



Gotmic Products Selection Guide 2020

关注公众号



添加微信



上海馥莱电子简介

上海馥莱电子有限公司，是一家专业的射频、微波毫米波产品供应商，致力于为客户提供电子元器件及完整的技术服务。业务主要以下领域：

✓ **毫米波芯片 40-170GHz**

V 波段（57-66GHz），E 波段（71-86GHz），W(75-105GHz)和 THz 产品，包括芯片和模块；
应用：5G 通信、安检成像、异物检测、辐射计、火控雷达、天文探测等。

✓ **波导模块 18-325GHz**

包括有源产品（放大器、倍频器、噪声源等）和无源产品（衰减器、耦合器、开关等）。

✓ **测试电缆组件**

超低差损、稳幅稳相、高性价比，频率 DC-18/26/40/50/67/110GHz。

✓ **功率放大器模块和机柜**

频率最高 26GHz，功率最高 10kW 以上。

✓ **便携式测试测量产品**

包括信号发生器、衰减器、移相器、混频器、开关等，可面板和 USB 控制。

我们的优势：

专业的技术团队，行业资深的本土化团队，能够为客户从方案设计、样机生产调试、批量生产等各个阶段提供持续完整的服务。

联系我们：

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代理品牌：



关于 Gotmic

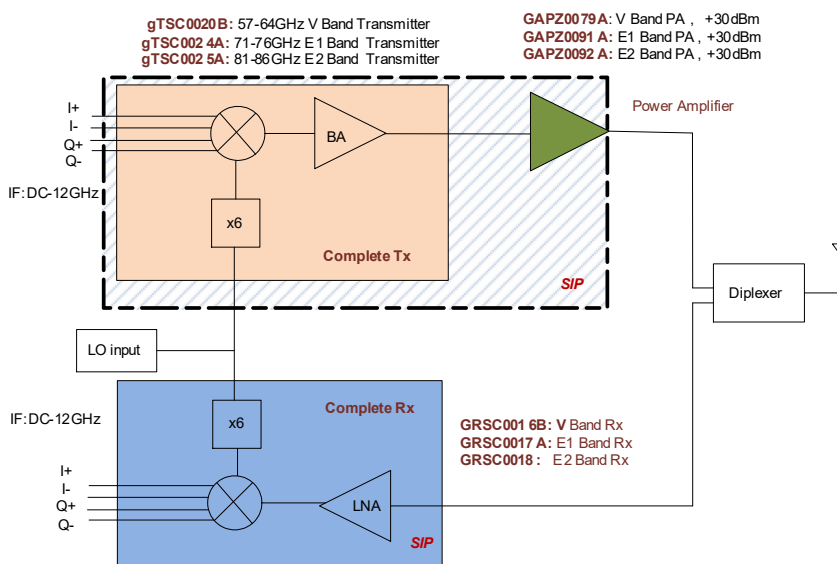
2008 年成立，总部位于瑞典哥德堡，业界第一个发布 60GHz GaAs 多功能芯片的公司，专注于 40-170GHz 毫米波芯片设计。

关于上海馥莱电子

专业的射频，微波和毫米波产品供应商，致力于为客户提供最好的毫米波产品和服务，频率覆盖 DC-500GHz。上海馥莱电子是 Gotmic 中国区总代理。

V 波段：57-64GHz 超短距离通信

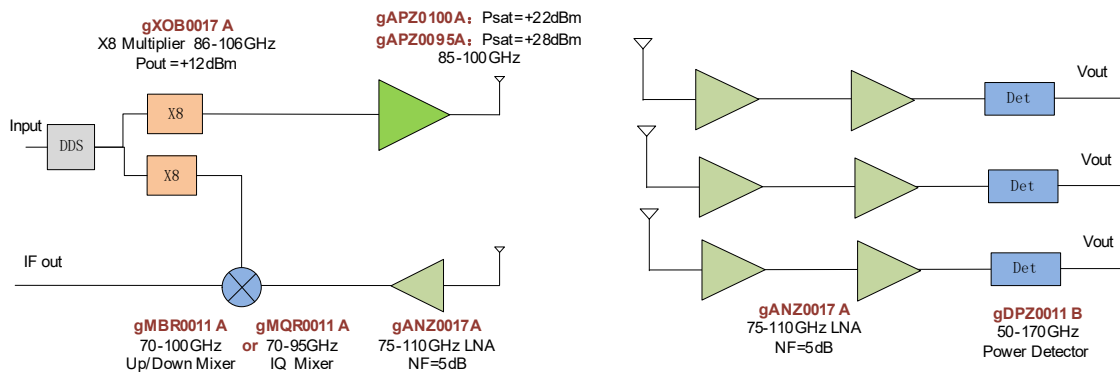
E 波段：71-76GHz、81-86GHz 微波点对点通信



应用：

- ✓ 5G 毫米波通信
- ✓ 安检成像
- ✓ 跑道异物检测
- ✓ 毫米波测试
- ✓ 防撞系统
- ✓ 辐射计
- ✓ 火控雷达
- ✓ 天文探测等

W 波段：毫米波安检成像、跑道异物检测，军事国防等



W 波段主动式方案

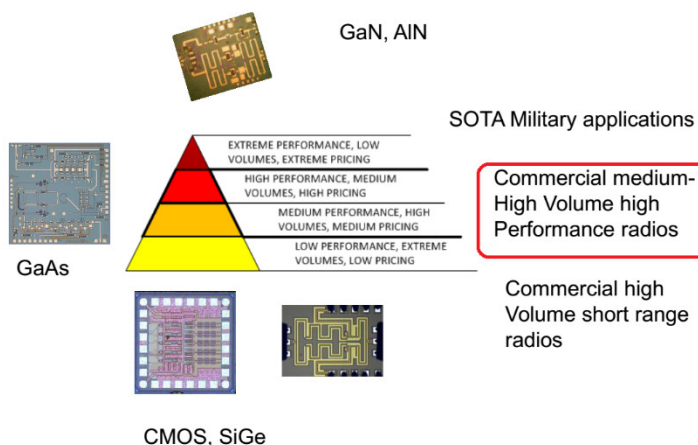
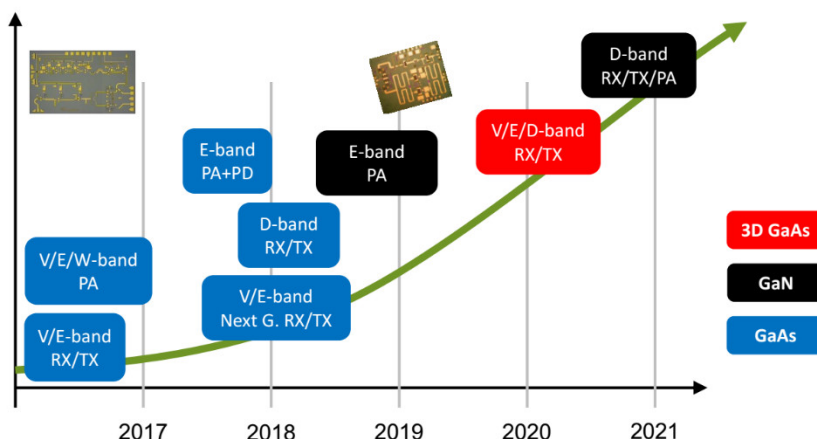
W 波段被动式方案

关于 Gotmic

Who We Are:

专注于 40-170GHz 芯片设计，主要工艺 GaAs/GaN 等；

产品规划图：



What We Do:

以金字塔为例，

塔尖：军事国防，追求高性能，不计成本；

塔中间：商业应用中等批量需求，中等性能要求，Gotmic 重点市场；

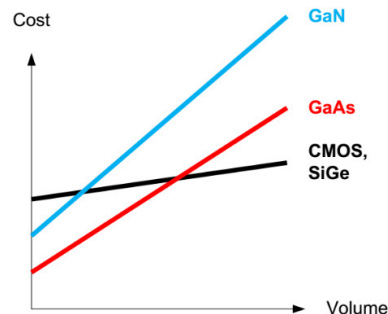
塔底：消费类需求量非常大，价格非常敏感。

毫米波工艺比较：

Technology	Feature size (nm)	fMAX (GHz)	Vbr (V)	NFmin (dB) at 50GHz**	Production or research?
GaAs pHEMT	100	185	7	0.5	P
GaAs mHEMT	70	450	3	0.5	R*
GaAs mHEMT	35	900	2	1	R
InP HEMT	130	380	1	<1	R
InP HEMT	30	1200	1	<1	R
GaN HEMT	60	250	20	1	R
GaN HEMT	40	400	42	1.2	R
SOI CMOS	45	280	1	2-3	P
SiGe-HBT	130	400	1.4	2	P
InP DHBT	250	650	4	3	R*
InP DHBT	130	1100	3		R

*Ready to be commercialized in 1-2 years
**NFmin is proportional to the frequency.

Courtesy: Ericsson Technology Review #2-2017
J. Edstam et. al.



Part1: 裸芯片产品

1. Multi-Functional Chips 多功能芯片

PN	Type	RF (GHz)	IF Range (GHz)	Gain (dB)	P1dB (dBm)	NF (dB)	Package
gTSC0020B	V Band TX	52-72	DC-12	27	+20	-	Die
gRSC0016B	V Band RX	52-72	DC-12	9	-	4	Die
gTSC0023B	E Band TX	71-86	DC-12	18	+16	-	Die
gTSC0024A	E1 Band TX	71-76	DC-12	18	+24	-	Die
gTSC0025A	E2 Band TX	81-86	DC-12	18	+24	-	Die
gRSC0017A	E1 Rx	71-76	DC-12	21	-	5	Die
gRSC0018	E2 Rx	81-86	DC-12	21	-	5	Die
gRSC0014B	RX without IF Amp	71-76	DC-12	13	-	6	Die
gRSC0015D	RX without IF Amp	81-86	DC-12	15	-	6	Die
gRCQ0016A	RX without x6	71-86	DC-12	8	8	6	Die

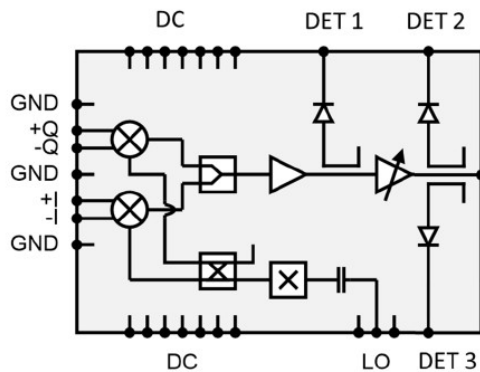


Figure 1. gTSC0024 block diagram

FEATURES

- High-performance fully integrated transmitter
- E1-band coverage
- 17 dB conversion gain
- 25 dB gain control range
- 24/30 dBm P1dB/OIP3
- Direct conversion or IF up conversion

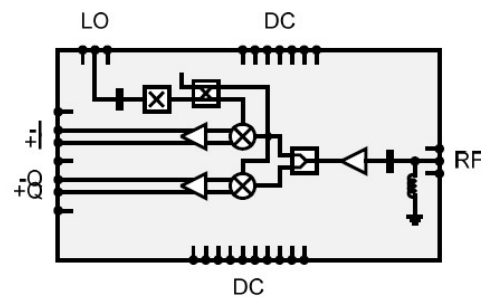


Figure 1. gRSC0017 block diagram

FEATURES

- High-performance fully integrated receiver
- E1-band coverage
- 21 dB conversion gain
- 5 dB noise figure
- Direct conversion or IF down-conversion

2. Low Noise Figure Amplifiers 低噪声放大器

PN	Type	Freq(GHz)	Gain (dB)	P1dB	OIP3 (dBm)	NF	Package
gANZ0031C	V Band	52-72	20	+10	+24	3.5	Die
gANZ0032C	E1 Band	70-80	22	+12	-	4.5	Die
gANZ0033C	E2 Band	77-86	22	+10	-	4.5	Die
gANZ0012A	E Band	71-86	15	+14	-	6	Die
gANZ0017A	W Band	75-110	20	+10	-	6	Die

FEATURES

- 5 dB NF
- Full W-band coverage
- 20 dBm OIP₃
- 17 dB gain

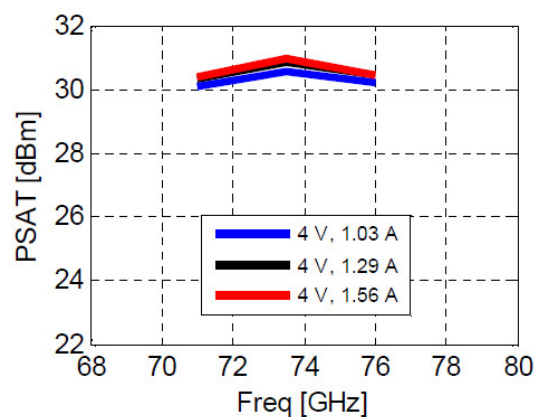
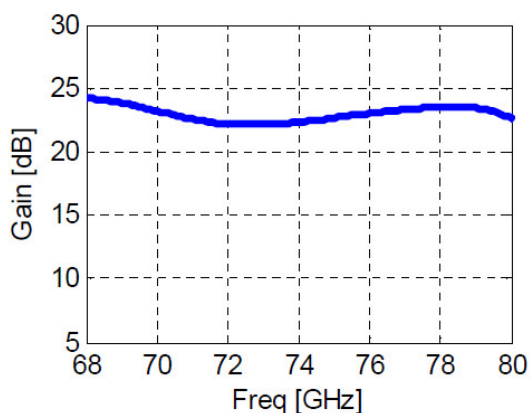
TYPICAL APPLICATIONS

- Point-to-point communication
- Instrumentation
- Fiber over radio
- 94 GHz radar

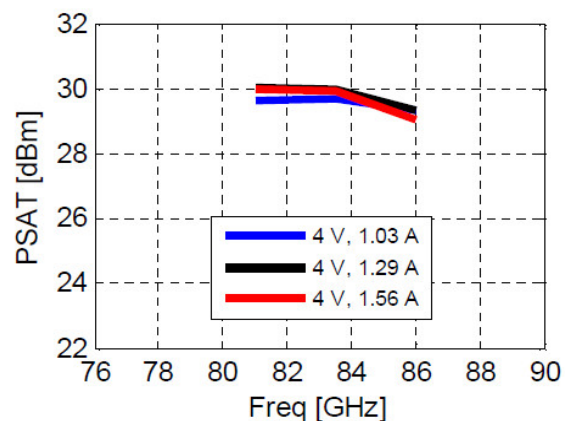
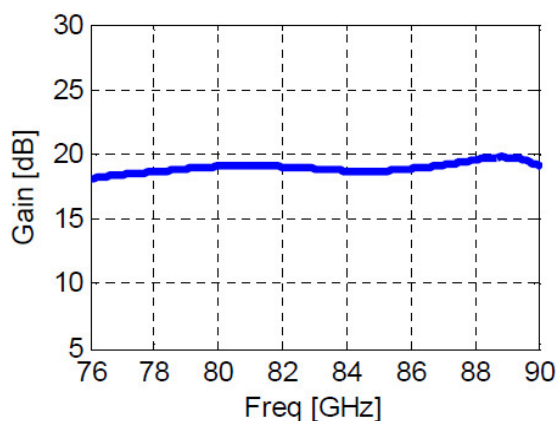
3. Power Amplifier Die, 裸芯片功放

PN	Type	Freq (GHz)	Gain (dB)	P1dB	Psat (dBm)	OIP3 (dBm)	Package
gAPZ0038A	V Band	55-71	18	+20	+23	+31	Die
gAPZ0039A	V Band	52-72	19	+24	+25	+32	Die
gAPZ0079A	V Band	57-66	14	+29	+30	+36	Die
gAPZ0081A	V Band	65-75	23	+27.5	+29	+36	Die
gAPZ0033A	E Band	68-89	23	+16	+19	+27	Die
gAPZ0051A	E1 Band	68-79	21	+26	+27	+34	Die
gAPZ0052A	E2 Band	75-87	21	+26	+27	+33	Die
gAPZ0082A	E1 Band	71-76	19	+27.5	+29	+35	Die
gAPZ0085A	E2 Band	81-86	16	+26	+28.5	+35	Die
gAPZ0091A	E1 Band	68-79	23	+29	+30	+36	Die
gAPZ0092A	E2 Band	76-88	19	+28	+30	+36	Die
gAPZ0045A	W Band	80-100	18	+15	+24	-	Die
gAPZ0100A	W Band	88-104	15	+20	+22	-	Die
gAPZ0095A	W Band	85-100	15	+27	+28	-	Die

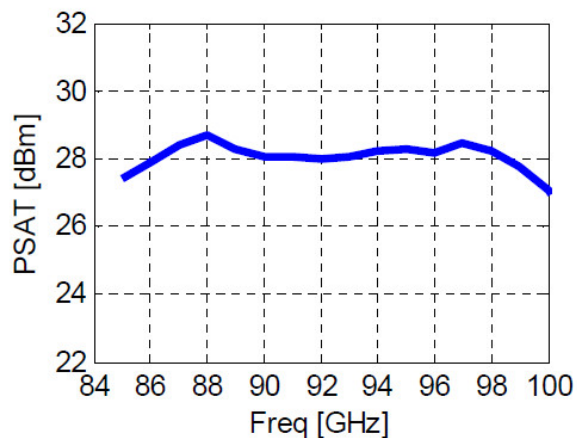
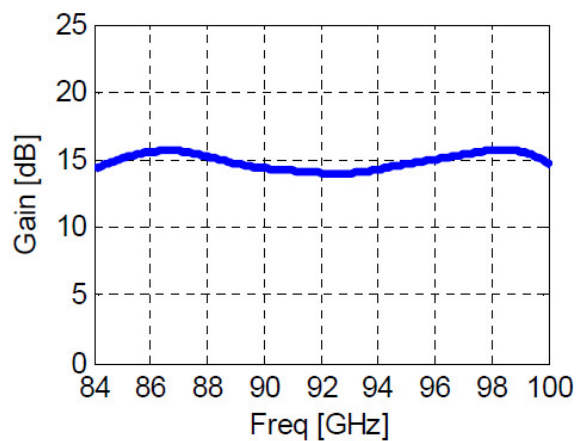
Power Amplifier Die, 裸芯片功放



E1 PA: GAPZ0091A, 71-76GHz



E2 PA: GAPZ0092, 81-86GHz



W PA: GAPZ0095, 85-100GHz

4. Mixers 混频器

PN	Type	RF (GHz)	IF(GHz)	CL(dB)	LO ISO(dB)	LO (dBm)	Package
gMDR0027B	V Band IQ Mixer	57-66	DC-12	-9	30	+7	Die
gMDR0015B	E Band IQ Mixer	71-86	DC-12	-10	30	+7	Die
gMBR0011A	W Band Mixer	70-100	DC-12	-10	27	+7	Die
gMQR0011A	W Band IQ Mixer	70-95	DC-12	-10	30	+5	Die
gMDR0013B	W Band IQ Mixer	70-100	DC-12	-10	30	+7	Die
gMDR0035A	D Band IQ Mixer	RF: 140-170 LO: 70-85	DC-6	-12	2LO-RF: 35	+15	Die

5. Frequency Multipliers 倍频器

PN	Type	Freq(GHz)	Gain (dB)	Pin (dBm)	Pout (dBm)	Harmonic (dB)	Package
gXSB0024B	V Band X6	55-75	11	+5	+16	-35	Die
gXSB0025A	E Band X6	71-86	9	+5	+14	-30	Die
gXQB0012B	W X4	85-95	-10	+10	0	-20	Die
gXOB0017A	W Band X8	86-106	12	0	12	-20	Die

6. Attenuators/Switches 衰减器/开关

PN	Type	Freq(GHz)	Loss (dB)	Isolation(dB)	RL/dB	Package
gSSS0013B	SPST	40-110	2.5	26	12/10	Die
gSSS0015	SPST	40-110	2.5	26	12/10	Die
gSSD0011A	SPDT	40-110	5.0	26	12/10	Die

7. Power Detector 功率检测器

PN	Type	Freq(GHz)	Sensitivity	RL(dB)	Range (dBm)	Package
gDPZ0011B	Detector	50-170	4000	6	-30 TO -10	Die

注：负斜率检波器，即输入功率越大，输出电压值越小。

Part2: SMD 产品

8. SMD Tx Multi-Functional 表贴多功能 Tx

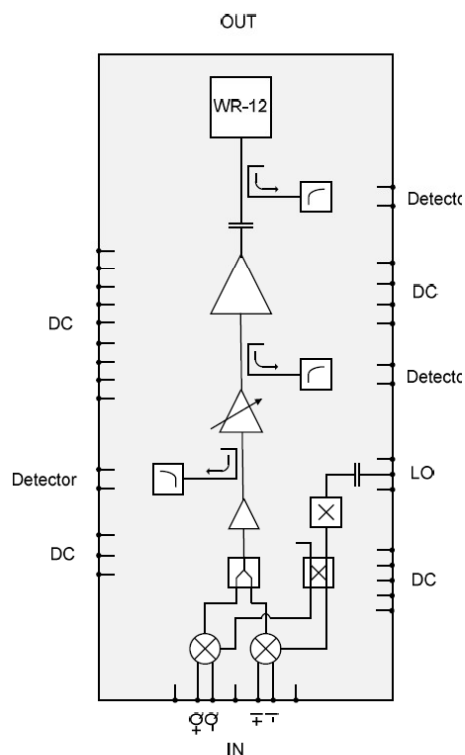
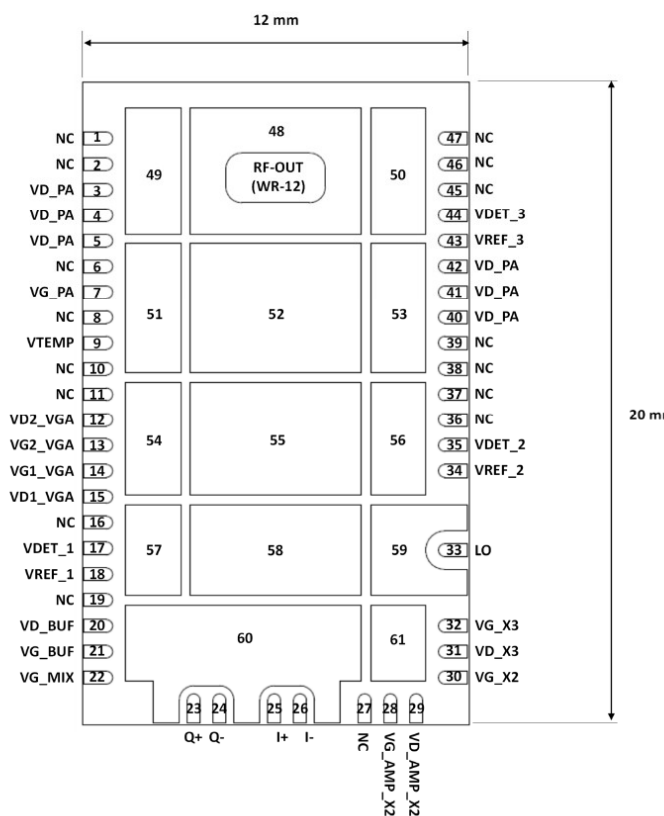
PN	Type	RF (GHz)	IF Range (GHz)	Gain (dB)	P1dB (dBm)	OIP3 /dBm	Package
GMTX0016A	E1 Tx	71-76	DC-10	17	+24	+30	SIP
GMTX0017A	E2 Tx	81-86	DC-10	17	+24	+30	SIP
GMTX0051A	E1 Tx HP	71-76	DC-10	33	+28	+35	SIP
GMTX0052A	E2 Tx HP	81-86	DC-10	33	+27	+35	SIP
GMTX0045A	W1 TX	92-100	DC-10	30	+25	+30	SIP
GMTX0046A	W2 TX	104-114	DC-10	30	+20	+26	SIP

FEATURES

- EU made / ITAR-free
- P1dB/PSAT: 28/29 dBm
- Gain: 33 dB
- OIP3: 35 dBm
- Size: 12 x 20 x 4 mm
- Evaluation board available

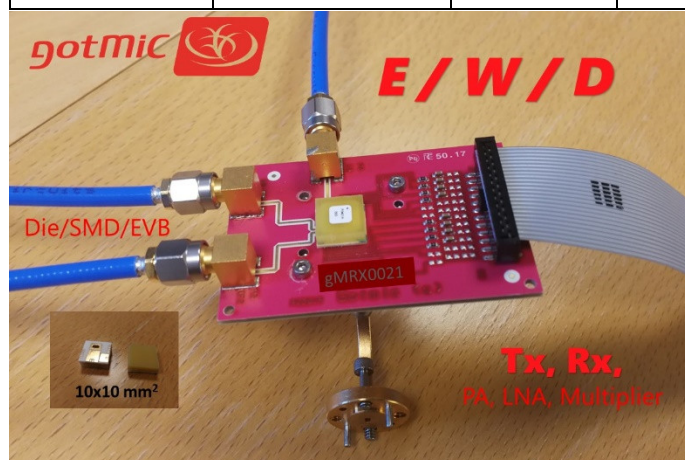
APPLICATIONS

- Direct or IF up-conversion
- Point-to-point communication
- Radar and imaging
- Instrumentation
- Fiber over radio



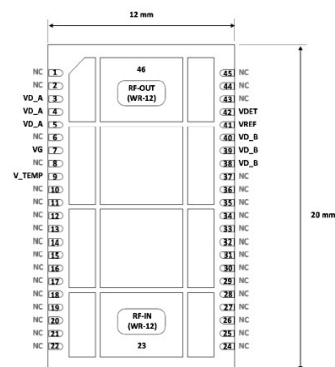
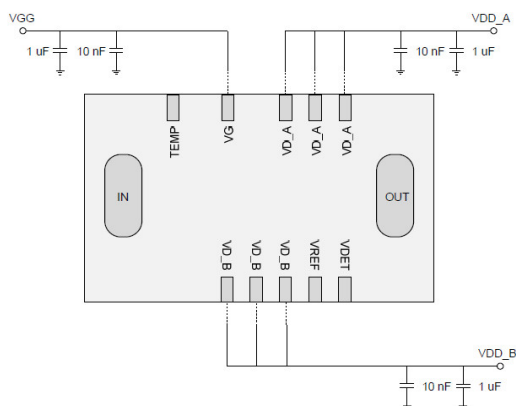
9. SMD Rx Multi-Functional 表贴多功能 Rx

PN	Type	RF (GHz)	IF Range (GHz)	Gain (dB)	IIP2 (dBm)	NF /Db	Package
GMRX0040A	E1 Rx	71-76	DC-10	22	+22	5	SIP
GMRX0041A	E2 Rx	81-86	DC-10	22	+22	5	SIP
GMRX0021A	W Rx	90-96	DC-10	5	-	6	SIP
GMRX0033A	W1 Rx	92-100	DC-10	15	+20	6	SIP
GMRX0034A	W2 Rx	104-114	DC-10	15	+20	6	SIP



10. SMD Power Amplifier, 表贴功放

PN	Type	Freq (GHz)	Gain (dB)	P1dB	Psat (dBm)	OIP3 (dBm)	Package
GMPA0035A	E1 PA	71-76	21	+28	+29	+34	SMD
GMPA0036A	E2 PA	81-86	17	+28	+29	+34	SMD
GMPA0021A	W PA	92-96	12	+26	+27	-	SMD

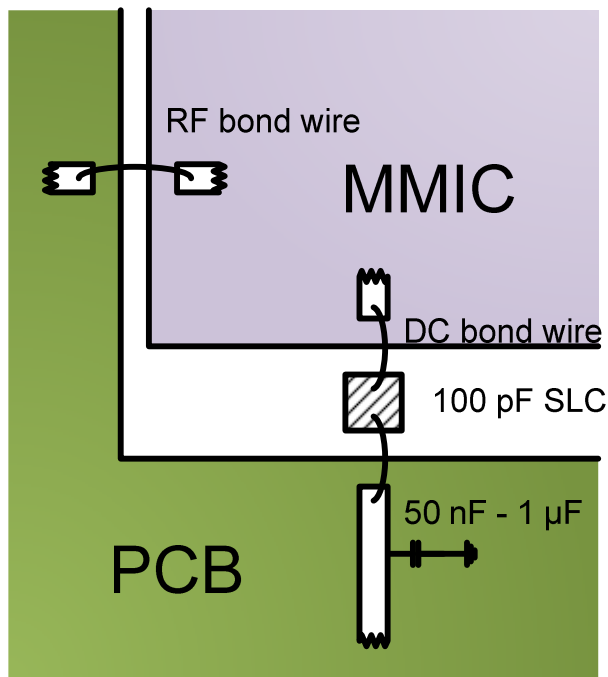


DIE ATTACH

The die mounting surface must be clean and flat. Our MMICs are all back metalized which also serves as ground. The back side must be both electrically and thermally connected using soldering or epoxy with high thermal and electrical conductivity. Using conductive silver filled epoxy, recommended epoxies are DieMat DM6030HK-PT/H579. Apply sufficient epoxy to meet required epoxy bond line thickness, epoxy fillet height and epoxy coverage around total die periphery. The thickness of our MMICs is 50 μm (2 mil). For the best RF performance, the circuit board line should be at the same height. It is recommended to use antistatic die pick up tools only.

WIRE BONDING

Bond pad openings in the surface passivation above the bond pads are provided to allow wire bonding to the square gold bond pads. Bond force, time, ultrasonic power and temperature are all critical parameters for good attachment.



We recommend using 25 μm (1 mil) diameter bond wires or 75 μm $\times$ 12.5 μm (3 $\times$ 0.5 mil) ribbons. The width of the RF pads on the MMIC is 72 μm and DC is 90 μm . All RF bondwires should be kept as short as possible and not exceeding 300 μm . Long bond wires will result in an undesirable series inductance that is difficult to compensate for over large bandwidths. Bondwires to DC pads should preferably also be kept as short as possible.

Figure 1. Assembly diagram

To the DC pads, we recommended first bonding to a 100 pF SLC capacitor and then to a 50 nF-1 μF capacitor onto the circuit board.

Table 1. Typical wire dimensions for wedge bonding

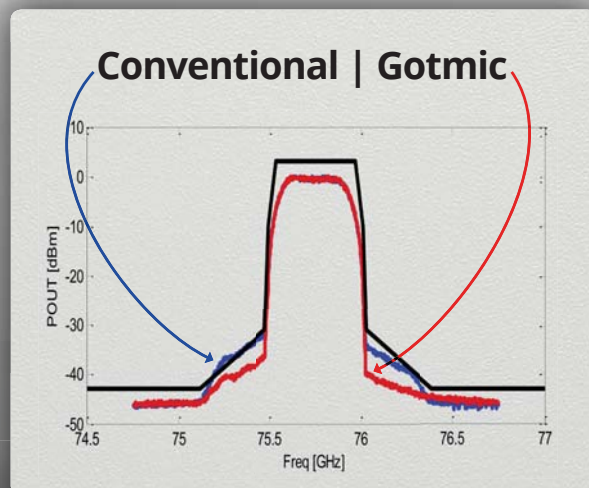
Parameter	Min	Typ	Max	Unit
RF bond wire diameter	17	25	25	μm
RF bond wire length	0	150	300	μm
DC bond wire diameter	17	25	75	μm
DC bond wire length	0	300	2000	μm

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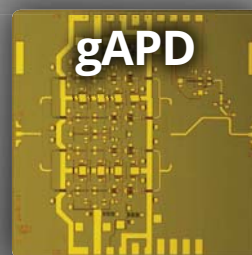


The Ultimate High-Performance SMD Solution, V/E/W/D Band

OIP3 / 40 dBm
@
P1dB / 26 dBm



gMTX
SMD Transmitter



Pre-Dist. PA



Tx

More Data, Longer Range
MONEY SAVER