SUNSTAR商斯达实业集团是集研发、生产、工程、销售、代理经销 、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一,是一家专业代理和分銷世界各大品牌IC芯片和電子元器件的连锁经营綜合性国际公司。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。 我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。**专业以现代信息产业（计算机、通讯及传感器）三大支柱之一的传感器为主营业务，专业经营各类传感器的代理、销售生产、网络信息、科技图书资料及配套产品设计、工程开发。我们的专业网站——中国传感器科技信息网（全球传感器数据库） www.SENSOR-IC.COM 服务于全球高科技生产商及贸易商，为企业科技产品开发提供技术交流平台。欢迎各厂商互通有无、交换信息、交换链接、发布寻求代理信息。欢迎国外高科技传感器、变送器、执行器、自动控制产品厂商介绍产品到 中国，共同开拓市场。**本网站是关于各种传感器-变送器-仪器仪表及工业自动化大型专业网站,深入到工业控制、系统工程计 测计量、自动化、安防报警、消费电子等众多领域，把最新的传感器-变送器-仪器仪表买卖信息,最新技术供求,最新采购商,行业动态，发展方向，最新的技术应用和市场资讯及时的传递给广大科技开发、科学研究、产品设计人员。本网站已成功为石油、化工、电力、医药、生物、航空、航天、国防、能源、冶金、电子、工业、农业、交通、汽车、矿山、煤炭、纺织、信息、通信、IT、安防、环保、印刷、科研、气象、仪器仪表等领域从事科学研究、产品设计、开发、生产制造的科技人员、管理人员 、和采购人员提供满意服务。 **我公司专业开发生产、代理、经销、**销售各种传感器、变送器、敏感元器件、开关、执行器、仪器仪表、自动化控制系统： 专门从事设计、生产、销售各种传感器、变送器、各种测控仪表、热工仪表、现场控制器、计算机控制系统、数据采集系统、各类环境监控系统、专用控制系统应用软件以及嵌入式系统开发及应用等工作。如热敏电阻、压敏电阻、温度传感器、温度变送器、湿度传感器、 湿度变送器、气体传感器、 气体变送器、压力传感器、 压力变送、称重传感器、物（液）位传感器、物（液）位变送器、流量传感器、 流量变送器、电流（压）传感器、溶氧传感器、霍尔传感器 、图像传感器、超声波传感器、位移传感器、速度传感器、加速度传感器、扭距传感器、红外传感器、紫外传感器、 火焰传感器、激光传感器、振动传感器、轴角传感器、光电传感器、接近传感器、干簧管传感器、继电器传感器、微型电泵、磁敏（阻）传感器 、压力开关、接近开关、光电开关、色标传感器、光纤传感器、齿轮测速传感器、 时间继电器、计数器、计米器、温控仪、固态继电器、调压模块、电磁铁、电压表、电流表等特殊传感器 。 同时承接传感器应用电路、产品设计和自动化工程项目。

欢迎索取免费详细资料、设计指南和光盘 ；产品凡多，未能尽录，欢迎来电查询。

更多产品请看本公司产品专用销售网站:

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商斯达电子 元器件网：http://www.sunstare.com/

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New Products

Distributed Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise Figure (dB)	Output P1dB (dBm)	OIP3 (dBm)	Bias (mA @ V)	Package	Markets
XD1008-QH	.0003-26.5 / 26.5-32.0	17.0 / 17.0	+/-1.0 / +/-1.0	3.0 / 3.0	+22.5 / +20.0	+32.0 / +28.0	200 @ 7.0	-QH (4x4 mm)	I / P / D

Front-End ICs / Integrated RFICs

Part Number	Frequency (GHz)	Tx P1dB (dBm)	Tx Gain (dB)	Tx OIP3 (dBm)	Rx Gain (dB)	Icc (mA)	Vd (Volts)	Package	Markets
XZ1004-QT	0.475-0.625	+21.5	17.0 / 14.0	+34.5	-0.8 / -15.3	200	+3.3 to +5.0	-QT (3x3 mm)	I
XZ1003-QT	0.775-1.525	+21.5	16.0 / 13.0 / 10.0	+36.0	-0.7 / -15.8	200	+3.3 to +5.0	-QT (3x3 mm)	I

Gain Blocks: E-pHEMT

Part Number	Frequency (GHz)	P1dB (dBm)	Gain (dB)	OIP3 (dBm)	NF (dB)	Icc (mA)	Vd (Volts)	Rth Deg/W	Package	Markets
XG1015-SE (@ 2 GHz)	0.1-3.5	+19.1	13.5	+34.5	0.84	60.0	+3.0 to +5.0	104	-SE (SOT-363)	I / S / P / D

Gain Blocks: InGaP HBT

Unless otherwise specified, data is @ 900 MHz • Vs is supply voltage

Part Number	Frequency (GHz)	P1dB (dBm)	Gain (dB)	OIP3 (dBm)	NF (dB)	Icc (mA)	Vs (Volts)	Package	Markets
XG1007-SC	DC-3.0	+20.0	20.0	+36.0	4.0	75.0	+5.0	-SC (SOT-89)	I / S / P / D
XG1010-SC	DC-3.0	+20.5	25.5	+36.0	2.8	92.0	+5.0	-SC (SOT-89)	I / S / P / D
XG1011-SC	DC-3.0	+19.5	16.0	+36.0	3.9	90.0	+5.0	-SC (SOT-89)	I / S / P / D
XG1012-SE	DC-6.0	+14.5	19.0	+30.0	3.1	53.0	+3.3	-SE (SOT-363)	I / S / P / D
XG1013-SE	DC-6.0	+15.0	24.5	+30.0	2.4	53.0	+3.3	-SE (SOT-363)	I / S / P / D
XG1014-SE	DC-6.0	+14.0	16.0	+30.0	3.2	54.0	+3.3	-SE (SOT-363)	I / S / P / D

Low Noise Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Noise Figure (dB)	Output P1dB (dBm)	OIP3 (dBm)	Bias (mA @ V)	Package	Markets
XL1016-DA	0.5-1.6	19.5	+/-1.0	0.5	+18.5	+32.0	60 @ 4.0	-DA (2x2 mm)	I / S
XL1019-DA	1.4-4.0	17.7	+/-1.0	0.6	+19.0	+34.5	60 @ 4.0	-DA (2x2 mm)	I / S
XL1018-BD (Single Supply)	7.0-14.0	20.0	+/-0.5	1.7	+10.0	+20.0	60 @ 5.0	DIE	S / P / D
XL1018-QT (Single Supply)	7.0-14.0	20.0	+/-0.5	1.7	+10.0	+20.0	60 @ 5.0	-QT (3x3 mm)	S / P / D

Medium Power Amplifiers

Part Number	Frequency (GHz)	P1dB (dBm)	Gain (dB)	OIP3 (dBm)	NF (dB)	Icc (mA)	Vd / Vs (Volts)	Package	Markets
XG1002-SC (@ 2000 MHz)	0.4-3.0	+27.0	12.0	+45.0	3.1	175	+9.0	-SC (SOT-89)	I / S / P / D
XG1009-DA (@ 2450 MHz)	0.4-3.0	+23.5	13.0	+39.0	4.1	110	+3.3 to +5.0	-DA (2x2 mm)	I / S / P / D
XG1005-SC (@ 2140 MHz)	0.6-2.8	+27.0	13.0	+45.0	5.5	250	+5.0	-SC (SOT-89)	I / S / P / D
XG1006-SC (@ 2450 MHz)	0.6-2.8	+24.0	13.5	+44.0	4.2	120	+5.0	-SC (SOT-89)	I / S / P / D

Power Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	Gain Flatness (dB)	Output P1dB (dBm)	OIP3 (dBm)	Bias (mA @ V)	Package	Markets
XP1076-SD (@ 2140 MHz)	0.7-2.3	13.0	+/-0.25	+31.5	+46.5	470 @ 5.0	-SD (SOIC-8)	I
XP1080-QU (SMT)	37.0-40.0	25.0	+/-2.5	+27.0	+38.0	1.0 A @ 4.0	-QU (7x7 mm)	P / D

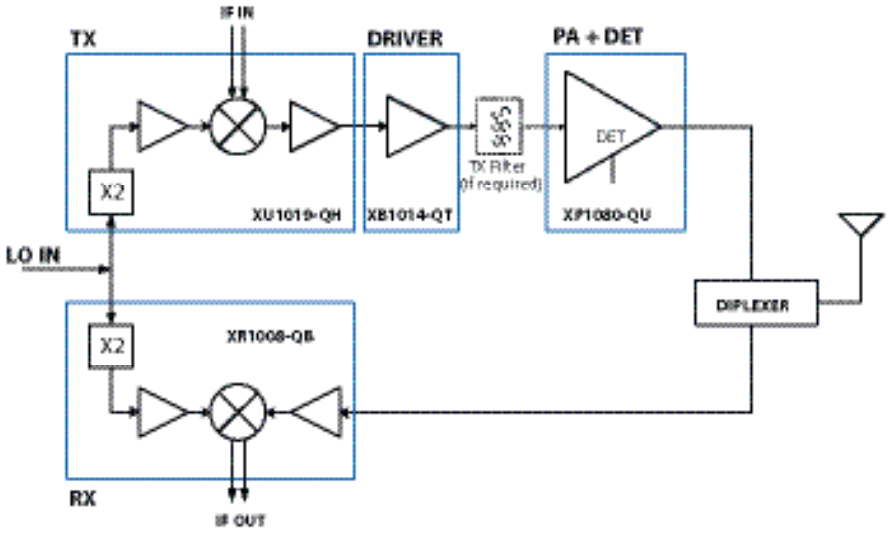
Power GaAs FETs, Packaged

Part Number	Frequency (GHz)	P1dB (dBm)	Gain (dB)	OIP3 (dBm)	Padded Eff %	Icc (mA)	Test Volts (V)	Rth Deg/W	Package	Markets
XF1000-DB (@ 2GHz)	DC-6.0	+34.0	14.0	+46.5	42.0	600	+8.0	15.0	-DB (3x6 mm)	I / S / D
XF1001-SC (@ 2GHz)	DC-6.0	+30.0	15.5	+46.5	42.0	300	+8.0	30.0	-SC (SOT-89)	I / S / D

Transmitters

Part Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Bandwidth (GHz)	Conversion Gain (dB)	LO Input Power (dBm)	Output P1dB (dBm)	Output IP3 (dBm)	Bias (mA @ V)	Package	Markets
XU1019-QH	37.0-40.0	16.75-20.0	DC-3.5	7.0	+3.0	-	+27.0	390 @ 4.0 / 7 @ -3.0	-QH (4x4 mm)	P / D

38 GHz Mimix SmartSet Application



Explore our range of Mimix SmartSet devices and download complete datasheets at mimixbroadband.com.

Defense & Space Capabilities

Defense & Space Upscreening

Mimix performs Class KC, K, HC, H, S and B space and military die and package upscreening in accordance with customer specifications (source control drawings (SCD)) or if not specified, to the standard die, package or group screening/inspection tables found in MIL-STD-19500, MIL-PRF-38534, or MIL-STD-883. If the final application requires Hi-Rel product upscreening for military or space end-use, please contact one of our sales representatives and specify complete screening criteria. Mimix has the capability to upscreen both standard catalog die and packaged product to the following Hi-Rel standards:

MIL-STD-19500 (Class KC, HC, JANS/TXV/TX)

- Table G-II Die Element Evaluation (LAT - Class KC, HC)
- Table E-IV Package Screening (LAT - JANS/TXV/TX)
- Table E-V Group A Inspections
- Table E-VI Group B Inspections
- Table E-VII Group C Inspections
- Table E-VIII Group D Inspections

MIL-PRF-38534 (Class K, H)

- Table C-II Microcircuit/Semiconductor Die Evaluation (LAT - Class K, H)
- Table C-VI Package Evaluation
- Table C-VII Substrate/Package Element Evaluation
- Table C-IX Packaged Device Screening
- Table C-Xa Group A Electrical Test
- Table C-Xb Group B Testing
- Table C-Xc Group C Testing
- Table C-Xd Group D Testing

MIL-PRF-38535

- Table III Group A Electrical Test
- Table II Group B Testing
- Table IV Group C Testing
- Table V Group D Testing

MIL-STD-883 (Class S, B)

- 5007 Table I Wafer Lot Acceptance Tests (WLAT)
- 5004 Table I Class Level S and Level B Screening
- 5005 Table I Group A Electrical Tests
- 5005 Table II Group B Testing
- 5005 Table III Group C Testing
- 5005 Table IV Group D Testing
- 5005 Table V Group E Testing

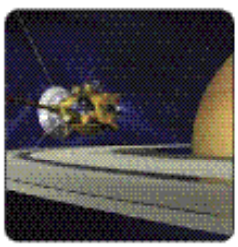
High Reliability Heritage/Experience

Mimix's first Hi-Rel die qualification program started over 20 years ago. Since 1988, Mimix has developed a Hi-Rel capability and experience to serve the growing market for space qualified microwave and millimeter-wave die and packaged products. Shipping both die and packaged products, Mimix military and space upscreening qualification programs occur on a regular basis with many qualifications adding to our ever increasing die bank inventory and space flight heritage. Mimix product flight heritage includes many well-known and classified satellite programs.

Mimix has developed and established the controls and processes necessary to supply the demanding Hi-Rel marketplace. With a product base featuring inherently reliable GaAs-based devices, circuits, and processes, Mimix is capable of meeting the most stringent Hi-Rel requirements. Typical Hi-Rel products are based on the following technologies:

- GaAs epitaxial material based FETs and MMICs
- Access to and experience with multiple foundries and foundry processes that have space heritage/flight time
- In-house high magnification QC/QA inspection
- Multi-level thin film circuit metal technology
- Hermetic sealing and laser welding technology
- Vast experience with all Hi-Rel standards listed herein
- Established close relationships with several outsource screening suppliers
- Providing many packaged products utilizing on-board device ESD protection

Additionally, based on our many years of experience, the Mimix design team, when designing products for new applications, pays particular attention to past device failure modes, utilizes internal thermal imaging capability and imaging history for thermally efficient designs, and thoroughly considers DC power efficiency and performance tradeoffs.




QUALIFICATION BASICS

Mimix starts with an underlying foundation of reliability by using GaAs materials created with foundry processes that have proven space heritage. Each wafer received from the foundry is 100% DC and RF tested on-wafer (contact factory as some products are not conducive to on-wafer RF testing, i.e. FETs, etc.) using in-factory developed automated test systems. Automated DC or RF on-wafer testing can be custom tailored to specific performance requirements as required by the end use application. Each parameter tested is reviewed using in-factory statistical data analysis tools and compared to previous wafer runs. Many of the larger die products also include serialization allowing increased traceability not only to wafer material and wafer manufacture date, but to specific on-wafer DC and RF performance.

Mimix high magnification inspection capability goes up to 1000X satisfying MIL-STD-883 Class S inspection requirements. Wafers are subjected to bond pull, die shear and SEM analysis. Element evaluation, final package parts and production modules are assembled using space grade design, assembly and handling techniques. Mimix capabilities and experience include Class H, K and S die element evaluations and JANS/TXV/TX and Class B and S packaged screening and group level inspection requirements. Additionally, Mimix can accommodate on-site die selection, pre-element eval and final package precap customer source inspections.

HYDROGEN POISONING

Hermetic microwave and millimeter-wave packages and modules typically employ iron- and nickel-based alloys with plated layers that contain or use hydrogen in the manufacturing process. Usually, the hydrogen will outgas and not cause a problem, but in a hermetically sealed package, hydrogen is known to cause degradation in some types of GaAs devices. Hydrogen poisoning of GaAs devices is manifested by a sudden and dramatic change in device electrical properties, which can occur after several hundred to several thousand hours of hydrogen exposure at elevated temperatures.

While there are a number of options for dealing with this problem two of the most common include reducing the hydrogen to some extent by vacuum baking the package parts just before assembly and seal; however, care must be taken to not impact other package properties. Another option is to use an in-package hydrogen getter to reducing the hydrogen amount to safe levels. The use of getters in semiconductor packaging for substances such as water vapor and particulates is common, and there are several commercial as well as proprietary hydrogen getters that can be employed in microwave packaging. To be effective, the sensitivity of the device technology to hydrogen must be determined to ensure that the getter has adequate capacity to maintain a safe hydrogen level within the package during the expected lifetime of the device.

Hydrogen poisoning studies are available from Mimix's foundry partners. Additionally, many Mimix products have been designed and fabricated using a proprietary material stackup and processing allowing the devices to be virtually insensitive to hydrogen poisoning effects. Contact one of our sales representatives for a complete product listing.

PROGRAM MANAGEMENT

Mimix has an experienced program management team providing support for Hi-Rel orders. This expertise includes significant experience working with and expediting government DX rated orders. From the quoting cycle to the final shipment of an order, program managers provide coordination, contact and control for all Hi-Rel orders. These qualified professionals, have significant experience in working closely with external outsourced screening suppliers and Mimix internal operations and quality resources to schedule, expedite and manage Hi-Rel orders, as necessary. The program manager serves as the project leader and manages each Hi-Rel order to ensure on-time delivery and excellent customer interface.

DOCUMENTATION

All design, processing, upscreening and testing phases of Mimix military and space device manufacture and qualification are fully documented. Mimix step-by-step flow diagrams for each class level qualification type and group inspection are readily available for review at any time. Upon order receipt the customer order and SCD are reviewed against our standard internal class level and group inspection qualification plans. If a standard Mimix qualification plan does not fit the requirements as outlined by the customer purchase order and/or SCD then a new qualification plan will be custom tailored to meet those specific requirements. All standard or custom qualification plans require customer approval before proceeding.

Mimix standard and custom qualification plans include all the necessary information to inspect, assemble, test and screen each specific set of devices undergoing upscreening qualification. All internal assembly and test methods used during qualification are fully documented processes and procedures. A qualification plan traveler will accompany each lot of devices throughout the complete upscreening flow with signoffs required by all involved parties including Mimix internal resources, external suppliers and the customer when required.

At the end of the upscreening qualification a final report will be submitted. This report will include serialized initial, interim and final DC and RF electrical test results, environmental screening results from both internal Mimix resources and external suppliers, complete wafer lot acceptance (WLAT) analysis including all SEM photographs, a serialized device status spreadsheet indicating any failures and failure points and if required DPA and RGA analysis results. These reports can be supplied in either hard copy or electronic formats.

HI-REL SCREENING FLOWS – AVAILABLE AT MIMIXBROADBAND.COM