1.7 - 2.2 GHz  
• +46 dBm OIP3  
• 26 dB Gain

\* For 700 - 1000 MHz Systems Use:

- HMC483MS8GE**  
Mixer w/LO Amp  
• 0.7 - 1.4 GHz  
• +35 dBm IIP3

插图均为蜂窝移动通信/PCS/3G应用。请参考全部产品列表选择各个功能块的备选方案。

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 光通信, OC-48 到100G

光通信产品订制解决方案请咨询: [F0@hittite.com](mailto:F0@hittite.com)

Function	OC-1	OC-3	OC-12	OC-48	OC-192	OC-768	
<b>Broadband Gain Blocks</b>	HMC311SC70E HMC396 HMC405 HMC474MP86E HMC474SC70E HMC475ST89E HMC476SC70E HMC478SC70E	HMC311SC70E HMC396 HMC405 HMC474MP86E HMC474SC70E HMC475ST89E HMC476SC70E HMC478SC70E	HMC311SC70E HMC396 HMC405 HMC474MP86E HMC474SC70E HMC475ST89E HMC476SC70E HMC478SC70E	HMC311SC70E HMC396 HMC405 HMC474MP86E HMC474SC70E HMC475ST89E HMC476SC70E HMC478SC70E	HMC311SC70E HMC396 HMC405 HMC474MP86E HMC474SC70E HMC475ST89E HMC476SC70E HMC478SC70E	HMC405	
<b>Limiting Amplifier</b>	HMC750LP4E	HMC750LP4E	HMC750LP4E	HMC750LP4E	HMC750LP4E		
<b>Transimpedance Amplifier</b>					HMC690		
<b>Wideband (Distributed) Amplifiers</b>	HMC459 HMC460 HMC465 HMC465LP5E HMC559 HMC637LP5E HMC-AUH312 HMC-AUH232 HMC-AUH249	HMC459 HMC460 HMC465 HMC465LP5E HMC559 HMC637LP5E HMC-AUH312 HMC-AUH232 HMC-AUH249	HMC459 HMC460 HMC465 HMC465LP5E HMC559 HMC637LP5E HMC-AUH312 HMC-AUH232 HMC-AUH249	HMC459 HMC460 HMC465 HMC465LP5E HMC559 HMC637LP5E HMC-AUH312 HMC-AUH232 HMC-AUH249	HMC459 HMC460 HMC465 HMC465LP5E HMC559 HMC-AUH312 HMC-AUH232 HMC-AUH249	HMC-AUH312	
<b>Connectorized Amplifier Modules</b>	HMC-C004 HMC-C036 HMC-C037	HMC-C004 HMC-C036 HMC-C037	HMC-C004 HMC-C036 HMC-C037	HMC-C004 HMC-C036 HMC-C037	HMC-C004 HMC-C036 HMC-C037		
<b>Attenuators: Analog</b>	HMC346 HMC346G8 HMC346LP3E HMC346MS8GE	HMC346 HMC346G8 HMC346LP3E HMC346MS8GE	HMC346 HMC346G8 HMC346LP3E HMC346MS8GE	HMC346 HMC346G8 HMC346LP3E HMC346MS8GE	HMC346 HMC346LP3E	HMC-VVD104 HMC-VVD106	
<b>Attenuators: Digital</b>	HMC424 HMC424LH5 HMC424LP3E HMC542LP4E HMC624LP4E HMC629LP4E	HMC424 HMC424LH5 HMC424LP3E HMC542LP4E HMC624LP4E HMC629LP4E	HMC424 HMC424LH5 HMC424LP3E HMC542LP4E HMC624LP4E HMC629LP4E	HMC424 HMC424LH5 HMC424LP3E HMC542LP4E HMC624LP4E HMC629LP4E	HMC424 HMC424LH5 HMC424LP3E		
<b>Attenuators: Passive</b>	HMC650 - HMC655 HMC656LP2E HMC657LP2E HMC658LP2E	HMC650 - HMC655 HMC656LP2E HMC657LP2E HMC658LP2E	HMC650 - HMC655 HMC656LP2E HMC657LP2E HMC658LP2E	HMC650 - HMC655 HMC656LP2E HMC657LP2E HMC658LP2E	HMC650 - HMC655 HMC656LP2E HMC657LP2E HMC658LP2E	HMC650 - HMC655 HMC656 HMC657 HMC658	
<b>Connectorized Attenuator Modules</b>	HMC-C018 HMC-C053	HMC-C018 HMC-C053	HMC-C018 HMC-C053	HMC-C018 HMC-C053	HMC-C025 HMC-C053		
<b>Frequency Dividers &amp; Detectors</b>	HMC394LP4E HMC439QS16GE HMC440QS16GE HMC492LP3E HMC493LP3E HMC494LP4E	HMC394LP4E HMC439QS16GE HMC440QS16GE HMC492LP3E HMC493LP3E HMC494LP4E	HMC394LP4E HMC439QS16GE HMC440QS16GE HMC492LP3E HMC493LP3E HMC494LP4E	HMC394LP4E HMC440QS16GE HMC492LP3E HMC493LP3E			
<b>Connectorized Freq. Divider Modules</b>	HMC-C040	HMC-C006 HMC-C007 HMC-C039 HMC-C040	HMC-C005 HMC-C006 HMC-C007 HMC-C039 HMC-C040	HMC-C005 HMC-C006			
<b>Frequency Multipliers: Active</b>					HMC448LC3B HMC576 HMC576LC3B HMC561LP3E HMC598 HMC-XDB112 HMC-XDH158	HMC579 HMC598	
<b>Connectorized Freq. Multiplier Modules</b>					HMC-C032 HMC-C033 HMC-C034		

# 市场 & 应用指南

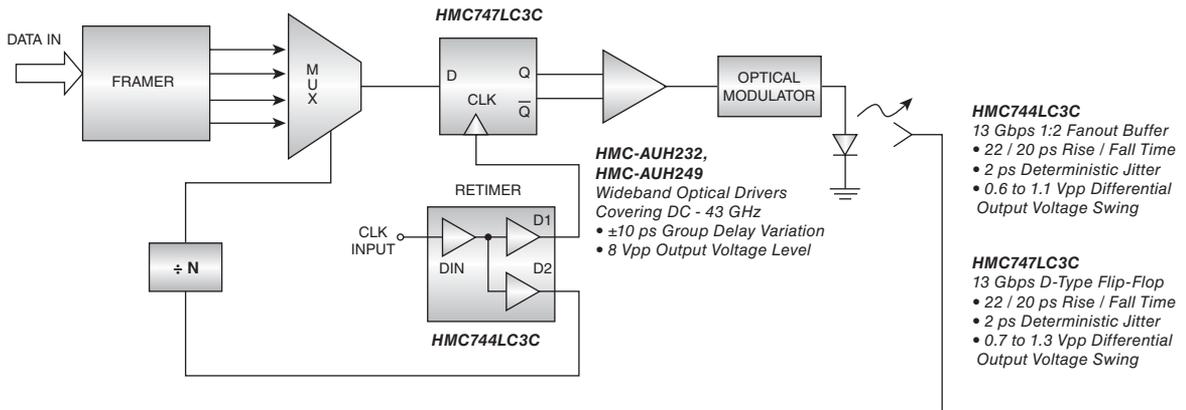
此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 光通信, 0C-48 到100G

光通信产品订制解决方案请咨询: [F0@hittite.com](mailto:F0@hittite.com)

Function	0C-1	0C-3	0C-12	0C-48	0C-192	0C-768
<b>High Speed Digital Logic:</b>						
1:2 Fanout Buffer	HMC720LC3C	HMC720LC3C	HMC724LC3C	HMC724LC3C	HMC744LC3C	
2:1 Selector	HMC678LC3C	HMC678LC3C	HMC728LC3C	HMC728LC3C	HMC748LC3C	HMC748LC3C
XOR / XNOR	HMC721LC3C	HMC721LC3C	HMC725LC3C	HMC725LC3C	HMC745LC3C	
AND / NAND / OR / NOR	HMC722LC3C	HMC722LC3C	HMC726LC3C	HMC726LC3C	HMC746LC3C	
D-Type Flip-Flop	HMC723LC3C	HMC723LC3C	HMC727LC3C	HMC727LC3C	HMC747LC3C	HMC853LC3C
T Flip-Flop w/ Reset	HMC679LC3C	HMC679LC3C	HMC729LC3C	HMC729LC3C	HMC749LC3C	HMC749LC3C
NRZ-to-RZ Converter	HMC706LC3C	HMC706LC3C	HMC706LC3C	HMC706LC3C	HMC706LC3C	
Clock Divider	HMC791LC4B	HMC791LC4B	HMC791LC4B	HMC791LC4B	HMC791LC4B	HMC791LC4B
<b>Connectorized High Speed Digital Logic Modules</b>						HMC-C060 HMC-C061 HMC-C062 HMC-C064 HMC-C065
<b>Connectorized Mixer Modules</b>	HMC-C035	HMC-C035	HMC-C035	HMC-C035		
<b>Phase Shifters: Analog</b>				HMC247 HMC538LP4E	HMC247 HMC538LP4E	
<b>Phase Shifters: Digital</b>				HMC647 HMC647LP6E HMC648 HMC648LP6E	HMC642LC5 HMC643LC5 HMC644 HMC644LC5	
<b>Connectorized Phase Shifter Modules</b>					HMC-C010	
<b>Switches: SPDT</b>	HMC232LP4E HMC347 HMC347LP3E HMC547LP3E HMC646LP2E	HMC232LP4E HMC347 HMC347LP3E HMC547LP3E HMC646LP2E	HMC232LP4E HMC347 HMC347LP3E HMC547LP3E HMC646LP2E	HMC232 HMC232LP4E HMC347 HMC347LP3E HMC547LP3E	HMC232 HMC232LP4E HMC347 HMC347LP3E HMC547LP3E	HMC-SDD112
<b>Switches: Multi-Throw</b>	HMC253LC4 HMC344LC3 HMC641	HMC253LC4 HMC344LC3 HMC641	HMC253LC4 HMC344LC3 HMC641	HMC253LC4 HMC344LC3 HMC641	HMC641	
<b>Switches: Transfer</b>	HMC427LP3E	HMC427LP3E	HMC427LP3E	HMC427LP3E		
<b>Connectorized Switch Modules</b>	HMC-C011 HMC-C019 HMC-C058	HMC-C011 HMC-C019 HMC-C058	HMC-C011 HMC-C019 HMC-C058	HMC-C011 HMC-C019 HMC-C058	HMC-C011 HMC-C019 HMC-C058	
<b>Connectorized VCO Modules</b>						HMC-C073

## 典型光通信数据传输系统



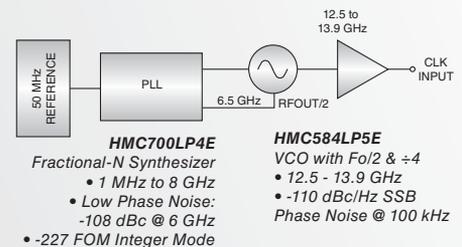
**HMC744LC3C**  
 13 Gbps 1:2 Fanout Buffer  
 • 22 / 20 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.6 to 1.1 Vpp Differential Output Voltage Swing

**HMC747LC3C**  
 13 Gbps D-Type Flip-Flop  
 • 22 / 20 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.7 to 1.3 Vpp Differential Output Voltage Swing

**HMC750LP4E**  
 12.5 Gbps LIA  
 • 44 dB Differential Gain  
 • 2 mVpp Input Sensitivity  
 • 5 ps Deterministic Jitter

**HMC690**  
 10 Gbps TIA  
 • 1.25 kΩ Transimpedance  
 • 3 mApp Input Overload  
 • <10 ps Deterministic Jitter  
 • 11 pA / √ Hz Noise

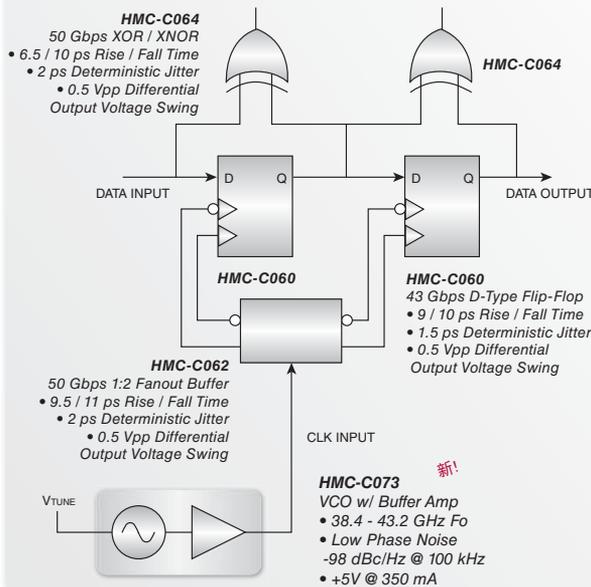
### 时钟电路



**HMC700LP4E**  
 Fractional-N Synthesizer  
 • 1 MHz to 8 GHz  
 • Low Phase Noise:  
 -108 dBc/Hz @ 6 GHz  
 • -227 FOM Integer Mode

**HMC584LP5E**  
 VCO with Fo/2 & ±4  
 • 12.5 - 13.9 GHz  
 • -110 dBc/Hz SSB  
 Phase Noise @ 100 kHz

### 43 Gbps Hogge 用于时钟 & 数据恢复的相位检测器



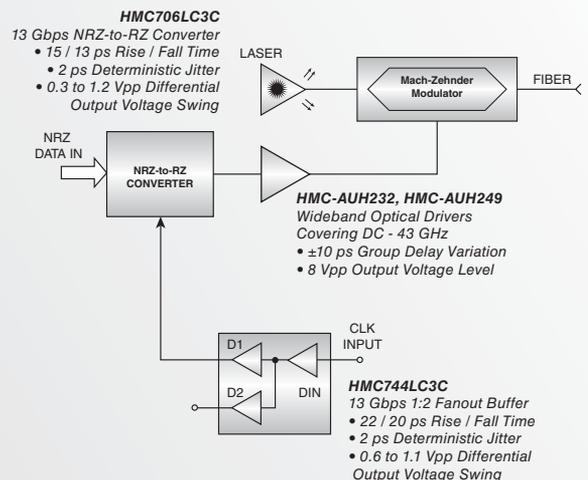
**HMC-C064**  
 50 Gbps XOR / XNOR  
 • 6.5 / 10 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.5 Vpp Differential Output Voltage Swing

**HMC-C062**  
 50 Gbps 1:2 Fanout Buffer  
 • 9.5 / 11 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.5 Vpp Differential Output Voltage Swing

**HMC-C073**  
 VCO w/ Buffer Amp  
 • 38.4 - 43.2 GHz Fo  
 • Low Phase Noise  
 -98 dBc/Hz @ 100 kHz  
 • +5V @ 350 mA

新!

### 13 Gbps, NRZ-to-RZ 转换



**HMC706LC3C**  
 13 Gbps NRZ-to-RZ Converter  
 • 15 / 13 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.3 to 1.2 Vpp Differential Output Voltage Swing

**HMC-AUH232, HMC-AUH249**  
 Wideband Optical Drivers  
 Covering DC - 43 GHz  
 • ±10 ps Group Delay Variation  
 • 8 Vpp Output Voltage Level

**HMC744LC3C**  
 13 Gbps 1:2 Fanout Buffer  
 • 22 / 20 ps Rise / Fall Time  
 • 2 ps Deterministic Jitter  
 • 0.6 to 1.1 Vpp Differential Output Voltage Swing

典型的光通信应用框图。

更多针对每一级应用的HMC产品请参考我们详细的产品列表。

2010年01月号

更多信息请访问: [WWW.HITTITE.COM](http://WWW.HITTITE.COM)

# 市场 & 应用指南

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 微波&毫米波通信

Function	7 / 8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz
<b>Low Noise Amplifier</b>	HMC392LC4 HMC392LH5 HMC564 HMC564LC4 HMC565 HMC565LC5	HMC516LC5 HMC564 HMC564LC4 HMC565 HMC565LC5	HMC516LC5 HMC565 HMC565LC5	HMC504LC4B HMC516LC5 HMC565 HMC565LC5	HMC517LC4 HMC519LC4 HMC565 HMC565LC5	HMC341LC3B HMC504LC4B HMC517LC4 HMC519 HMC519LC4
<b>Driver Amplifier</b>	HMC441LP3E HMC451LC3 HMC516LC5	HMC441LP3E HMC451LC3 HMC451LP3E HMC516LC5	HMC441LC3B HMC451LC3 HMC451LP3E HMC490LP5E	HMC441LC3B HMC451LC3 HMC451LP3E HMC490LP5E	HMC383LC4 HMC442LC3B HMC451LP3E HMC498LC4 HMC635LC4	HMC383LC4 HMC442LC3B HMC498LC4 HMC635 HMC635LC4
<b>Power Amplifier</b>	HMC486LP5E HMC590 HMC590LP5E HMC591 HMC591LP5E HMC637 HMC637LP5E	HMC487LP5E HMC592 HMC608LC4	HMC489LP5E HMC592	HMC489LP5E HMC-APH462	HMC498LC4 HMC-APH196 HMC-APH462 HMC-APH478 HMC-APH596	HMC498LC4 HMC-APH196 HMC-APH462 HMC-APH518 HMC-APH596
<b>Wideband (Distributed) Amplifiers</b>	HMC463LH250 HMC606 HMC606LC5 HMC619 HMC619LP5E HMC633 HMC633LC4 HMC634 HMC634LC4 HMC634 HMC634LC4 HMC-ALH102 HMC659 HMC-C050 HMC-ALH102 HMC-ALH435 HMC-C050 HMC-ALH102 HMC-ALH435 HMC-ALH444 HMC-ALH482 HMC-AUH232 HMC-ALH444 HMC-ALH482 HMC-AUH232 HMC-AUH249 HMC-AUH312	HMC463LH250 HMC606 HMC606LC5 HMC633 HMC633LC4 HMC634 HMC634LC4 HMC-C050 HMC-ALH102 HMC-ALH435 HMC-ALH444 HMC-ALH482 HMC-AUH232 HMC-ALH444 HMC-ALH482 HMC-AUH232 HMC-AUH249 HMC-AUH312	HMC463LH250 HMC606 HMC606LC5 HMC633 HMC633LC4 HMC634 HMC634LC4 HMC-C050 HMC-ALH102 HMC-ALH435 HMC-ALH482 HMC-AUH232 HMC-ALH444 HMC-ALH482 HMC-AUH232 HMC-AUH249 HMC-AUH312	HMC463LH250 HMC606 HMC606LC5 HMC633 HMC633LC4 HMC634 HMC634LC4 HMC-C050 HMC-ALH102 HMC-ALH435 HMC-ALH482 HMC-ALH476 HMC-ALH482 HMC-AUH232 HMC-AUH249 HMC-AUH312	HMC463LH250 HMC606 HMC606LC5 HMC634 HMC634LC4 HMC659 HMC-ALH102 HMC-C050 HMC-ALH216 HMC-ALH435 HMC-ALH445 HMC-ALH476 HMC-ALH482 HMC-AUH232 HMC-AUH249 HMC-AUH256 HMC-AUH312	HMC635 HMC-ALH216 HMC-ALH311 HMC-ALH445 HMC-ALH476 HMC-AUH232 HMC-AUH249 HMC-AUH256 HMC-AUH312
<b>Attenuator: Analog</b>	HMC346LP3E HMC812LC4 HMC-C053	HMC346LP3E HMC812LC4 HMC-C053	HMC346LP3E HMC812LC4 HMC-C053	HMC346LC3B HMC812LC4 HMC-C053	HMC346LC3B HMC-C053 HMC-VVD102	HMC812LC4 HMC-VVD102
<b>Divide-by-2</b>	HMC361S8GE	HMC364S8GE	HMC492LP3E	HMC492LP3E	HMC492LP3E	
<b>Divide-by-4</b>	HMC362S8GE	HMC365S8GE	HMC493LP3E	HMC493LP3E	HMC447LC3	HMC447LC3
<b>Divide-by-8</b>	HMC363S8GE	HMC363S8GE	HMC494LP4E	HMC494LP4E		
<b>Multiplier: Active X2</b>	HMC368LP4E HMC575LP4E HMC561LP3E	HMC368LP4E HMC573LC3B HMC561LP3E HMC-XDB112	HMC368LP4E HMC573LC3B HMC561LP3E HMC-XDB112	HMC368LP4E HMC573LC3B HMC561LP3E HMC-XDB112	HMC448LC3B HMC576 HMC576LC3B	HMC448LC3B HMC576 HMC576LC3B
<b>Multiplier: Active X4</b>		HMC443LP4E	HMC370LP4E	HMC370LP4E HMC-XDH158		
<b>Multiplier: Passive X2</b>	HMC189MS8E	HMC189MS8E	HMC204MS8GE	HMC204MS8GE	HMC204MS8GE	HMC205
<b>I/Q Downconverter / Rx I/Q Upconverter/Tx</b>	HMC567LC5	HMC568LC5	HMC869LC5	HMC570 HMC570LC5 HMC709LC5	HMC571 HMC571LC5 HMC710LC5	HMC572 HMC572LC5 HMC815LC5
<b>I/Q Mixer / IRM</b>	HMC520LC4 HMC525LC4 HMC620 HMC620LC4	HMC521LC4 HMC527LC4	HMC521LC4 HMC527LC4	HMC522LC4 HMC528LC4	HMC523 HMC523LC4	HMC523 HMC523LC4 HMC524 HMC-MDB172
<b>Mixer: Fundamental</b>	HMC129LC4 HMC144LC4 HMC219MS8E HMC220MS8E HMC553 HMC553LC3B HMC553LC3B HMC558 HMC558LC3B HMC663LC3	HMC144LC4 HMC411MS8GE HMC412MS8GE HMC553 HMC553LC3B HMC558 HMC558LC3B HMC-C051 HMC663LC3	HMC144LC4 HMC411MS8GE HMC412MS8GE HMC553 HMC553LC3B HMC558 HMC558LC3B HMC-C051	HMC144LC4 HMC260LC3B HMC412MS8GE HMC554 HMC554LC3B HMC558 HMC558LC3B HMC-C051	HMC144LC4 HMC260LC3B HMC292LC3B HMC554 HMC554LC3B HMC-C051	HMC260LC3B HMC292LC3B HMC554 HMC554LC3B HMC-C051

此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 微波&毫米波通信

Function	7 / 8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz
<b>Mixer:</b> Sub-Harmonic				HMC258LM3	HMC258LC3B HMC258LM3 HMC337	HMC264LC3B HMC338LC3B
<b>PLLs:</b> Synthesizer ICs	HMC698LP5E HMC699LP5E HMC700LP4E HMC701LP6CE					
<b>Switch</b>	HMC547LP3E HMC641	HMC607 HMC641	HMC547LP3E HMC641	HMC607 HMC641	HMC547LP3E HMC641	
<b>Signal Generator</b>	HMC-T2000					
<b>VCO &amp; PLO:</b> **Requires X2 or X4	HMC466LP4E HMC505LP4E HMC506LP4E HMC532LP4E HMC586LC4B HMC587LC4B	HMC513LP4E HMC515LP5E HMC534LP4E HMC582LP5E HMC588LC4B HMC735LP5E	HMC513LP4E HMC529LP4E HMC584LP5E	HMC529LP4E HMC531LP5E HMC535LP5E HMC632LP5E HMC736LP4E HMC737LP4E	HMC429LP4E**	HMC431LP4E** HMC738LP4E HMC739LP4E
<b>VGA: Analog</b>	HMC694 HMC694LP4E	HMC694 HMC694LP4E	HMC694 HMC694LP4E	HMC694 HMC694LP4E	HMC694 HMC694LP4E	

## 微波&毫米波通信, 26 to 86 GHz

Function	26 / 28 GHz	32 / 38 GHz	32 - 43 GHz	44 - 66 GHz	71 - 86 GHz
<b>Low Noise Amplifier</b>	HMC341LC3B HMC517LC4 HMC519LC4 HMC635 HMC693	HMC263 HMC566 HMC635 HMC693	HMC-ALH376	HMC-ALH382	HMC-ALH459 HMC-ALH509
<b>Driver Amplifier</b>	HMC383LC4 HMC499LC4 HMC635LC4	HMC300LM1 HMC383LC4 HMC635LC4	HMC-APH403 HMC-APH473 HMC-APH510	HMC-ABH209 HMC-ABH241 HMC-ABH403	HMC-AUH317 HMC-AUH318 HMC-AUH320
<b>Power Amplifier</b>	HMC499LC4 HMC693 HMC-APH196 HMC-APH460 HMC-APH462 HMC-APH596 HMC-APH608	HMC693 HMC-ABH264 HMC-APH403 HMC-APH473 HMC-APH510 HMC-APH596	HMC693 HMC-ABH264 HMC-APH403 HMC-APH473 HMC-APH510 HMC-AUH256	HMC-ABH209 HMC-ABH241 HMC-ABH403	HMC-ALH508 HMC-AUH317 HMC-AUH318 HMC-AUH320
<b>Wideband (Distributed) Amplifiers</b>	HMC-ALH140 HMC-ALH216 HMC-ALH244 HMC-ALH311 HMC-ALH313 HMC-ALH364 HMC-ALH369 HMC-ALH445 HMC-ALH476 HMC-AUH232 HMC-AUH249 HMC-AUH256 HMC-AUH312	HMC635 HMC-ALH140 HMC-ALH244 HMC-ALH310 HMC-ALH313 HMC-ALH364 HMC-ALH369 HMC-ALH376 HMC-ALH445 HMC-ALH476 HMC-AUH249 HMC-AUH256	HMC-ALH140 HMC-ALH244 HMC-ALH310 HMC-ALH313 HMC-ALH364 HMC-ALH369 HMC-ALH376 HMC-ALH445 HMC-AUH232 HMC-AUH249 HMC-AUH256 HMC-AUH312	HMC-ALH376 HMC-AUH312	
<b>Attenuator: Analog</b>	HMC712LP3CE HMC812LC4 HMC-VVD102	HMC-VVD106	HMC-VVD106	HMC-VVD106	HMC-VVD104
<b>Divide-by-4</b>	HMC447LC3				
<b>Multiplier: Active x2</b>	HMC448LC3B HMC577LC4B HMC578LC3B HMC598	HMC449LC3B HMC578LC3B HMC579 HMC598	HMC598	HMC598 HMC-XDH158	
<b>Multiplier: Active x4</b>					
<b>Multiplier: Passive x2 / x3</b>	HMC331	HMC331			

# 市场 & 应用指南

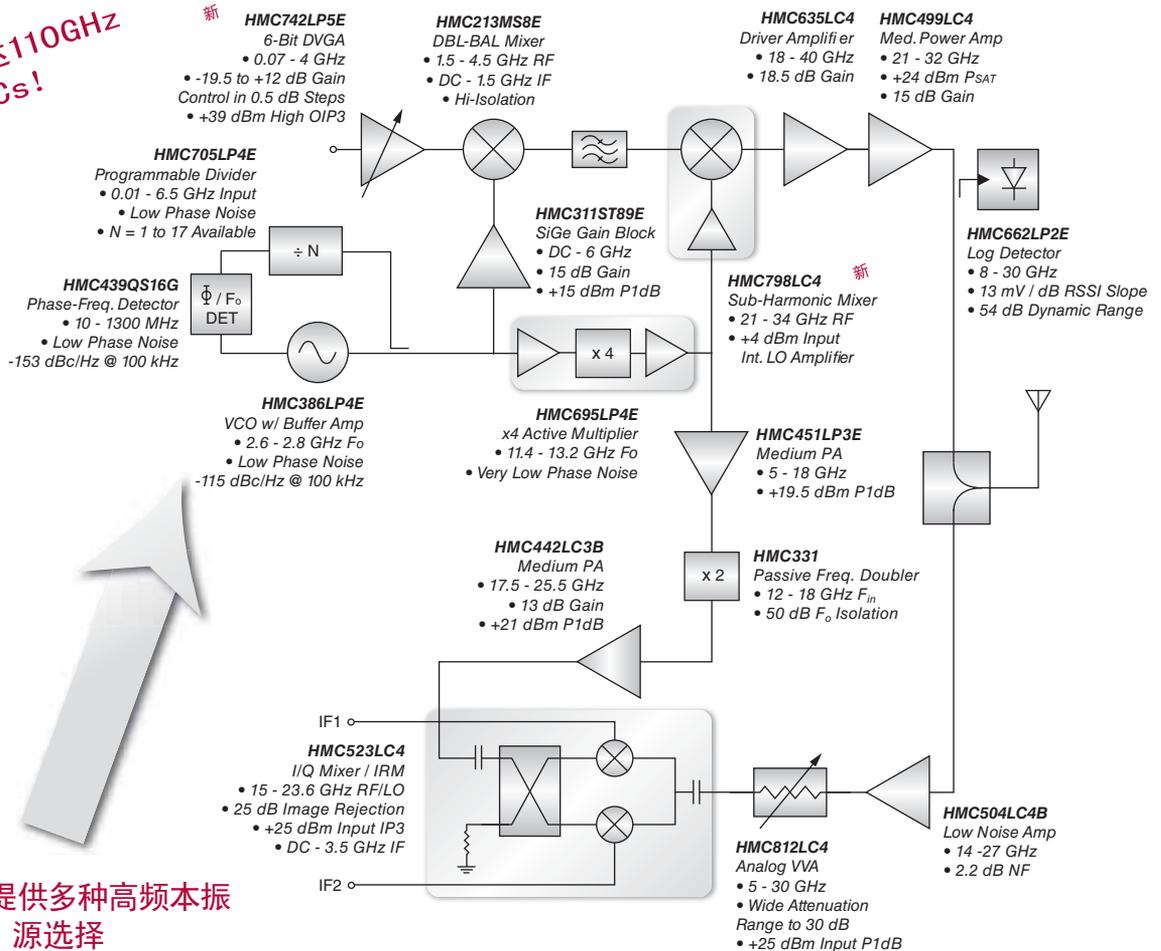
此处列出部分产品, 全部产品请参考从第5页开始的产品列表

## 微波&毫米波通信, 26 to 86 GHz

Function	26 / 28 GHz	32 / 38 GHz	32 - 43 GHz	44 - 66 GHz	71 - 86 GHz
<b>I/Q Receiver</b>	HMC572 HMC572LC5				
<b>I/Q Mixer / IRM</b>	HMC524 HMC524LC3B HMC-MDB172	HMC404 HMC555 HMC556	HMC-MDB171 HMC-MDB172	HMC-MDB171 HMC-MDB207	
<b>Mixer: Fundamental</b>	HMC292LC3B HMC329LC3B HMC557 HMC557LC4 HMC560 HMC560LM3	HMC294 HMC329LM3 HMC560 HMC560LM3		HMC-MDB169	
<b>Mixer: Sub-Harmonic</b>	HMC264LC3B HMC265LM3 HMC338LC3B HMC798LC4	HMC338 HMC339 HMC798LC4		HMC-MDB218	
<b>Switch</b>				HMC-SDD112	HMC-SDD112
<b>VCO &amp; PLO: **Requires X2 or X4</b>	HMC515LP5E** HMC531LP5E** HMC639LP4E HMC739LP4E	HMC505LP4E HMC506LP4E			
<b>Switch</b>				HMC-SDD112	HMC-SDD112
<b>VCO &amp; PLO: **Requires X2 or X4</b>	HMC515LP5E** HMC531LP5E**	HMC505LP4E HMC506LP4E			

## Double Upconversion & Direct Downconversion

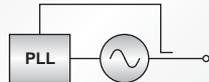
订制高达110GHz  
的ICs!



Hittite提供多种高频本振源选择

### PLL & VCO CHIPSET

**HMC702LP6CE**  
Fractional-N Synthesizer (PLL)  
• 10 KHz to 14 GHz  
• Low Phase Noise: -103 dBc  
• -227 FOM Integer Mode



**HMC584LP5E**  
VCO with Fo/2 & Fo/4 Output  
• 12.5 - 13.9 GHz Fo  
• Low Phase Noise  
-110 dBc/Hz @ 100 kHz  
• +10 dBm Pout

### PLL WITH INTEGRATED VCO IC (see pg. 43)

**HMC807LP6C**  
• 12.4 - 13.4 GHz Fo  
• -110 dBc/Hz Open Loop VCO  
Phase Noise @ 100 kHz Offs.  
• +8 dBm Pout



提供高达86GHz的管芯产品, SMT表贴产品或带接头模块产品



插图为例典型的微波/毫米波应用. 请参考全部产品列表选择各个功能块的备选方案。

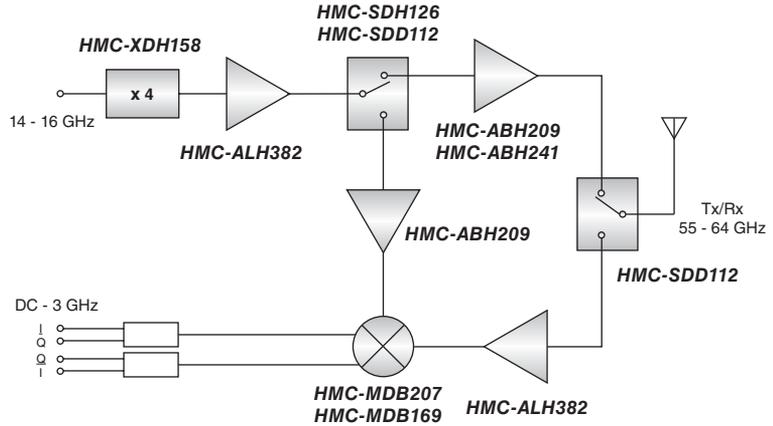
# 市场 & 应用指南

市场 & 应用指南 微波 & 毫米波通信, 测试 & 测量 & 传感器, 2 - 86 GHz

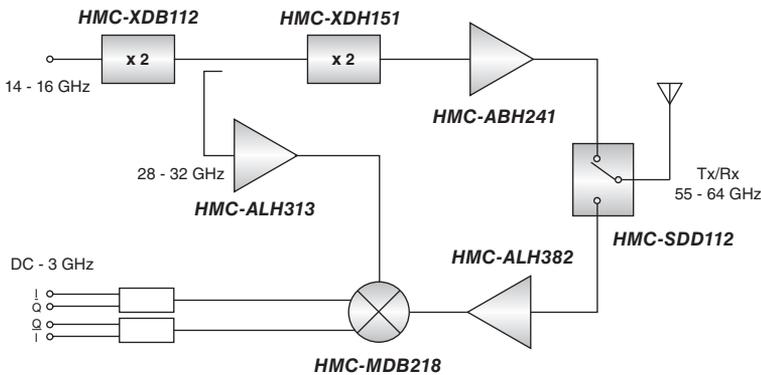
## 60 GHz Tx/Rx 芯片组

### 特点:

- ◆ < 4 dB LNA 噪声系数
- ◆ +18 dBm Psat PA 输出功率
- ◆ 可选谐波方案
- ◆ 可选择I/Q混频器或双平衡混频器



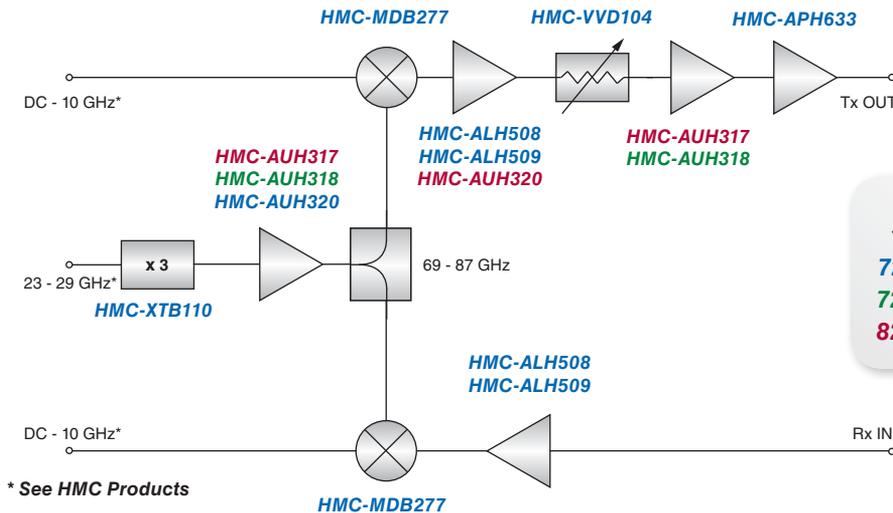
## 选用谐波方案的60 GHz 芯片组



### 应用:

- ◆ 视距大容量链路
- ◆ 微型移动电话链路
- ◆ 骨干网络&分支网络链路
- ◆ HDTV无线部件链路

## 用于大容量通信链路的 72 & 82 GHz Tx/Rx 芯片组



### 产品分类

- 72 & 82 GHz
- 72 GHz Only
- 82 GHz Only

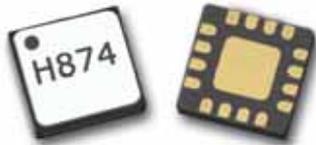
\* See HMC Products

插图为典型的微波/毫米波应用. 请参考全部产品列表选择各个功能块的备选方案。

### 新比较器产品线- 高达20 Gbps的传输速率的, 低于50%的功率损耗

Hittite Microwave公司为医疗成像/诊断、测试和工业应用提供高速模拟、数字和混合信号的管芯和表贴(SMT)产品。Hittite公司特别的高速比较器方案, 是同时满足为低输入过载提供低传播延时、最小化传播散射和低功耗的独一无二的组合。

**新!**



#### 特点:

- ◆ RSPECL, RSCML & RSECL Version Available
- ◆ 10 GHz输入带宽
- ◆ 输出端有低传播延迟时钟: 120ps
- ◆ 小过载&转换速率差量: 10ps
- ◆ 最小脉冲宽度: 60ps
- ◆ 低功率损耗: 130mW

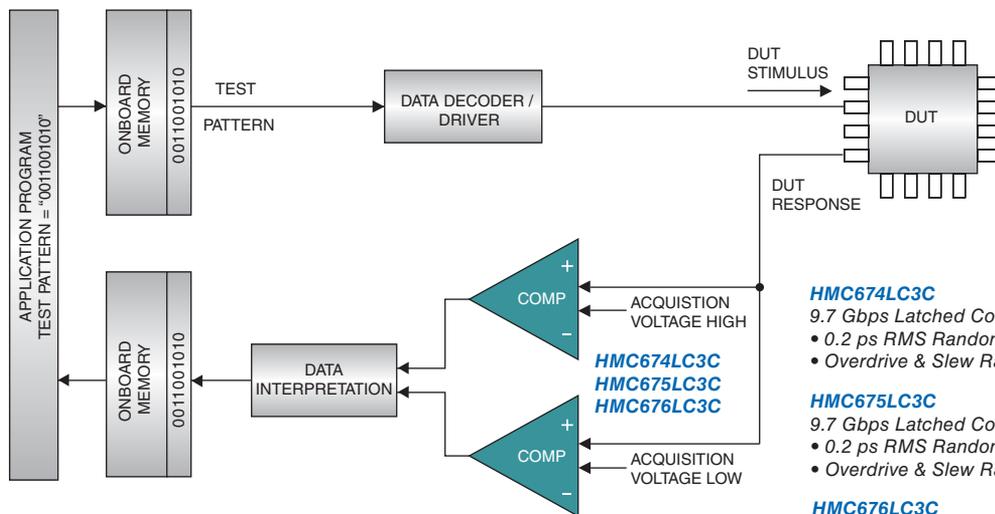
### 现货供应三款全新推出的高速比较器产品

	Analog Input B/W (GHz) / Clock Rate (Gpbs)	Function	Deterministic Jitter (ps)	Propagation Delay (ps)	Output Voltage Swing (Vdc)	DC Power Consumption (mW)	Vcco / Vterm <sup>[2]</sup> Power Supply (Vdc)	Package	Part Number
新	10 / 20	Clocked Comparator - RSPECL	<3	120	0.4	150	+3.3 / +1.3	LC3C	HMC874LC3C
新	10 / 20	Clocked Comparator - RSCML	<3	120	0.4	130	0 / 0	LC3C	HMC875LC3C
新	10 / 20	Clocked Comparator - RSECL	<3	120	0.4	150	0 / -2.0	LC3C	HMC876LC3C
	9.7 / <sup>[1]</sup>	Latched Comparator - RSPECL	2	85	0.4	140	+3.3 / +1.3	LC3C	HMC674LC3C
	9.7 / <sup>[1]</sup>	Latched Comparator - RSCML	2	100	0.4	100	0 / 0	LC3C	HMC675LC3C
	9.7 / <sup>[1]</sup>	Latched Comparator - RSECL	2	100	0.35	120	0 / -2.0	LC3C	HMC676LC3C

[1] Note that HMC674/675/676LC3C is a family of Level Latched Comparators

[2] Vee = -3.0V & Vcci = +3.3V

### 自动测试设备



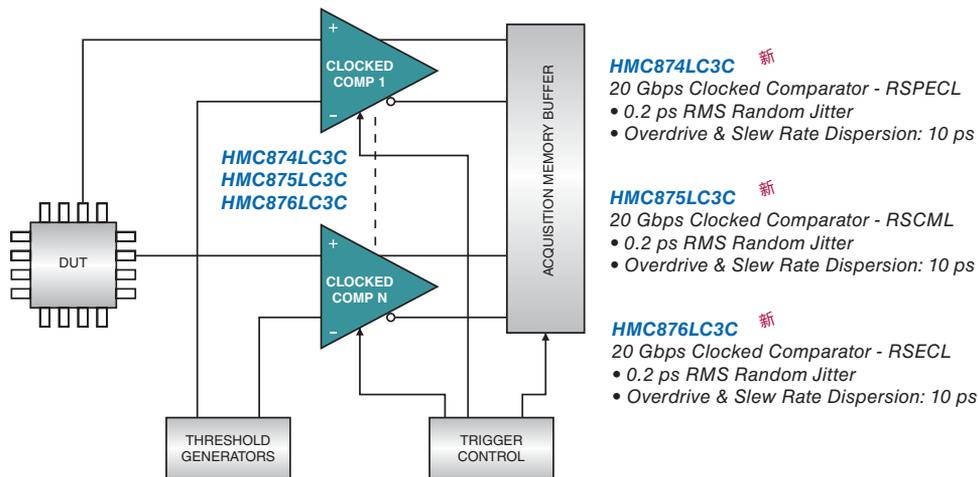
- HMC674LC3C**  
9.7 Gbps Latched Comparator - RSPECL  
• 0.2 ps RMS Random Jitter  
• Overdrive & Slew Rate Dispersion: 10 ps
- HMC675LC3C**  
9.7 Gbps Latched Comparator - RSCML  
• 0.2 ps RMS Random Jitter  
• Overdrive & Slew Rate Dispersion: 10 ps
- HMC676LC3C**  
9.7 Gbps Latched Comparator - RSECL  
• 0.2 ps RMS Random Jitter  
• Overdrive & Slew Rate Dispersion: 10 ps

Hittite公司推出的20Gbps/150mW时钟比较器产品大大降低ATE设备的系统功耗!

# 新产品线 & 扩展产品线

高速时钟比较器

逻辑分析仪 & 示波器



Hittite时钟比较器芯片提供出色的通道-通道间抖动匹配

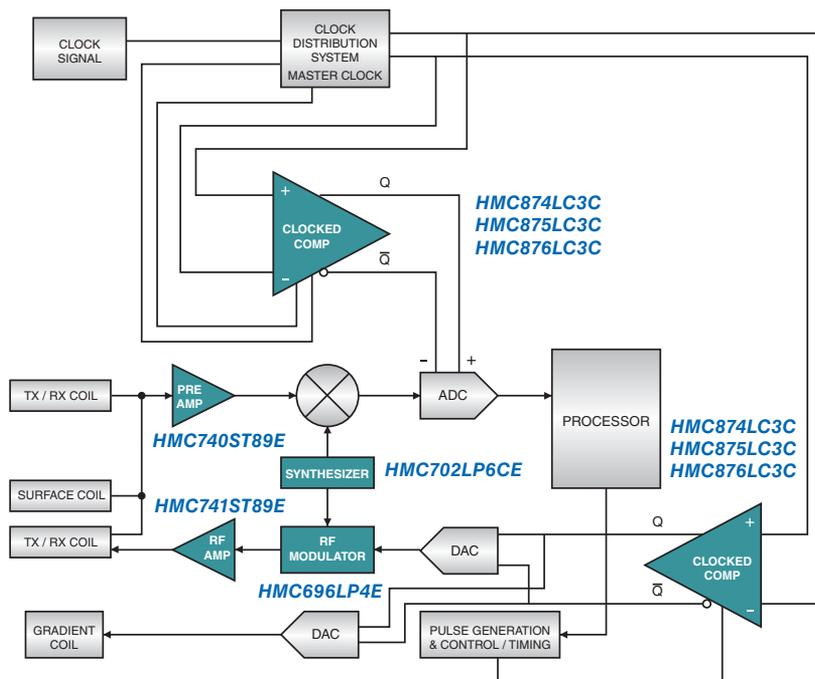
磁共振成像(MRI)

**HMC740ST89E**  
 InGaP HBT Gain Block  
 • 0.05 - 3 GHz  
 • 15 dB Gain

**HMC741ST89E**  
 InGaP HBT Gain Block  
 • 0.05 - 3 GHz  
 • 20 dB Gain

**HMC702LP6CE**  
 Fractional-N w/ Int. Sweeper  
 • 10 kHz to 14 GHz  
 • Low Phase Noise:  
 • -227 FOM Integer Mode

**HMC696LP4E**  
 Direct Quad. Modulator  
 • 20 - 2700 MHz  
 • > 42 dBc Sideband Suppression  
 • -163 dBc/Hz Broadband Noise Floor



Hittite公司的低抖动比较器芯片驱动ADC时钟 & 保持高信号-噪声及失真比!

## 新超低相噪DRO, 8.0 到8.3 GHz

**新!**



### 特点:

- ◆ 低SSB相位噪声: -122 dBc/Hz @ kHz Offset
- ◆ 可调频率: 8.0 到8.3 GHz
- ◆ 频率精度:  $\pm 250$  kHz ( Free Running)
- ◆ 高输出功率: +14.5dBm
- ◆ 单一供电: +6 到 +15V @ 125mA
- ◆ 工作温度: -40 °C 到 +85 °C

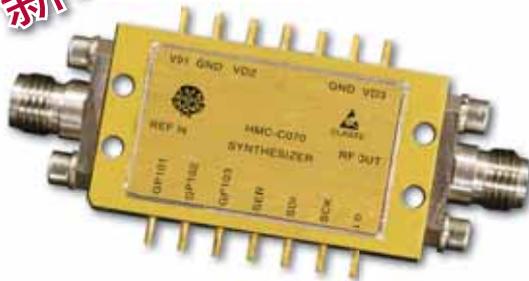
### Dielectric Resonator Oscillator (DRO)

Frequency (GHz)	Function	Output Power (dBm)	10 kHz SSB Phase Noise (dBc/Hz)	100 kHz SSB Phase Noise (dBc/Hz)	Frequency Drift (ppm/°C)	Bias Supply	Package	Part Number
8.0 - 8.3	Dielectric Resonator Oscillator	14.5	-122	-140	2	+6 to +15V @ 125mA	C-18 / SMA	HMC-C200

是军事通信, 测试&测量&医疗/工业设备的理想之选!

## 新的带接头 MicroSynth™ 频综模块

**新!**



### 特点:

- ◆ 极小尺寸的宽带集成频综
- ◆ 24-bit步进分辨率: 1.2Hz典型值
- ◆ 自动&触发扫频功能
- ◆ 集成低噪声电压调节器
- ◆ 密封模块
- ◆ 运行温度: -40°C~+85°C

### 带接头MICROSYNTH™ 频综模块

Frequency (GHz)	Function	Min. Step Size Resolution (Hz)	Reference Frequency (MHz)	Phase Noise @ 100 kHz Offset (dBc/Hz)	Output Power (dBm)	Bias Supply	Package	ECCN Code	Part Number
5.5 - 10.5	Microsynth™ Synthesizer	1.2	10	-92	21	+20V @ 20mA +6V @ 300mA +3.6V @ 100mA	C-20 / SMA	3A001.a.11.b	HMC-C070

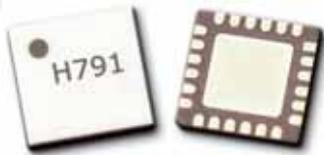
是军用通信、测试&测量以及医疗/工业设备的理想之选!

# 新产品线 & 扩展产品线

高速数字逻辑集成电路和连接头模块

新的高速时钟分配器, DC~28GHz!

**新!**



**特点:**

- ◆ 同时提供 /2 & /4 输出
- ◆ 快速上升 & 下降时间: 12/14 ps
- ◆ 低功耗: 660mW
- ◆ 超低单边带相位噪声: -151dBc/Hz @100kHz Offset
- ◆ 差分 & 单端应用

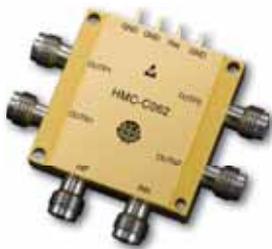
### 高速数字逻辑芯片系列选择

Data / Clock Rate (Gbps/GHz)	Function	Rise / Fall Time (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power (mW)	DC Power Supply (Vdc)	Package	ECCN Code	Part Number
13 / 13	Fast Rise Time 1:2 Fanout Buffer*	22 / 20	2	0.6 - 1.2	290	+3.3	LC3C	3A001.a.11.b	HMC744LC3C
13 / 13	2:1 Selector*	22 / 22	2	0.6 - 1.2	250	+3.3	LC3C	3A001.a.11.b	HMC748LC3C
13 / 13	Fast Rise Time AND/NAND/OR/NOR*	22 / 21	2	0.6 - 1.2	230	+3.3	LC3C	3A001.a.11.b	HMC746LC3C
28 / 28	Clock Divider: Divide-by-2, Divide-by-4	12 / 14	n/a	0.6	660	-3.3	LC4B	3A001.a.11.b	HMC791LC4B
13 / 13	Fast Rise Time D-Type Flip-Flop*	22 / 20	2	0.7 - 1.2	264	+3.3	LC3C	3A001.a.11.b	HMC747LC3C
26 / 26	T Flip-Flop w/ Reset *	18 / 17	2	0.6 - 1.2	270	+3.3	LC3C	3A001.a.11.b	HMC749LC3C
13 / 13	Fast Rise Time XOR/XNOR*	21 / 19	2	0.6 - 1.2	240	+3.3	LC3C	3A001.a.11.b	HMC745LC3C

\* These products feature programmable output voltage.

新的高速1:2扇出驱动器模块, 50Gbps!

**新!**



**特点:**

- ◆ 低附加RMS抖动: <200 fs
- ◆ 超低功耗: 455mW
- ◆ 单端或者差分运用
- ◆ 输入内部50 OHM负载连接
- ◆ 密封封装模块
- ◆ -40 到 +70C 运用环境温度

### 现货供应带接头高速数字逻辑模块

Data / Clock Rate (Gbps / GHz)	Function	Rise / Fall Time (ps)	Deterministic Jitter (ps)	Differential Output Voltage Swing (Vpp)	DC Power (mW)	DC Power Supply (Vdc)	Package / Connector	ECCN Code	Part Number
50 / 25	AND / NAND / OR / NOR	9 / 10	2	0.5	560	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C065
50 / 30	1:2 Fanout Buffer	9.5 / 11	2	0.5	455	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C062
43 / 43	D-Type Flip-Flop	9 / 10	1.5	0.5	580	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C060
50 / 25	D-Type Flip-Flop Double Edge Triggered	8.5 / 10	1.5	0.5	690	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C061
50 / 25	XOR / XNOR Gate	6.5 / 10	2	0.5	550	-3.3	C-13 / 1.85mm	3A001.a.11.b	HMC-C064

如果您对高速模拟、数字&混合信号产品有特别要求, 请即刻联系我们

Frequency Generation Expanded to Include New PLLs with Integrated VCOs

带集成VCOs的PLLs, 覆盖665MHz 到13.4GHz的频率范围!

**新!**



集成射频VCO的PLL  
产品

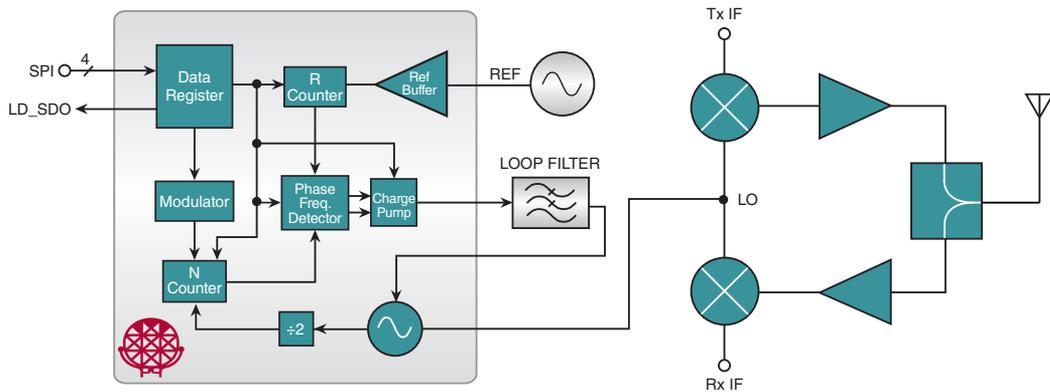


集成微波VCO的PLL  
产品

**特点:**

- ◆ 10kHz 闭环SSB相位噪声
  - 120 dBc/Hz-HMC824LP6CE @ 870 MHz
  - 102 dBc/Hz-HMC764LP6CE @ 7.8 GHz
- ◆ 完全内部集成LO方案  
只需添加参考晶振&环路滤波器
- ◆ 6x6 mm QFN 封装

为收发信机应用推出的小型化本振源(LO)方案



12款内部集成VCO的低相位噪声PLL, 现货供应

Frequency (GHz)	Closed Loop SSB Phase Noise @10kHz Offset	Open Loop VCO Phase Noise @1MHz Offset	Pout (dBm)	RMS Jitter Fractional Mode (fs)	Integrated PN Fractional Mode (deg rms)	Package	Part Number
0.665 - 0.825							
1.33 - 1.56	-115 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	HMC822LP6CE
2.66 - 3.30							
0.78 - 0.87	-120 dBc/Hz	-147 dBc/Hz	+12	190	0.05	LP6C	HMC824LP6CE
0.86 - 1.04							
1.72 - 2.08	-113 dBc/Hz	-140 dBc/Hz	+10	190	0.12	LP6C	HMC821LP6CE
3.44 - 4.16							
0.99 - 1.105	-118 dBc/Hz	-145 dBc/Hz	+10	190	0.07	LP6C	HMC826LP6CE
1.095 - 1.275							
2.19 - 2.55	-110 dBc/Hz	-139 dBc/Hz	+10	190	0.17	LP6C	HMC820LP6CE
4.38 - 5.10							
1.285 - 1.415	-116 dBc/Hz	-142 dBc/Hz	+10	190	0.10	LP6C	HMC828LP6CE
1.815 - 2.01	-112 dBc/Hz	-141 dBc/Hz	+9	190	0.13	LP6C	HMC831LP6CE
3.365 - 3.705	-107 dBc/Hz	-135 dBc/Hz	0	190	0.25	LP6C	HMC836LP6CE
7.3 - 8.2	-102 dBc/Hz	-140 dBc/Hz	+15	196	0.55	LP6C	HMC764LP6CE
7.8 - 8.5	-102 dBc/Hz	-139 dBc/Hz	+13	193	0.58	LP6C	HMC765LP6CE
11.5 - 12.5	-100 dBc/Hz	-134 dBc/Hz	+11	181	0.78	LP6C	HMC783LP6CE
12.4 - 13.4	-98 dBc/Hz	-134 dBc/Hz	+8	175	0.81	LP6C	HMC807LP6CE

是蜂窝移动通信/4G, 微波射频, 工业/医疗, 测试设备, 军事通信&传感器的理想之选!

新产品线 & 扩展产品线

# 设计套件

为缩短研发周期而设计的评估板&集成电路产品

有7款设计套件可供选用



- ◆ **Gain Blocks DC - 6 GHz, HMC-DK001**
- ◆ **Linear Driver Amplifiers 0.4 - 2.5 GHz, HMC-DK002**
- ◆ **High IP3 Mixers 0.45 - 4.0 GHz, HMC-DK003**
- ◆ **Digital Attenuators DC - 6 GHz, HMC-DK004**
- ◆ **SPDT Switches DC - 12 GHz, HMC-DK005**
- ◆ **Passive Attenuator Chips DC - 50 GHz, HMC-DK006**
- ◆ **Serial/Parallel USB Interface Kit, HMC-DK008 新!**

设计工程师可以购买Hittite预封装的MMIC设计套件，以便更快的评估到Hittite产品中最适合他们应用的那些产品。最终可使一个设计更快的被布置，减少后续变化。

Hittite的每套设计套件都包含一个组装的&测试过的带连接头评估板，每种产品都有5到10个ICs，且配有最新的Hittite 产品目录光盘。

设计套件

Designer's Kit	Kit Contents			
	ICs		Eval Boards	
<b>Gain Blocks DC - 6 GHz HMC-DK001</b>	HMC474MP86E HMC476MP86E HMC313E HMC311ST89E HMC478MP86E HMC478ST89E	HMC479MP86E HMC479ST89E HMC481ST89E HMC480ST89E HMC481MP86E HMC482ST89E	104217 – HMC313E 110161 – HMC478ST89E 107490 – HMC481MP86E	
<b>Linear Driver Amps 0.4 - 2.5 GHz HMC-DK002</b>	HMC454ST89E HMC450QS16GE HMC413QS16GE	HMC452ST89E HMC453ST89E HMC457QS16GE	107749 – HMC454ST89E 108349 – HMC450QS16GE 105000 – HMC413QS16GE	108712 – HMC452ST89E 108718 – HMC453ST89E 106043 – HMC457QS16GE
<b>Hi-IP3 Mixers 0.45 - 4.0 GHz HMC-DK003</b>	HMC387MS8E HMC483MS8GE HMC399MS8E HMC316MS8E HMC400MS8E HMC485MS8GE	HMC402MS8E HMC214MS8E HMC478ST89E HMC481ST89E HMC480ST89E	110161 – HMC478ST89E 105188 – HMC485MS8GE	106334 – HMC399MS8E 101830 – HMC400MS8E
<b>Digital Attenuators DC - 6 GHz HMC-DK004</b>	HMC291E HMC468LP3E HMC274QS16E HMC271LP4E HMC273MS10GE	HMC305LP4E HMC306MS10E HMC470LP3E HMC472LP4E	103372 – HMC291E 107302 – HMC468LP3E 104976 – HMC274QS16E 108782 – HMC271LP4E 103393 – HMC273MS10GE	108782 – HMC305MS10E 103393 – HMC306MS10E 107006 – HMC470LP3E 107010 – HMC472LP4E
<b>SPDT Switches DC - 12 GHz HMC-DK005</b> <span style="color: red;">更新!</span>	HMC221E HMC284MS8GE HMC349MS8GE HMC232LP4E HMC544E	HMC595E HMC574MS8E HMC784MS8GE HMC536MS8GE	101675 – HMC221E 107662 – HMC349MS8GE 107723 – HMC232LP4E	104124 – HMC574MS8E 104124 – HMC784MS8GE 105143 – HMC536MS8GE
<b>Passive Attenuators DC - 50 GHz HMC-DK006</b>	HMC650 HMC651 HMC652 HMC653 HMC654	HMC655 HMC656 HMC657 HMC658		
<b>Serial/Parallel USB Interface Kit HMC-DK008</b> <span style="color: red;">新!</span>	该HMC-DK008 串行/并行接口工程师设计套件可以让用户直接驱动Hittite公司的数控衰减器和可变增益放大器系列产品 Including: HMC743LP6CE and HMC792LP4E			

Hittite Microwave提供性能&价格具有竞争力的产品

## 宽带增益放大器

Product	Competitor	Competitor P/N	Hittite P/N Package & Performance	Hittite P/N Performance
Gain Blocks	Mini-Circuits	Gali-1, Gali-19, Gali-2, Gali-21, Gali-29	HMC311ST89E	
Gain Blocks	Mini-Circuits	VAM-3, VAM-6, VAM-7, VNA-21		HMC313E
Gain Blocks	Mini-Circuits	LEE-49, LEE-59		HMC396
Gain Blocks	Mini-Circuits	LEE-39		HMC397
Gain Blocks	Mini-Circuits	LEE-19, LEE-29		HMC405
Gain Blocks	Mini-Circuits	MAR-1SM, MAR-2SM, MAR-6SM, MAR-7SM	HMC474MP86E	
Gain Blocks	Mini-Circuits	ERA-1, ERA-1SM, ERA-2, ERA-21SM, ERA-2SM, ERA-3, ERA-3SM, ERA-8SM, MAR-3SM, RAM-1, RAM-2, RAM-3, RAM-4, RAM-6, RAM-7, RAM-8	HMC476MP86E	
Gain Blocks	Mini-Circuits	MNA-3, MNA-5, VNA-23, VNA-28		HMC476MP86E
Gain Blocks	Mini-Circuits	Gali-S66	HMC476ST89E	
Gain Blocks	Mini-Circuits	ERA-33SM, MAR-4SM, MAR-8ASM, MAR-8SM	HMC478MP86E	
Gain Blocks	Mini-Circuits	MNA-7		HMC478MP86E
Gain Blocks	Mini-Circuits	Gali-3, Gali-33, Gali-39, Gali-4F, Gali-51F, Gali-52, Gali-55, Gali-5F, Gali-6F	HMC478ST89E	
Gain Blocks	Mini-Circuits	ERA-4SM, ERA-4XSM, ERA-5, ERA-6, ERA-6SM, MAV-11SM, MAV-11BSM, MAV-11A	HMC479MP86E	
Gain Blocks	Mini-Circuits	MNA-2, MNA-4, VNA-22		HMC479MP86E
Gain Blocks	Mini-Circuits	Gali-4, Gali-49, Gali-6	HMC479ST89E	
Gain Blocks	Mini-Circuits	Gali-5, Gali-51, Gali-59	HMC480ST89E	
Gain Blocks	Mini-Circuits	ERA-4, ERA-50SM, ERA-51SM, ERA-5SM, ERA-5XSM	HMC481MP86E	
Gain Blocks	Mini-Circuits	MNA-6, VNA-25		HMC481MP86E
Gain Blocks	Mini-Circuits	Gali-74	HMC482ST89E	
Gain Blocks	RFMD	SGA-4163, SGA-4263		HMC311ST89E
Gain Blocks	RFMD	NGA-586, NGA-589, NGA-686, NGA-689		HMC313E
Gain Blocks	RFMD	SGA-0163, SGA-0363, SGA-1163, SGA-1263, SGA-2163, SGB-2233, SGA-2263, SGA-2363, SGA-2463, SGB-4333		HMC474MP86E
Gain Blocks	RFMD	SGA-2186, SGA-2286, SGA-2386, SGA-2486	HMC474MP86E	
Gain Blocks	RFMD	SGA-3263, SGA-3363, SGA-3463, SGA-3563, SGB-2433, SGB-4533		HMC476MP86E
Gain Blocks	RFMD	NGA-386, SGA-3286, SGA-3386, SGA-3486, SGA-3586	HMC476MP86E	
Gain Blocks	RFMD	SGA-4186, SGA-4286, SGA-4386, SGA-4486, SGA-5386, SGA-5486, SGA-5586	HMC478MP86E	
Gain Blocks	RFMD	SGB-6433, SGB-6533		HMC478MP86E
Gain Blocks	RFMD	SGA-4363, SGA-4463, SGA-4563		HMC478ST89E
Gain Blocks	RFMD	SGA-4586, SGA-5389, SGA-5489, SGA-5589	HMC478ST89E	
Gain Blocks	RFMD	SGA-5263		HMC479ST89E
Gain Blocks	RFMD	SGA-5286	HMC479MP86E	
Gain Blocks	RFMD	SGA-5289	HMC479ST89E	
Gain Blocks	RFMD	NGA-489, SGA-6289, SGA-6389, SGA-6489, SGA-6589, SGA-7489	HMC580ST89E	
Gain Blocks	RFMD	SGA-6386, SGA-6286, SGA-6486, SGA-6586	HMC481MP86E	
Gain Blocks	RFMD	NGA-186, NGA-286, NGA-486		HMC480ST89E
Gain Blocks	RFMD	SGA-7489	HMC482ST89E	
Gain Blocks	Triquint	AH1	HMC636ST89E	
Gain Blocks	Triquint	AM-1	HMC639ST89E	
Gain Blocks	Triquint	ECG004B, ECG006F	HMC311ST89E	HMC311LP3E
Gain Blocks	Triquint	AG102, AG103	HMC580ST89E	
Gain Blocks	Triquint	AG302-63, AG303-63, ECG004F		HMC313E
Gain Blocks	Triquint	AG201-63, AG202-63, AG203-63		HMC474MP86E
Gain Blocks	Triquint	AG201-86, AG202-86, AG203-86	HMC474MP86E	
Gain Blocks	Triquint	AG302-86, AG303-86, ECG001C, ECG004C	HMC476MP86E	
Gain Blocks	Triquint	ECG001F, ACG001B		HMC476MP86E
Gain Blocks	Triquint	AG503-86, ECG002C, ECG006C	HMC478MP86E	
Gain Blocks	Triquint	ECG002F		HMC478MP86E
Gain Blocks	Triquint	ECG006B, ECG002B, SCG002B, AG503-89	HMC478ST89E	
Gain Blocks	Triquint	AG402-86, ECG040C, AG602-86, EC1119C	HMC479MP86E	
Gain Blocks	Triquint	AG402-89, ECG040B, AG602-89, EC1119B	HMC479ST89E	
Gain Blocks	Triquint	AG603-89, AG604-89, ECG050B, EC1019B	HMC480ST89E	
Gain Blocks	Triquint	AG403-86, ECG005C, ECG005C, AG603-86, AG604-86, ECG050C, EC1019C, EC1078C	HMC481MP86E	
Gain Blocks	Triquint	AG403-89, ECG005B, ECG005B	HMC481ST89E	
Gain Blocks	Triquint	EC1078B, ECG003, ECG008	HMC482ST89E	

# 竞争对手产品替换列表

Hittite Microwave提供性能&价格具有竞争力的产品

## 衰减器

Product	Competitor	Competitor P/N	Hittite P/N Package & Performance	Hittite P/N Performance
Digital Attenuators	Skyworks	AA100-59LF	HMC230MS8E	
Digital Attenuators	Skyworks	AA101-80	HMC274QS16E	
Digital Attenuators	Skyworks	AA106-86	HMC603MS10E	
Digital Attenuators	Skyworks	SKY12322-86	HMC306MS10E	
Digital Attenuators	Skyworks	SKY12323-303	HMC273MS8GE	
Digital Attenuators	Skyworks	SKY12324-73	HMC291E	
Digital Attenuators	Skyworks	SKY12325-350LF	HMC468LP3E	
Digital Attenuators	M/A-COM	MAATSS0002	HMC274QS16E	
Digital Attenuators	M/A-COM	MAATSS0001, MAATSS0017	HMC603QS16E	
Digital Attenuators	M/A-COM	MAATSS0012	HMC306MS10E	

## 高速逻辑产品

Product	Competitor	Competitor P/N	Hittite P/N Package & Performance	Hittite P/N Performance
High Speed Logic	Inphi	13600DF	HMC727LC3C	
High Speed Logic	Inphi	13610XR	HMC725LC3C	
High Speed Logic	Inphi	13612OR	HMC726LC3C	
High Speed Logic	Inphi	13616CF	HMC724LC3C	
High Speed Logic	Inphi	20708SE	HMC728LC3C	
High Speed Logic	Inphi	13620TF	HMC729LC3C	
High Speed Logic	Inphi	25720TF		HMC729LC3C
High Speed Logic	Inphi	13707RZ	HMC706LC3C	

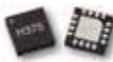
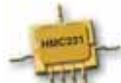
## 功率检测器

Product	Competitor	Competitor P/N	Hittite P/N Package & Performance	Hittite P/N Performance
Log Detectors	Analog Devices	AD8313		HMC600LP4E HMC601LP4E
Log Detectors	Analog Devices	AD8317		HMC611 HMC611LP4E
Log Detectors	Analog Devices	AD8318		HMC602LP4E HMC611LP4E
True RMS Detectors	Analog Devices	AD8362		HMC610LP4E HMC614LP4E
Log Detectors	Maxim	MAX2014		HMC612LP4E
Log Detectors	Maxim	MAX2015		HMC600LP4E HMC601LP4E
Log Detectors	Linear Technology	LT5534, LT5538		HMC600LP4E HMC601LP4E
Log Detectors	Linear Technology	LT5570		HMC612LP4E

## 开关

Product	Competitor	Competitor P/N	Hittite P/N Package & Performance	Hittite P/N Performance
Switches	Skyworks	AS204-80	HMC241QS16E	
Switches	Skyworks	AS196-307	HMC349LP4CE	
Switches	Skyworks	AS193-73	HMC544E	
Switches	Skyworks	AS169-73	HMC545E	
Switches	Skyworks	AS186-302	HMC435MS8GE	
Switches	M/A-COM	SW-239	HMC239S8E	
Switches	M/A-COM	SW-395		HMC544E
Switches	RFMD	SSW-124	HMC234C8	

提供SMT表贴 &amp; 模块封装

 <b>MP86 "Micro-P"</b> 5.21 x 5.08 x 1.57 mm	 <b>SC70</b> 2.15 x 2.1 x 0.9 mm	 <b>SOT26</b> 2.8 x 2.9 x 1.2 mm	 <b>ST89</b> 4.50 x 4.14 x 1.54 mm	 <b>MS8 / MS8G</b> 4.9 x 3.0 x 1.0 mm
 <b>MS10 / MS10G</b> 4.9 x 3.0 x 1.0 mm	 <b>S8 / S8G</b> 6.0 x 4.9 x 1.6 mm	 <b>S14</b> 6.0 x 8.7 x 1.6 mm	 <b>LP2 "DFN"</b> 2.0 x 2.0 x 1.0 mm	 <b>LP3 "QFN"</b> 3.0 x 3.0 x 1.0 mm
 <b>LP4 / LP4B / LP4C "QFN"</b> 4.0 x 4.0 x 1.0 mm	 <b>LP5 "QFN"</b> 5.0 x 5.0 x 1.0 mm	 <b>LP6 / LP6C "QFN"</b> 6.0 x 6.0 x 1.0 mm	 <b>QS16 / QS16G</b> 6.0 x 4.9 x 1.5 mm	 <b>QS24</b> 6.0 x 8.7 x 1.6 mm
 <b>LC3 / LC3B</b> 3.0 x 3.0 x 1.0 mm	 <b>LC3C</b> 3.0 x 3.0 x 1.45 mm	 <b>LC4 / LC4B</b> 4.0 x 4.0 x 1.0 / 1.2 mm	 <b>LC5</b> 5.0 x 5.0 x 1.0 mm	 <b>LM1 / LM3</b> 5.1 x 5.1 x 1.1 mm
 <b>C8</b> 7.4 x 5.1 x 2.4 mm	 <b>LH250 Hermetic</b> 6.35 x 6.35 x 1.27 mm	 <b>LH5 Hermetic</b> 5.0 x 5.0 x 1.0 mm	 <b>G8 Hermetic</b> 10.2 x 4.6 x 1.8 mm	 <b>G7 Hermetic</b> 16.1 x 17.3 x 1.7 mm
 <b>G16 Hermetic</b> 10.4 x 10.4 x 1.7 mm	 <b>C-1 / C-1B</b> 35.31 x 17.78 x 7.38 mm	 <b>C-2 / C-2B</b> 38.1 x 17.78 x 7.38 mm	 <b>C-3 / C-3B</b> 40.89 x 17.78 x 7.38 mm	 <b>C-4</b> 41.66 x 36.32 x 8.50 mm
 <b>C-5</b> 41.66 x 29.84 x 8.50 mm	 <b>C-6</b> 45.34 x 17.27 x 8.50 mm	 <b>C-7</b> 192.3 x 106.7 x 35.0 mm	 <b>C-9</b> 41.66 x 27.59 x 8.50 mm	 <b>C-10 / C-10B</b> 41.66 x 27.59 x 8.50 mm
 <b>C-11</b> 41.66 x 29.84 x 8.50 mm	 <b>C-12</b> 107.6 x 43.0 x 43.0 mm	 <b>C-13</b> 31.75 x 31.75 x 11.10 mm	 <b>C-14</b> 20.32 x 22.86 x 6.99 mm	 <b>C-15</b> 46.70 mm DIA x 9.14 mm
 <b>C-16</b> 28.96 x 48.26 x 14.10 mm	 <b>C-17</b> 66.0 x 58.5 x 14.2 mm	 <b>C-18</b> 38.10 x 38.10 x 26.67 mm	 <b>C-19</b> 17.78 x 25.15 x 5.84 mm	 <b>C-20</b> 35.81 x 19.05 x 6.22 mm

**E** or **✓** = RoHS Compliant.

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 sales@wtel.com.hk www.wtel.com.hk

### • 通过Hittite Microwave公司下订单:

您也可以通过 (978) 250-3343 与 Hittite Microwave 公司直接联系。订单可以直接传真到 (978) 250-3373, 或者发送到 email: sales@hittite.com。最小订量必须满足500美圆。

## 我们的质量方针:

### Hittite Microwave 公司坚持:

- 成为提供高质量产品的供应商。
- 不断提高现有技术以支持我们的产品。
- 提供最优的产品来增强我们的竞争力。

### Hittite 的质量体系要求每个人:

- 采用创新来提高质量。
- 创造采纳最高标准的环境。
- 参与持续提高的锻炼。

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- 产品可靠性
- 产品认证测试报告(QTR)

### 产品应用支持:

- 应用工程支持
- 应用文档
- 混频器杂散 (Spur) 表计算器&PLL 相位噪声计算器
- 封装&布板-产品尺寸, PCB 布置 和卷带封装信息
- 通过指标参数查找产品-提供HMC产品中最接近要求的产品
- 产品兼容替代-提供HMC兼容其它IC产品信息
- 发表的论文
- S-参数文件

### 数据手册:

- 完整的pdf格式的产品datasheet可以在我们的网站上找到。

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