

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销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司。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。我们公司专业开发生产、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、湿度变送器、湿度传感器、气体变送器、气体传感器、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：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达军工产品网：<http://www.junpinic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/> 传感器销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83607652 83376489 83376549 83370250 83370251 82500323

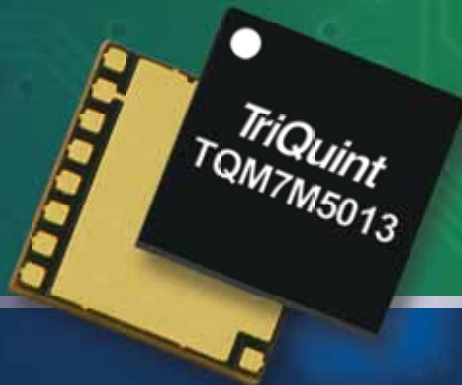
传真：0755-83376182 (0) 13902971329 MSN: SUNS888@hotmail.com

邮编：518033 E-mail: szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529

技术支持：0755-83394033 13501568376

Product Selection Guide



Amplifiers

Control Products

Filters

Integrated Products

Optical Components

Table of Contents

ABOUT TRIQUINT SEMICONDUCTOR	2
GUIDE BY MARKET	
Automotive.....	4
Base Station	5
BWA / WiMAX	9
Cable.....	10
Defense & Aerospace.....	11
Mobile Devices	12
Optical.....	16
PtP Radio.....	17
RFID	20
Space	21
VSAT	22
GUIDE BY PRODUCT TYPE	
Amplifiers	
Up to 1W	24
1W to 4W	25
More than 4W.....	26
Gain Block	27
Low Noise	27
Discrete Transistors	28
Control Products	
Frequency Converters & Mixers...	29
Signal Conditioning	30
Switches.....	30
Filters	
SAW.....	31
BAW	36
Integrated Products	37
Optical Components.....	39
PRODUCTS BY FREQUENCY	40
CUSTOMER SUPPORT.....	43

This guide contains a subset of the total selection of products available from TriQuint. If you are unable to locate the product you need, please contact your local sales representative or the factory for more information.

About TriQuint Semiconductor

TriQuint Semiconductor 'Connects the Digital World to the Global Network®' by designing, developing and manufacturing advanced, high-performance RF solutions with Gallium Arsenide (GaAs), Gallium Nitride (GaN), Surface Acoustic Wave (SAW) and Bulk Acoustic Wave (BAW) technologies. TriQuint is an innovation and market diversity leader, serving customers in mobile device, 3G / 4G wireless base station, optical, CATV / FTTH, WLAN, GPS / PND, defense and aerospace markets.



Image Courtesy of U.S. Navy



TriQuint solutions, designed and crafted with the industry's largest in-house technology portfolio, enable quicker design turns while lowering overall system costs. We are an award-winning provider of innovative RF products serving start-up firms as well as the world's largest, most well-established companies. We also support the need for custom solutions through the industry's widest selection of foundry processes based on GaAs and GaN technologies.

In 2009 TriQuint expanded its CATV portfolio with the TriAccess™ line of cable TV and FTTH solutions. CATV products now include 'green' Edge QAM amplifiers (40%+ PAE), low-loss FTTH amplifiers, SAW filters and integrated devices for cable headend, infrastructure and home applications. In 2008, TriQuint acquired WJ Communications in Silicon Valley, California to expand its Networks product line, with an emphasis on standard solutions for 3G / 4G base stations.

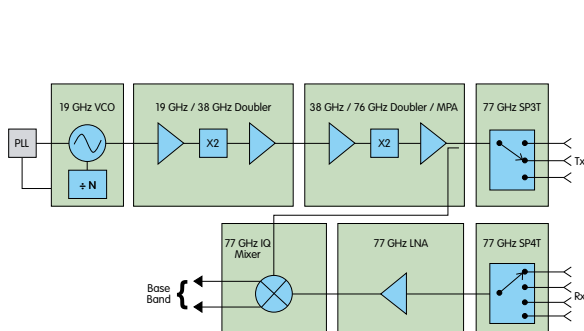
TriQuint's wide-ranging technology portfolio enables us to make highly reliable, high-performance products. Our design and manufacturing processes can reduce design time, enhance performance and reduce BOMs.

TriQuint products are available through worldwide sales, representative and distribution networks. Visit www.triquint.com/sales to connect with TriQuint representatives serving your market.

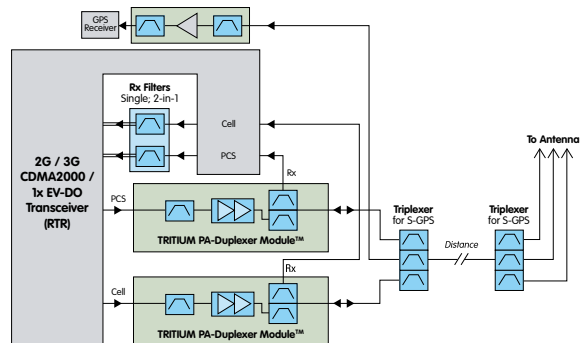
Key advantages of GaAs, GaN, SAW and BAW technologies:

- GaAs can operate efficiently at higher breakdown voltages compared to silicon-based semiconductor technologies while generating less noise in frequencies in excess of 250 MHz. GaAs offers high efficiency, linearity and good wide-band performance.
- GaN offers greater power handling and density than GaAs beginning at 20 MHz; this enables performance at a given power level using fewer or smaller devices. GaN offers strong linearity and efficiency, plus greater wideband capability.
- SAW filter technology offers excellent performance and economy through 2.5 GHz.
- BAW filters offer superior loss levels, stronger ESD performance and greater resistance to temperature effects from 2.5 to 6 GHz.





Example of a 77 GHz Radar Front-End



Cellular & GPS Transceiver for Auto Telematics

Amplifiers & Low Noise Amplifiers

Description	Frequency Range (GHz)	Psat (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
77 GHz LNA	72 - 80	5	20	5	3.5 / 54	Die	TGA4705-FC
77 GHz MPA	76 - 80	14	12	-	3.5 / 75	Die	TGA4706-FC

Switches

Description	Frequency Range (GHz)	Insertion Loss	Isolation (dB)	PI dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T	60 - 90	2.3	20	>-13	-5 / 1.35	Die	TGS4305-FC
SP4T	70 - 90	3	20	>-8	-5 / 1.35	Die	TGS4306-FC
SP5T VPIN 77 GHz	71 - 90	2.5	25 / 40	>-8	-5 / 1.35	Die	TGS4307

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 / Psat (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
19 GHz VCO w/8:1 Prescaler	18.5 - 19.5	-	-105**	- / 7.0	5 / 158	Die	TGV2204-FC
19 / 38 GHz Converter / MPA	36 - 40	9	-	- / 14.5	3.5 / 65	Die	TGC4703-FC
Down Converting I/Q Mixer	75 - 80	-13.5	22	-	1.1 / 7	Die	TGC4702-FC
38 / 77 GHz Converter / MPA	76 - 78	6	-	- / 15.0	4 / 230	Die	TGC4704-FC

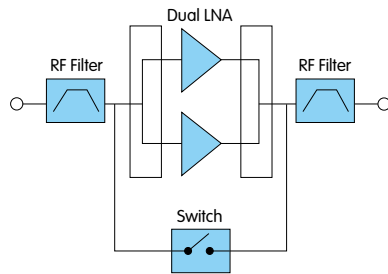
NOTES: ** = Phase Noise (dBc / Hz @ 1 MHz Offset)

Integrated Products

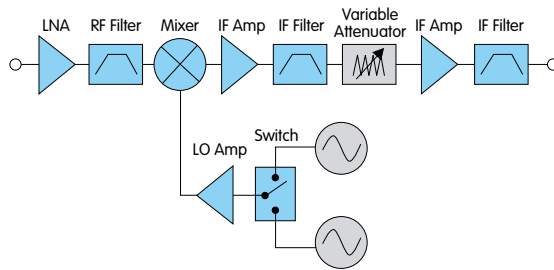
Description	Frequency Bands	Package Size (mm)	Part Number
QB GSM / GPRS Tx Module; PA / LPF / SP6T Switch	GSM850 / 900, DCS / PCS	6.0x6.0x1.1	TQM6M4003
QB GSM / GPRS / EDGE-Polar PA Module	GSM850 / 900, DCS / PCS	5.0x5.0x1.0	TQM7M5012

Filters

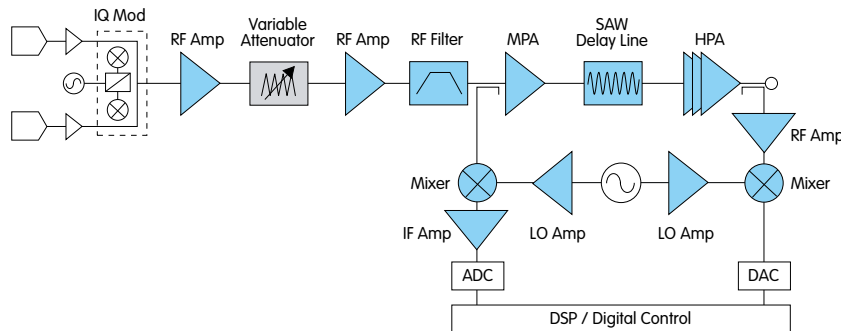
Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Duplexer, Cell Band	836.5 / 881.5	25 / 25	1.9 / 1.9	SE / SE	-	3.8x3.8	856356
GSM850 Rx Filter	881.5	25	1.6	SE / BAL	40 @ 836.5	1.4x1.2	856522
CDMA 2-in-1 Rx Filter	881.5 / 1960	25 / 60	1.6 / 2.2	SE / BAL	-	2.0x1.5	856565
GPS RF Filter	1575.42	2	1.25	SE / SE	30 @ 1624.00	2.0x1.5	856584
GPS RF Filter	1575.42	2	0.75	SE / SE	35 @ 1635.00	1.4x1.2	856561
GPS RF Filter	1575.42	2	1.1	SE / BAL	20 @ 1635.00	1.4x1.2	856576
GPS RF Filter, Auto	1575.42	2	1.8	SE / SE	45 @ 1637.00	3.0x3.0	856039
GPS RF Filter, Auto	1575.42	2	1.3	SE / SE	45 @ 1640.00	3.0x3.0	856139
GSM1900 Rx Filter	1960	60	1.5	SE / BAL	17 @ 1880.00	1.4x1.2	856577
SDARS Filter	2332.5	45	1.7	SE / BAL	35 @ 2100.00	1.4x1.2	856604



Tower Mounted LNA



Base Station Receiver (Single Branch Shown)



Base Station Transmitter & PA

General Purpose Amplifiers

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
General Purpose Gain Block	DC - 3000	18.5 / 33	16.5	3.8	6 / 75	SOT89	AG603
General Purpose Gain Block	DC - 3500	18.5 / 33	13.6	4.4	6 / 75	SOT89	AG602
General Purpose Gain Block	DC - 3500	20.5 / 33.5	17.2	3.5	7 / 96	SOT89	EC1078
General Purpose Gain Block	DC - 4000	19.5 / 31	18.5	2.9	6 / 70	SOT89	EC1019
General Purpose Gain Block	DC - 4000	17.5 / 32	21.5	3.4	6 / 65	SOT89	ECG005
General Purpose Gain Block	DC - 4000	23.5 / 37	14.3	4.6	9 / 120	SOT89	ECG008
General Purpose Gain Block	DC - 4000	18 / 34.5	15.3	5.5	6 / 70	SOT89	ECG040
General Purpose Gain Block	DC - 5500	15 / 30	14.2	3.7	5 / 45	SOT86 / SOT363 / SOT89	ECG006
General Purpose Gain Block	DC - 6000	5.8 / 18.5	11	4.4	5 / 20	SOT86 / SOT363	AG201
General Purpose Gain Block	DC - 6000	7.5 / 19.5	17.7	3.1	5 / 20	SOT86 / SOT363	AG203
General Purpose Gain Block	DC - 6000	12 / 25	14.3	3.2	5 / 35	SOT86 / SOT363	AG302
General Purpose Gain Block	DC - 6000	12.5 / 25	18.4	3	5 / 35	SOT86 / SOT363	AG303
General Purpose Gain Block	DC - 6000	16 / 28.5	14.5	3.7	6 / 60	SOT86 / SOT89	AG402
General Purpose Gain Block	DC - 6000	16 / 28	18.9	3	6 / 60	SOT86 / SOT89	AG403
General Purpose Gain Block	DC - 6000	14.5 / 27.5	19.1	2.9	6 / 45	SOT86 / SOT89	AG503
General Purpose Gain Block	DC - 6000	19 / 33	18.2	3.5	6 / 75	SOT86 / SOT89	AG604
General Purpose Gain Block	DC - 6000	12.5 / 26	21.4	3.4	5 / 30	SOT363 / SOT89	ECG001
General Purpose Gain Block	DC - 6000	15 / 29	19.5	3.7	5 / 45	SOT86 / SOT363 / SOT89	ECG002
General Purpose Gain Block	DC - 6000	23 / 36	19	3.5	9 / 110	SOT89	ECG003
General Purpose Gain Block	DC - 6000	13 / 27	15.5	3.2	5 / 35	SOT89	ECG004
General Purpose Gain Block	DC - 6000	18 / 32	20.1	3.4	6 / 65	SOT86 / SOT89	ECG055
MESFET IF Gain Block	50 - 870	20 / 41	13	3	5 / 150	SOT89	AH3
MESFET IF Amplifier	50 - 1000	22 / 42	19	2.2	5 / 150	SOT89	AH31
+5V Active Bias IF Gain Block	50 - 1000	20.5 / 44	19.5	5	5 / 95	SOT89	WJA1500
+5V Active Bias IF Gain Block	50 - 1000	19.5 / 36.5	19.3	4.7	5 / 65	SOT89	WJA1505
+5V Active Bias IF Gain Block	50 - 1000	20 / 47	14.4	5.4	5 / 95	SOT89	WJA1510
VGA, 20 dB Range, 5V Control	50 - 2200	22 / 42	15.5	4.5	5 / 150	4x4 QFN16	VG025

General Purpose Amplifiers (cont.)

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
+5V Active Bias Gain Block	50 - 2300	19 / 36.5	15	5.2	5 / 85	SOT89	WJA1010
+5V Active Bias Gain Block	50 - 3000	20 / 44	19	5.4	5 / 100	SOT89	WJA1001
+5V Active Bias Gain Block	50 - 4000	20 / 40	18.5	5.6	5 / 90	SOT89	WJA1021
+5V Active Bias Gain Block	50 - 4000	19.5 / 37	14.5	5.5	5 / 80	SOT89	WJA1030
E-pHEMT LNA Gain Block	50 - 4000	21 / 36	20	1.3	5 / 85	SOT89	TQP3M9008*
E-pHEMT LNA Gain Block	50 - 4000	22 / 40	21.5	1.3	5 / 125	SOT89	TQP3M9009*
MESFET Gain Block	60 - 3000	15 / 32	14	2.4	4.5 / 50	SOT89	AG101
MESFET Gain Block	60 - 3000	18 / 36	14	2.4	4.5 / 70	SOT89	AG102
MESFET Gain Block	60 - 3000	18 / 39	14	2.4	4.5 / 78	SOT89	AM1
MESFET Dual Amplifier	150 - 3000	24 / 46	12	4.1	5 / 300	SOIC-8	AH11
MESFET Amplifier	250 - 4000	21.5 / 42	14	3.2	5 / 150	SOT89	AH1
MESFET Amplifier	250 - 4000	21.5 / 42	14	3.2	5 / 150	SOT89	AH1-1

NOTES: * = New

High Linearity Driver Amplifiers

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
24 dBm HBT Amplifier	10 - 2500	24 / 40	15.5	5.1	5 / 160	SOT89	EC1089
26.5 dBm MESFET Amplifier	50 - 1500	26.5 / 47	13.5	3.5	9 / 200	SOT89	AH101
30 dBm MESFET Amplifier	50 - 2200	30 / 47	17	2.5	11 / 330	6x6 QFN28	AH202
24 dBm HBT Amplifier	60 - 2500	24 / 40	19	5	5 / 150	SOT89	AH114
27 dBm MESFET Amplifier	60 - 2700	27 / 46	29	2.5	4.5; 9 / 275	SOIC-8	AH103A
24 dBm HBT Amplifier	60 - 3500	24 / 40	19.5	4	5 / 160	SOT89	AH118
25 dBm HBT Amplifier	60 - 3500	25 / 40	19.5	4.6	5 / 115	SOT89	AH128
27 dBm MESFET Amplifier	350 - 3000	27 / 46	14.5	3.1	9 / 200	SOT89	AH102A
31 dBm HBT Amplifier	400 - 2300	31 / 46	18	7	5 / 450	4x4 QFN16	ECP100
31 dBm HBT Amplifier	400 - 2300	31 / 46	18	7	5 / 450	SOIC-8	AH215
33 dBm HBT Amplifier	400 - 2300	33 / 49	18	8	5 / 800	4x4 QFN16	ECP200
33 dBm HBT Amplifier	400 - 2300	33 / 49	18	8	5 / 800	SOIC-8	AH312
28.5 dBm HBT Amplifier	400 - 2700	28.5 / 45	20	4.5	5 / 150	SOT89	AH125
31 dBm HBT Amplifier	400 - 2700	31 / 47	20	5.9	5 / 300	SOIC-8	AH225
33 dBm HBT Amplifier	400 - 2700	33 / 49	19.5	4.6	5 / 500	SOIC-8	AH322
35.5 dBm HBT Amplifier	400 - 2700	35.5 / 50	16	7	5 / 800	4x5 DFN12	AH420
VGA, 29 dB Range, 5V Control	700 - 1000	22 / 40	16	3.5	5 / 150	6x6 QFN28	VG101
33 dBm HBT Amplifier	700 - 2700	33 / 50	27.5	7	5 / 680	5x5 QFN20	AH323*
39 dBm HBT Amplifier	700 - 2900	39 / -	16.5	8	12 / 300	5x6 DFN14	AP561
28 dBm HBT Amplifier	700 - 3800	28 / 42	28.5	2.9	5 / 225	4x4 QFN24	TQP8M9013*
28.7 dBm HBT Amplifier	800 - 1000	28.7 / 43	17.5	7	5 / 250	SOIC-8	AH116
28.7 dBm HBT Amplifier	800 - 1000	28.7 / 43	17.5	7	5 / 250	4x4 QFN16	ECP052
VGA, 28 dB Range, 5V Control	1800 - 2200	30 / 46	23	8	5 / 415	6x6 QFN28	VG112
28.5 dBm HBT Amplifier	1800 - 2300	28.5 / 44	14.5	6	5 / 250	SOIC-8	AH115
30 dBm HBT Amplifier	1800 - 2700	30 / 46	24.6	5.5	5 / 400	SOIC-8 / 4x5 DFN12	AH212
VGA, 27 dB Range, 5V Control	1800 - 2700	22 / 39.5	13.5	4.5	5 / 150	6x6 QFN28	VG111
39 dBm HBT Amplifier	3300 - 3800	39 / -	11.5	8	12 / 400	5x6 DFN14	AP562
33 dBm HBT Amplifier	3300 - 3800	33 / -	25	7.3	5 / 600	5x5 QFN20	AH315

NOTES: * = New

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, Discrete	DC - 4000	- / 13	17	0.5	3 / 30	SOT343	CFH800
LNA, Balanced FET Low Band	700 - 915	- / 13.5	17	0.4	2.5 / 100	4x4 QFN16	TQP3M6004
LNA, Discrete Low Band High Linearity	700 - 915	26 / 23.5	16	0.8	5 / 150	SOT89	TGF2021-04-SD
LNA, Balanced FET	800 - 3000	21 / 11	22	0.4	4 / 100	SM-O2-6	TGA2602-SM

28V Transistors

Description	Frequency Range (MHz)	P1dB / IMD3 (dBm) / (dBc)	Gain (dB)	Efficiency (%)	Voltage / Current (V / mA)	Package Style	Part Number
InGaP HBT PA, 1.8W, Ultra High Linearity	800 - 2350	32.5 / -60	15.8	55	28 / 40	5x6 DFN14	AP601
InGaP HBT PA, 3.7W, Ultra High Linearity	800 - 2350	35.7 / -62	15.5	55	28 / 80	5x6 DFN14	AP602
InGaP HBT PA, 7W Ultra High Linearity	800 - 2350	38.5 / -51	17	53	28 / 160	5x6 DFN14	AP603

Control Products

Description	Frequency (MHz)	Insertion Loss (dB)	Isolation / Atten Range (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T High Power CDMA	DC - 2000	0.45	28	>36.5	2.6 / 0	MLP12	TQP4M3018
SP3T High Power CDMA	DC - 2000	0.6	22	>34.5	2.6 / 0	STSLP12	TQP4M3019
SP2T General Purpose	DC - 2500	0.3	24	30	3 / 0	SOT363	CSH210R
6-Bit, Digital Attenuator, Parallel Ctrl	DC - 4000	1.3	31.5	30	5 / 0	4x4 QFN24	TQP4M9071*
6-Bit, Digital Attenuator, Serial Ctrl	DC - 4000	1.3	31.5	30	5 / 0	4x4 QFN24	TQP4M9072*
SP2T 802.11 a, b, g	DC - 6000	0.6	28	31.5	3 / 0	SLIM7	TQS5200
Diversity Switch 802.11 a, b, g	DC - 6000	0.8	33	33	3 / 0	MLP12	TQS5202

NOTES: * = New

Frequency Converters & Mixers

Description	RF Frequency Range (MHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage Current (V / mA)	Package Style	Part Number
WB Mixer, LO	500 - 2500	-5.7	8	24	3 - 6 / 6	MW6	CMY210
WB Mixer, LO, IF	500 - 2500	10	8	9	3 - 6 / 12	SCT598	CMY212
WB Mixer, LO, IF, Low Current	500 - 2500	9.5	10	10	3 - 6 / 8	SCT598	CMY213
WB Mixer, LO	500 - 2500	4	-	9	3 - 6 / 6.2	SOT23-6	TQ5M31
Mixer, LO	700 - 1000	-9	17	36	5 / 50	MSOP-8	ML483*
Single Branch Converter, RF, LO, IF	800 - 915	22	60	15	5 / 360	6x6 QFN28	CV110-1A
Dual Branch Converter, LO, IF	800 - 915	10	20	20	5 / 385	6x6 QFN28	CV210-1A
Mixer	800 - 960	-7.3	30	34	N/A	SOIC-8	MH203A
Mixer	800 - 960	-7	37	35	N/A	SOIC-8	MH205A
Single Branch Converter, RF, LO, IF	800 - 960	22	60	15	5 / 360	6x6 QFN28	CV110-3A
Dual Branch Converter, LO, IF	800 - 960	10.5	14	18.5	5 / 390	6x6 QFN28	CV210-3A
Mixer, LO	1600 - 3200	-8.5	2	35	5 / 40	MSOP-8	ML485
Mixer	1700 - 2000	-8.3	30	35	N/A	SOIC-8	MH1A
Single Branch Converter, RF, LO, IF	1700 - 2000	21	45	17	5 / 360	6x6 QFN28	CV111-1A
Dual Branch Converter, LO, IF	1700 - 2000	10	8	19.5	5 / 380	6x6 QFN28	CV211-1A
Mixer, LO	1700 - 2200	-8.2	9	30	5 / 105	SOIC-8	ML401
Single Branch Converter, RF, LO, IF	1900 - 2200	21	40	17	5 / 360	6x6 QFN28	CV111-3A
Dual Branch Converter, LO, IF	1900 - 2700	10	12	20	5 / 380	6x6 QFN28	CV211-2A
Mixer, LO	1900 - 2700	-8.1	9	30	5 / 110	SOIC-8	ML501
Mixer	1900 - 2700	-8.2	28	34	N/A	SOIC-8	MH103A

NOTES: * = New, RF = RF Amplifier, LO = LO Amplifier, IF = IF Amplifier

Discrete Transistors

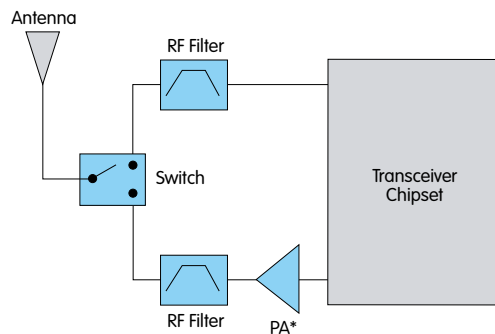
Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
MESFET	DC - 2500	26.5 / -	11	1.72 / 55	2 - 6 / 350	SOT223	CLY5
MESFET	DC - 3000	23.5 / -	15.5	1.48 / 55	2 - 6 / 180	MW6	CLY2
0.5W HFET	DC - 6000	28 / 40	18	3.2 / -	8 / 100	SOT89	TGF2960-SD
1W HFET	DC - 6000	31 / 43	16	4 / -	8 / 200	SOT89	TGF2961-SD
MESFET	50 - 4000	21 / 42	19	2 / -	5 / 140	SOT89	FH1
MESFET	50 - 4000	18 / 36	19	2 / -	5 / 140	SOT89	FH101
0.5W HFET	50 - 4000	27 / 40	19	2.7 / -	8 / 125	SOT89	FP1189
1W HFET	50 - 4000	30 / 44	18	4.5 / -	8 / 250	SOT89	FP2189
2.5W HFET	50 - 4000	34 / 46	18	3.5 / -	9 / 450	6x6 QFN28	FP31QF

RF Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
FRS RF or GPS IF Filter	465	6	1.4	SE / SE	40 @ 445.00	3.0x3.0	856288
RF Filter, 700 MHz Band	707	18	1.5	SE / SE	9 @ 728.00	3.0x3.0	856884*
RF Filter, 700 MHz Band	737	18	1.8	SE / SE	37 @ 708.00	3.0x3.0	856883*
RF Filter, 700 MHz Band	751.5	11	1.5	SE / SE	40 @ 776.00	3.0x3.0	856794
RF Filter, 700 MHz Band	781.5	11	1.5	SE / SE	38 @ 757.00	3.0x3.0	856764
RF Filter, 700 MHz Band	782	10	1.52	SE / SE	15 @ 765.00	3.0x3.0	856844*
RF Filter, Cell Band	836.5	25	2.7	SE / SE	28 @ 869.00	3.0x3.0	855729
RF Filter, Cell Band	836.5	25	1.8	SE / SE	30 @ 869.00	3.0x3.0	855779
RF Filter, Cell Band	836.5	25	1.9	SE / SE	35 @ 869.00	3.0x3.0	855821
RF Filter, Cell Band	836.5	25	2.0	SE / SE	10 @ 869.00	3.0x3.0	856704
RF Filter, Cell Band	881.5	25	2.7	SE / SE	40 @ 849.00	3.0x3.0	855728
RF Filter, Cell Band	881.5	25	1.8	SE / SE	35 @ 849.00	3.0x3.0	855782
Cell Band Delay Filter, 450 ns	881.5	25	25	SE / BAL	N/A	7.0x5.5	856716
RF Filter, EGSM	897.5	35	1.9	SE / SE	14 @ 930.00	3.0x3.0	856671
RF Filter, EGSM	897.5	35	1.5	SE / SE	15 @ 930.00	3.0x3.0	856657
RF Filter, EGSM	897.5	35	1.4	SE / SE	10 @ 984.00	3.0x3.0	856824*
RF Filter, EGSM	942.5	35	2	SE / SE	5 @ 915.00	3.0x3.0	855820
RF Filter, EGSM	942.5	35	3.2	SE / SE	12 @ 915.00	3.0x3.0	855810
RF Filter, EGSM	942.5	35	2.5	SE / SE	25 @ 915.00	3.0x3.0	856528
GSM Band Delay Filter, 450 ns	942.5	35	25.5	SE / SE	N/A	7.0x5.5	856766
RF Filter, DCS	1747.5	75	2	SE / SE	22 @ 1676.00	3.0x3.0	856654
RF Filter, DCS	1747.5	75	2.6	SE / SE	10 @ 1681.00	3.0x3.0	856846*
RF Filter, DCS	1842.5	75	1.9	SE / SE	10 @ 1785.00	3.0x3.0	855860
RF Filter, PCS	1880	60	2.4	SE / SE	7 @ 1930.00	3.0x3.0	855849
RF Filter, PCS	1880	60	2.8	SE / SE	30 @ 1930.00	3.0x3.0	856530
RF Filter, PCS	1880	60	2.2	SE / SE	15 @ 1806.00	3.0x3.0	856705
RF Filter, PCS	1880	60	2.3	SE / SE	10 @ 1790.00	3.0x3.0	856880*
RF Filter, UMTS	1950	60	2.2	SE / SE	40 @ 2110.00	3.0x3.0	856532
RF Filter, UMTS	1950	60	1.8	SE / SE	20 @ 2100.00	3.0x3.0	856678
RF Filter, PCS	1960	60	2.1	SE / SE	10.3 @ 1910.00	3.0x3.0	855817
RF Filter, PCS	1960	60	2.3	SE / SE	8 @ 1910.00	3.0x3.0	855850
RF Filter, PCS	1960	60	2.25	SE / SE	14 @ 1910.00	3.0x3.0	856531
Delay Filter, PCS 450 ns	1960	60	25	SE / BAL	N/A	7.0x5.5	856717
Delay Filter, UMTS 450 ns	2140	60	25	SE / BAL	N/A	7.0x5.5	856649
RF Filter, UMTS	2140	60	2.3	SE / SE	25 @ 1980.00	3.0x3.0	856738

NOTES: * = New

TriQuint Semiconductor offers a wide variety of **base station IF filters**. To view a selection of the most common filters, please go to the SAW filter section on pages 31-36.



Broadband Transceiver

* Note: For MIMO implementations, multiple PAs may be required

Amplifiers

Description	Frequency Range (GHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
39 dBm HBT Amplifier	0.7 - 2.9	39 / -	16.5	8	12 / 300	5x5 QFN20	AP561
WiMAX Driver Amp / PA, SB	2.3 - 2.8	29 / 40	28	-	6 / 710	SM-O5-28	TGA2702-SM
10W HPA, HFET	2.6	40 / 51	12	-	8 / 1200	SG-A4-2	TGA2924-SG
33 dBm HBT Amplifier	3.3 - 3.8	33 / -	25	-	5 / 600	5x5 QFN20	AH315
39 dBm HBT Amplifier	3.3 - 3.8	39 / -	11.5	-	12 / 400	5x6 DFN14	AP562
10W HPA, HFET	3.3 - 3.8	40 / 51	9	-	7 - 9 / 1200	SG-A3-2	TGA2923-SG
WiMAX Driver Amp / PA, SB	3.4 - 3.8	30 / 42	24	-	6 / 770	SM-O5-28	TGA2703-SM
5W HPA, HFET	3.5	37.5 / 49	11	-	8 / 750	SG-A4-2	TGA2925-SG

NOTES: SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
MESFET	DC - 3000	23.5 / -	15.5	1.48 / 55	2 - 6 / 180	MW6	CLY2
0.5W HFET	DC - 6000	28 / 40	18	3.2 / -	8 / 100	SOT89	TGF2960-SD
1W HFET	DC - 6000	31 / 43	16	4 / -	8 / 200	SOT89	TGF2961-SD
MESFET	50 - 4000	21 / 42	19	2 / -	5 / 140	SOT89	FH1
MESFET	50 - 4000	18 / 36	19	2 / -	5 / 140	SOT89	FH101
0.5W HFET	50 - 4000	27 / 40	19	2.7 / -	8 / 125	SOT89	FP1189
1W HFET	50 - 4000	30 / 44	18	4.5 / -	8 / 250	SOT89	FP2189
2.5W HFET	50 - 4000	34 / 46	18	3.5 / -	9 / 450	6x6 QFN28	FP31QF

Switches

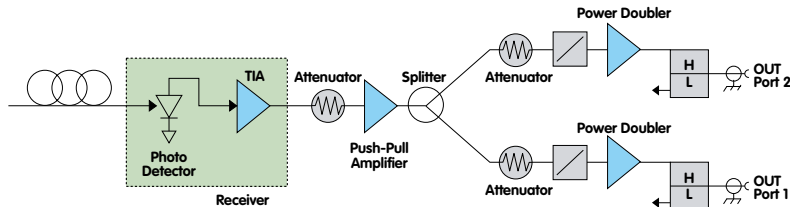
Description	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP2T General Purpose	DC - 2.5	0.3	24	30	3 / 0	SOT363	CSH210R
SP2T 802.11 a, b, g	DC - 6	0.6	28	31.5	3 / 0	SLIM7	TQS5200

Filters

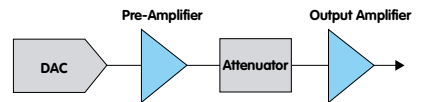
Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
ISM Passband Filter	2436	72	2	SE / SE	20 @ 2495.00	1.70x1.30	885007
ISM Notch RF Filter	2440	72	1.5 (Out of Band IL)	SE / SE	25 @ 2440.00	1.70x1.30	885008
ISM Notch RF Filter	2440	85	2 (Out of Band IL)	SE / SE	18 @ 2440 (Notch Rej)	1.70x1.30	885010

IF Filters

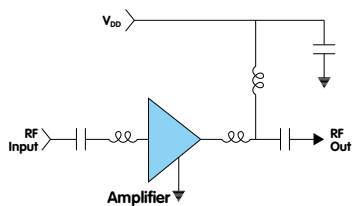
TriQuint Semiconductor offers a wide variety of BWA / WiMAX IF filters. To view a selection of the most common filters, please go to the SAW filter section on pages 31-36.



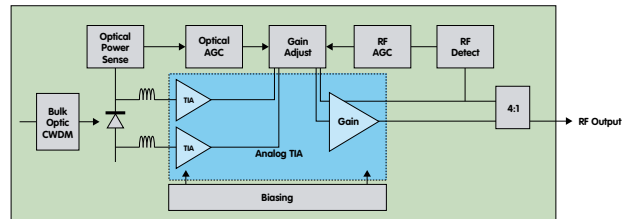
CATV Infrastructure



Edge QAM DOCSIS® 3.0



Subscriber Home Amplifiers



FTTH / RfOg

Amplifiers

Description	Application	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Dual HBT Amplifier	General Purpose	DC - 2700	19 / 33	18	3.5	>6 / 75	SOT86 / SOT89	AG604
CATV Ultra Linear PA	Infrastructure GP	40 - 1000	31.5 / 55	12	2.75	12 / 510	SG-01-16	TGA2801D-SG
On-Chip Linearized Amplifier	DOCSIS® 3.0 Output	40 - 1000	- / 43	17	4.7	5 / 380	SOIC-8	TAT7467H*
CATV Gain Block	DOCSIS® 3.0 Output	40 - 1000	27 / 46	20	1.5	8 / 350	SM-08-20	TGA2803-SM
CATV Gain Block	DOCSIS® 3.0 Output	40 - 1000	27 / 46	20	1.5	8 / 350	SM-08-02	TGA2806-SM
CATV Gain Block	DOCSIS® 3.0 Output	40 - 1000	28 / -	18.5	2.5	6 / 318	5x5 QFN	TGA2807-SM*
Dual pHEMT Amplifier, High Gain	Infrastructure GP	50 - 1000	- / 38	17.5	3.2	5 / 235	SOIC-8	TAT7469*
Dual pHEMT Amplifier	Infrastructure GP	50 - 1000	- / 41	13	4.0	6 / 190	SOIC-8	TAT7466*
Dual MESFET Amplifier	Infrastructure GP	50 - 1000	25.5 / 43	11.1	4.5	5 / 320	SOIC-8	AH22S
CATV Gain Block, High Gain	Home Amplifier, MOCA Multi	50 - 1000	- / 41	22.5	2.0	8 / 190	SOT89	TAT7430B*
CATV Gain Block, High Gain	Home Amplifier, MOCA	50 - 1000	- / 39	18	2.0	6 / 145	SOT89	TAT7427*
CATV Gain Block	Home Amplifier	50 - 1000	- / 39	16	2.7	6 / 130	SOT89	TAT7461*
MESFET Amplifier	General Purpose	50 - 1000	20 / 40	14.8	3.5	5 / 150	SOT89	AH2
Single Ended Darlington	Return Path Amplifier	50 - 1000	20 / 37	13.5	4.5	>7 / 165	SOIC-8	AG606
Fiber to the Home TIA + Output Amp	Fiber to the Home, RfOg	50 - 1000	-62 dBc CTB / CSO	32	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254D*
Fiber to the Home TIA + Output Amp	Fiber to the Home, High Output	50 - 1000	-63 dBc CTB / CSO	33	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254C*
MESFET Amplifier	General Purpose	50 - 1500	30 / 50	10.4	5.3	9 / 400	SOT89	AH101
Dual pHEMT Amplifier, Wideband	CATV+SAT Wideband Amp / VONU	50 - 2600	-77 dBc CTB / -83 dBc CSO	13	4.4	5 / 160	SOIC-8	TAT7464*
CATV Gain Block, Wideband	CATV+SAT Wideband Amp / VONU	50 - 2600	- / 36	16.5	2.5	5 / 100	SOT89	TAT7460*
HFET Gain Block	General Purpose	50 - 4000	27 / 39	12.4	2.7	8 / 200	SOT89	FP1189
MMIC Gain Block	General Purpose	60 - 3000	15 / 32	14	2.4	4 - 5 / 50	SOT89	AG101
MESFET Gain Block	General Purpose	60 - 3000	21 / 39	10	2.4	4.5 / 150	SOT89	AM1

NOTES: * = New

Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Cable IF Filter	36.15	8	19.7	SE / SE	38 @ 10.23	DIP	855748
Cable IF Filter	44	6	20.4	SE / SE	38 @ 7.60	DIP	855079
Cable IF Filter	44	6	20.8	SE / SE	38 @ 7.40	24.6x9.0	856129
Cable IF Filter	202.75	1.2	6.6	SE / SE	40 @ 10.00	13.3x6.5	855068
Cable IF Filter	499.25	1	7	SE / SE	35 @ 6.00	9.0x7.0	855104
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046.00	3.0x3.0	855964
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046.00	3.0x3.0	856330
Tuner IF Filter	1090	10	5	BAL / BAL	50 @ 1050.00	3.8x3.8	856096
Tuner IF Filter	1216	8	3.75	BAL / BAL	12 @ 24.00	3.0x3.0	856365
Tuner IF Filter	1220	10	4.5	BAL / BAL	30 @ 60.00	3.0x3.0	856298
Tuner IF Filter	1220	50	3.9	BAL / BAL	33 @ 96.00	3.8x3.8	856598
Tuner IF Filter	1250	96	6	BAL / BAL	44 @ 1152.00	3.0x3.0	856653
Tuner IF Filter	1892	8	4.2	BAL / BAL	23 @ 1932.00	2.5x2.0	856236

Protectors

Description	Application	Leakage Current (nanoAmps)	Trigger Voltage (V)	Series Capacitance (pF)	Package Area (mm ²)	Package Style	Part Number
CATV Protector	ESD & Secondary Protection	20 @ 1V, 500 @ 15V	18, 25, 41	0.29, 0.29, 0.22	1.8	T / SLP-3	TQP200002

GUIDE BY MARKET | Defense & Aerospace

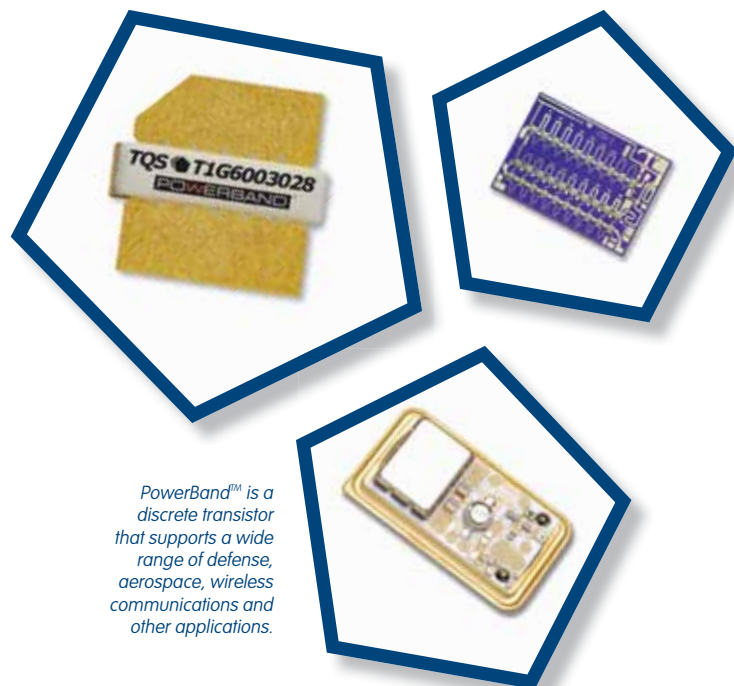
TriQuint Semiconductor is a major supplier of high-performance, high-reliability products for defense, aerospace and similar demanding applications. TriQuint has used its substantial expertise in packaging die-level devices for commercial markets and extended this experience to meet defense contractor requirements. We continue to demonstrate how packaging flexibility, multi-chip modules and high-level integration can benefit defense and commercial customers alike. We are a technology and customer service leader in these applications:

- **Phased Array Radar**
- **Communications**
- **GPS Navigation Systems**
- **Missile Systems**
- **EW**

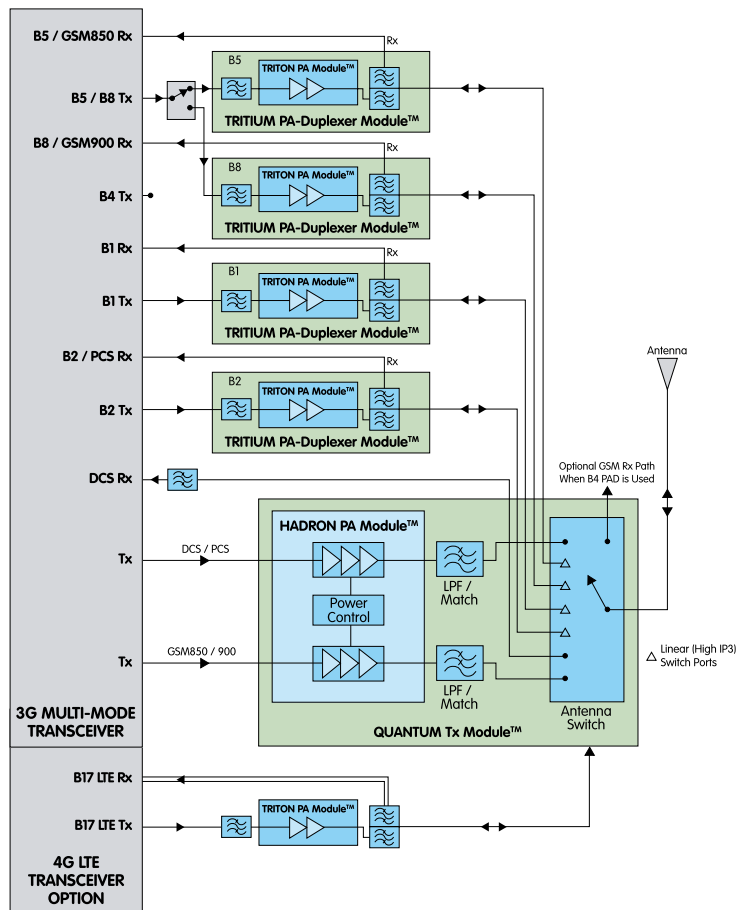
Many TriQuint products listed elsewhere in this brochure see widespread defense and space usage in support of budget-critical, fast-turnaround COTS applications. Practically any product now in development for non-defense usage (GaAs / GaN amplifiers, switches, filters and integrated devices) can be modified to fit a contractor's particular needs through processes including Class B screening for extra quality assurance. Typical MMIC products in GaN or GaAs HFET, pHEMT, mHEMT or VPIN include:

- **Amplifiers**
- **Phase Shifters**
- **Switches**
- **Couplers**

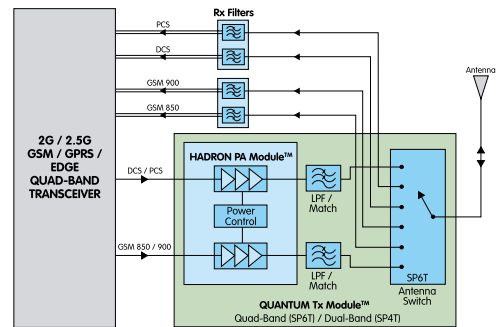
SAW and BAW technology products for defense applications include filters and oscillators. Filter solutions (center frequencies: 30 MHz to 20 GHz) are available in package sizes potentially as small as 1.5x0.8 mm. TriQuint oscillators, with superior phase noise (as low as -180 dBc / Hz; with exceptional g-sensitivity), can provide best-in-class performance.



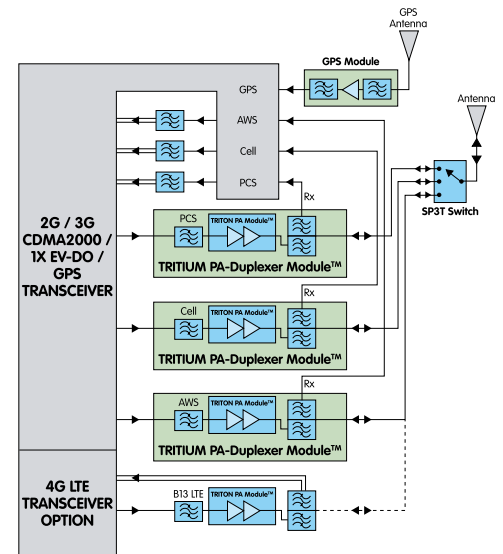
PowerBand™ is a discrete transistor that supports a wide range of defense, aerospace, wireless communications and other applications.



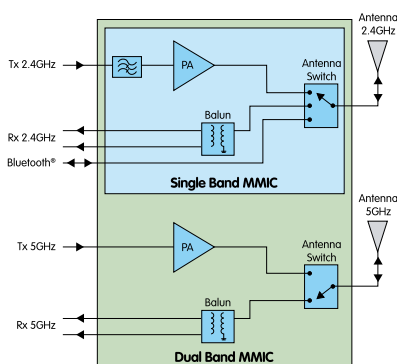
3G - WCDMA / WGPRES / WEDGE, 4G - LTE



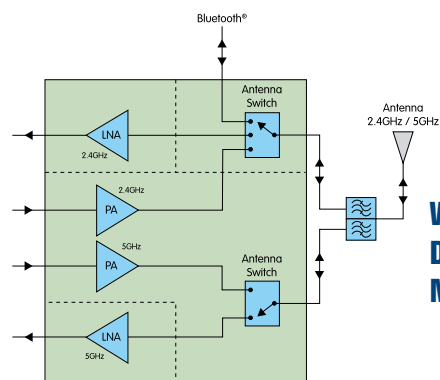
GSM / GPS / EDGE



3G - CDMA / EV-DO, 4G - LTE

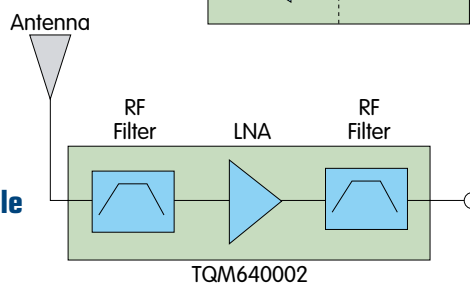


WLAN for Handsets



WLAN for Wireless Data & Personal Media Devices

GPS Integrated Module



GSM / GPRS PA Module

Description	Bands	Features	Package Size (mm)	Part Number
Quad-Band GSM / GPRS PA Module	GSM850 / 900, DCS / PCS	Low Band lbatt<1.A @ Pcal 2 / PAE 55%	5.0x5.0x1.0	TQM7M4007

QUANTUM Tx Module™ Family (GSM / GPRS / EDGE)

Description	Bands	Features	Package Size (mm)	Part Number
Dual-Band GSM / GPRS Tx Module; PA / LPF / SP4T Switch; Quad-Band Tx & Dual-Band Rx	GSM900 / DCS or GSM850 / PCS	High Efficiency Broadband Tx, 2 Rx Ports	6.0x6.0x1.1	TQM6M4048
Quad-Band GSM / GPRS Tx Module; PA / LPF / SP6T Switch	GSM850 / 900, DCS / PCS	High Efficiency Broadband Tx, 4 Rx Ports	6.0x6.0x1.1	TQM6M4049
Quad-Band GSM / GPRS / EDGE-Linear TRP Tx Module; PA / LPF / SP6T Switch	GSM850 / 900, DCS / PCS	High GMSK Efficiency & Best TRP	6.0x8.0x1.0	TQM6M5014

HADRON PA Module™ Family (EDGE, 7x7mm Footprint)

Description	Bands	Features	Package Size (mm)	Part Number
Quad-Band GSM / GPRS / EDGE-Polar PA Module	GSM850 / 900, DCS / PCS	-87 dBm Typ Rx Noise, +3 to +8 dBm Pin Nominal	7.0x7.0x1.1	TQM7M5008

HADRON II PA Module™ Family (EDGE, 5x5mm Footprint)

Description	Bands	Features	Package Size (mm)	Part Number
Quad-Band GSM / GPRS / EDGE-Linear PA Module	GSM850 / 900, DCS / PCS	Low Band lbatt < 1.5A @ Pcal w/PAE 55%	5.0x5.0x1.0	TQM7M5005H
Quad-Band GSM / GPRS / EDGE-Polar PA Module	GSM850 / 900, DCS / PCS	-90 dBm Typ Rx Noise, +3 to +8 dBm Pin Nominal	5.0x5.0x1.0	TQM7M5012H
Quad-Band GSM / GPRS / EDGE-Linear PA Module	GSM850 / 900, DCS / PCS	Input Power Controlled for GMSK & 8PSK	5.0x5.0x1.0	TQM7M5013
Quad-Band GSM / GPRS / EDGE-Polar PA Module	GSM850 / 900, DCS / PCS	+3 to +8 dBm Pin Nominal, Current Limiter	5.0x5.0x1.0	TQM7M5022

CDMA Duplexers & Tx Filters

Description	Bands	Features	Package Size (mm)	Part Number
CDMA Duplexer, SE / SE	Cellular 881.5 / 836.5 MHz	1.9 / 2.4 dB Insertion Loss	3.8x3.8x1.47	856450
CDMA450 Duplexer Block C, SE / BAL	Block C, 452.4 / 462.4 MHz	2.7 / 3.0 dB Insertion Loss	5.0x5.0x1.2	856820
CDMA450 Tx Filter Block C, SE / SE	Block C, 452.4 MHz	1.5 dB Insertion Loss	3.8x3.8x1.27	856867
CDMA450 Duplexer Block A / B, SE / BAL	Block A / B, 455 / 465 MHz	2.6 / 3.0 dB Insertion Loss	5.0x5.0x1.2	856799
CDMA450 Tx Filter Block A / B, SE / SE	Block A / B, 455 MHz	1.5 dB Insertion Loss	3.8x3.8x1.27	856847

CDMA Switches

Description	Bands	Features	Package Size (mm)	Part Number
CDMA SP3T Switch	Cellular / PCS / AWS	Antenna Routing	3.0x3.0x0.9	TQP4M3018
CDMA SP3T Switch	Cellular / PCS / AWS	Antenna Routing	2.0x2.0x0.57	TQP4M3019

TRITON PA Module™ Family (CDMA, WCDMA / HSUPA, LTE)

Description	Bands	Features	Package Size (mm)	Part Number
WCDMA / HSUPA PA Module, w/Coupler	Band 1	2-Bit (Hi / Med / Lo Power Modes)	4.0x4.0x0.9	TQM776003
WCDMA / HSUPA PA Module, w/Coupler	Band 1	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM776011

TRITON PA Module™ Family (CDMA, WCDMA / HSUPA, LTE) (cont.)

Description	Bands	Features	Package Size (mm)	Part Number
CDMA & WCDMA / HSUPA PA Module, w/Coupler	PCS / Band 2	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM766012
CDMA & WCDMA / HSUPA PA Module, w/Coupler	AWS / Band 4	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM756014
CDMA & WCDMA / HSUPA PA Module, w/Coupler	Cellular / Band 5	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM716015
WCDMA / HSUPA PA Module, w/Coupler	Band 8	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM726018
WCDMA / HSUPA PA Module, w/Coupler	Band 1	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM776061
CDMA & WCDMA / HSUPA PA Module, w/Coupler	PCS / Band 2	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM766062
CDMA & WCDMA / HSUPA PA Module, w/Coupler	Cellular / Band 5	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM716065
WCDMA / HSUPA PA Module, w/Coupler	Band 8	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM726068

TRITIUM II PA-Duplexer Module™ Family (CDMA, 7x4mm Footprint)

Description	Bands	Features	Package Size (mm)	Part Number
CDMA PA-Duplexer Module; BAL Input w/Coupler	Cellular	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM613027
CDMA PA-Duplexer Module; SE Input w/Coupler	Cellular	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM613029
CDMA PA-Duplexer Module; SE Input w/Coupler	Cellular	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM613030
CDMA PA-Duplexer Module; SE Input w/Coupler	PCS	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM663029A
CDMA PA-Duplexer Module; SE Input w/Coupler	AWS	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM653029

TRITIUM III PA-Duplexer Module™ Family (WCDMA / HSUPA, 7x4mm Footprint)

Description	Bands	Features	Package Size (mm)	Part Number
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 1	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM676021
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 2	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM666022
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 4	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM656024*
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Bands 5 & 6	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM616025
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Bands 5 & 6	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM616020**
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 8	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM626028L

NOTES: * = New, ** For a specific HSDPA transceiver variant, contact Customer Service.

QUANTUM II Tx Module™ Family (WGPRS & WEDGE)

Description	Bands	Features	Package Size (mm)	Part Number
Quad-Band GSM / GPRS / EDGE-Linear TRP Tx Module: PA / LPF / SP8T WEDGE Switch w/ Quad-Band WCDMA Antenna Pass-Through	GSM850 / 900, DCS / PCS & WCDMA B1, B2, B5 / 6, B8	Integrated QB GSM / GPRS / EDGE PA & Antenna Switch Supporting WCDMA	7.0x7.5x1.1	TQM6M9014

4G LTE Duplexers & Tx Filters

Description	Bands	Features	Package Size (mm)	Part Number
LTE SE / BAL SAW Duplexer	Band 13, 751 MHz Rx / 782 MHz Tx	2.3 dB (Rx) / 1.8 dB (Tx) Insertion Loss	2.5x2.0x0.5	856879
LTE SE / SE Tx SAW Filter	Band 13, 782 MHz	1.9 dB Insertion Loss	1.4x1.2x0.46	856894
LTE SE / BAL SAW Duplexer	Band 17, 710 MHz Tx / 740 MHz Rx	1.2 dB (Tx) / 1.8 dB (Rx) Insertion Loss	2.5x2.0x0.56	856931
LTE SE / SE Tx SAW Filter	Band 17, 710 MHz	1.8 dB Insertion Loss	1.4x1.2x0.46	856911

WLAN PA

Description	Bands	Features	Package Size (mm)	Part Number
5 GHz WLAN PA MMIC	802.11 a	ETSLP-16 Package	3.0x3.0x0.45	TQP787011*
2.4 GHz WLAN PA MMIC	802.11 b, g	VQFN-16 Package	3.0x3.0x0.90	TQP777002

NOTES: * = New

WLAN LNA

Description	Bands	Features	Package Size (mm)	Part Number
5 GHz WLAN LNA MMIC	802.11 a	SLIM-7 Package	1.3x2.0x0.4	TQL5000

WLAN Switch

Description	Bands	Features	Package Size (mm)	Part Number
2.4 GHz & 5 GHz SPDT Switch MIMC	802.11 a, b, g	ETSLP-6 Package	1.3x2.0x0.45	TQS5200E

WLAN LNA / Antenna Switch

Description	Bands	Features	Package Size (mm)	Part Number
2.4 GHz WLAN LNA + SP3T Switch MMIC WLAN Tx & Bluetooth® Paths	802.11 b, g	LNA Bypass, ETSLP-12 Package	1.5x1.5x0.55	TQP879007

WLAN PA / Antenna Switch

Description	Bands	Features	Package Size (mm)	Part Number
2.4 GHz WLAN PA + Switch MMIC w/WLAN Rx Balun & Bluetooth® Path	802.11 a	ETSLP-16 Package	3.0x3.0x0.45	TQM679002A
2.4 GHz & 5 GHz WLAN PA + Switch MMIC w/WLAN Rx Baluns & Bluetooth® Path	802.11 a, b, g, n	ETSLP-24 Package, Coupler / Detector	4.0x4.0x0.45	TQP6M9002

Bluetooth® PA

Description	Bands	Features	Package Size (mm)	Part Number
Bluetooth® EDR v2.0 Class 1 PA MMIC	2.4 to 2.5 GHz ISM Band	STSLP-12 Package	2.0x2.0x0.57	TQP770001
Bluetooth® Class 1 PA MMIC	2.4 to 2.5 GHz ISM Band	SLIM-7 Package	1.3x2.0x0.4	CGB241

GPS LNA

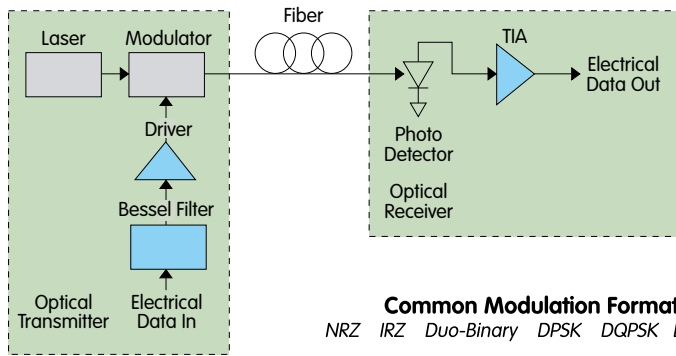
Description	Bands	Features	Package Size (mm)	Part Number
GPS LNA MMIC	1575 MHz, GPS L1	Ultra Compact Package, Shut-off Function	1.3x2.0x0.4	TQP340003

GPS LNA / Filter Module

Description	Bands	Features	Package Size (mm)	Part Number
GPS Filter-LNA-Filter Module	1575 MHz, GPS L1	Low Noise (1.56 dB) and High Gain (16 dB)	3.0x3.0x1.0	TQM640002

GPS Filters

Description	Bands	Features	Package Size (mm)	Part Number
GPS SAW Filter, SE / SE	1.25 dB Insertion Loss (Hermetic CSP)	2.0x1.5x0.76	1575 MHz, GPS L1	856584
GPS SAW Filter, SE / SE	1.0 dB Insertion Loss (Hermetic CSP)	1.5x1.5x0.76	1575 MHz, GPS L1	856463
GPS SAW Filter, SE / SE	Ultra-low Insertion Loss of 0.5 dB (Hermetic CSP)	1.4x1.2x0.46	1575 MHz, GPS L1	856756
GPS SAW Filter, SE / SE	0.75 dB Insertion Loss (Hermetic CSP)	1.4x1.2x0.46	1575 MHz, GPS L1	856561
GPS SAW Filter, SE / BAL	1.1 dB Insertion Loss (Hermetic CSP)	1.4x1.2x0.46	1575 MHz, GPS L1	856576



Optical Systems (10, 40 & 100 Gb/s)

Common Modulation Formats

NRZ IRZ Duo-Binary DPSK DQPSK DP-QPSK

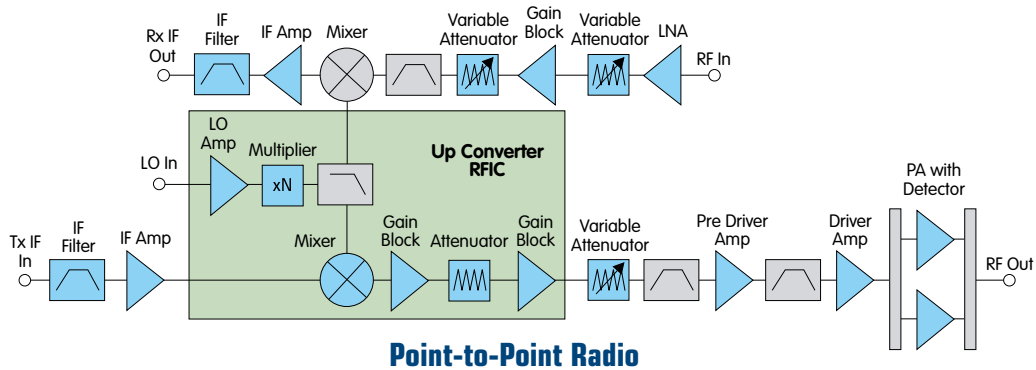
Drivers

Description	Frequency (GHz)	Power (Vpp or dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
9.9 - 12.5 Gb/s 3V - 7V Driver	DC - 13	3 - 7 Vpp	32	-	3.3 - 5 / 115	SM-A8-28	TGA4956-SM
9.9 - 12.5 Gb/s Mod. Driver	DC - 16	3V - 10V	35	2.5	5.5 - 8 / 210	SL-A2-18	TGA4953-SL
9.9 - 12.5 Gb/s Mod. Driver	DC - 16	3V - 9V	35	2.5	5.5 - 8 / 210	SL-A4-18	TGA4954-SL
12.5 Gb/s NRZ Driver	DC - 18	11V	16	-	8 / 285	Die	TGA4807
12.5 Gb/s NRZ Driver	DC - 18	24 dBm	16	3.5	5 - 8 / 70 - 175	Die	TGA1328-SCC
12.5 Gb/s NRZ Driver	DC - 18	8V	16	3.5	8 / 175	SL-A1-12	TGA8652-SL
15 Gb/s 10V Mod. Driver	DC - 20	3 - 10 Vpp	22	-	7 / 280	6x6 QFN	TGA4826-SM*
40 & 100 Gb/s 8 Vpp SE Driver	DC - 30	3 - 9 Vpp	32	-	6 - 7 / 270	SL-A7-21	TGA4943-SL
45 Gb/s 8V pp SE Driver	DC - 35	5 - 9 Vpp	30	-	6 - 7 / 300	SL-A7-21	TGA4942-SL**
45 Gb/s 10 Vpp Diff In / Out Driver	DC - 35	6 - 10 Vpp Diff	27 Diff	-	5 - 6 / 500	-	TGA4958-SL**
Wideband Driver (40 Gb/s)	DC - 35	4V	12	-	5 / 135	Die	TGA4832
40 Gb/s TIA, SE	DC - 40	-	250 dB W	15pA √Hz	5 / 30	Die	TGA4812
LNA / Gain Block	DC - 40	11.5 dBm	13	3.2	5 / 50	Die	TGA4830
LNA / Gain Block	DC - 60	13 dBm	15	3	6 / 50	Die	TGA4811
43 Gb/s Driver	DC - 78	3V	8	5	6 / 82	Die	TGA4803
10.7 - 12.5 Gb/s Linear Mod. Driver	0.03 - 8	25 dBm	20	-	8 / 310	SM-A8-28	TGA4823-2-SM
CATV TIA / Gain Block, SB	0.04 - 1	27 dBm	20	1.5	8 / 350	SM-O8-20	TGA2803-SM

NOTES: * = New, ** = Coming Soon, SB = Self Biased, SE = Single-Ended

Control Products

Description	Frequency (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - 30	2	17	-	0 to -2	SM-O12-16	TGL4203-SM
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203
Discrete Thru (0 dB Attenuator)	DC - 65	0	0	-	N/A	Die	TGL4201-00
Discrete Attenuators	DC - 65	-	2, 3, 6, 10	-	N/A	SM-O12-16	TGL4201-02, 03, 06, 10
Bessel Filter	-	6, 7, 8, 9, 10 & 11 Cut-Off Freq	-	-	N/A	Die	TGB2010-00, -09 etc.
Bessel Filter	-	5, 6, 6.5, 7.5, 8 & 9 Cut-Off Freq	-	-	N/A	SM-O2-6	TGB2010-00, -09-SM etc.



Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	SM-O13-24	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 / 42	18	7.5 / 37	6 / 1000	SM-O14-28	TGA2701-SM*
HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
Gain Block	6 - 18	12.5 / -	13	5 / -	5 / 80	Die	TGA8035-SCC
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
HPA	7 - 8.5	(38) / -	21	- / 42	7 / 2000	Die	TGA2701
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
HPA	9 - 10.5	(38) / -	20	- / >38	4 - 9 / 2000	Die	TGA2704
HPA	10.5 - 12	(38) / -	19	- / >39	4 - 9 / 2000	Die	TGA2710
Driver Amp, SB	11 - 17	17 / -	23	6 / -	6 / 75	SM-O6-12	TGA2507-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	SM-O6-12	TGA2508-SM
2W HPA	12.3 - 15.7	(31) / -	33	7.0 / -	6 / 850	Die	TGA2520
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	SM-O1-24	TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.5 - 17	(33.5) / -	25	- / 25	7.5 / 650	SG-A1-6	TGA2510-SG
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
2W HPA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
2W HPA	13 - 17	(34) / -	33	-	5 - 8 / 680	FL-A1-10	TGA2904-FL
2W HPA, PD	13 - 17	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-1-SCC-SG
2W HPA	13 - 17	(34) / 40	33	-	5 - 8 / 680	SG-A1-6	TGA8658-SG
4W HPA, Balanced	13 - 17	(36) / 44	25	- / 30	6 - 7 / 1300	Die	TGA2502
2W HPA, PD	13.75 - 14.5	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-2-SCC-SG
1W HPA, PD	17 - 20	30 (32) / 42	20	-	5 - 7 / 825	Die	TGA4530
HPA	17 - 20	31 / 41	22	6.5 / -	6 / 820	SM-O10-20	TGA4532-SM*
HPA	17 - 20	30.5 / 41	23	-	6 / 900	Die	TGA4532*
1W HPA, PD	17 - 21	29 (31) / 41	21	-	6 / 825	SM-A4-20	TGA4530-SM
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	SM-O9-16	TGA2521-SM
HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	SM-O10-20	TGA2522-SM
HPA	17 - 27	29 (31) / 37	22	-	7 / 760	Die	TGA4502-SCC
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7 / -	5 / 140	SM-O3-16	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7 / -	5 / 140	SM-A3-16	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
2W HPA	18 - 23	32 (33) / 39	26	-	7 / 840	Die	TGA4022

Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
HPA	18 - 27	29 / 37	14	–	6 / 480	Die	TGA1135-SCC
MPA	19 - 27	25 / 32	22	–	5 - 7 / 220	Die	TGA1073G-SCC
Gain Block	19 - 38	(22) / 30	20	–	5 / 160	Die	TGA4036
MPA	25 - 35	25 / –	18	–	6 / 220	SM-A4-20	TGA4902-SM
MPA	26 - 35	25 (32) / –	19	–	5 - 7 / 220	Die	TGA1073A-SCC
1W HPA	27 - 31	30 / –	22	– / 25	4 - 6 / 420	Die	TGA4509
2W HPA	27 - 31	32.5 (33) / 36.5	20	25 / –	6 / 840	Die	TGA4513
HPA	27 - 32	28.5 / –	25	–	6 - 8 / 420	Die	TGA1073B-SCC
1W HPA	28 - 31	30 / –	19	– / 25	6 / 420	SM-A4-20	TGA4509-SM
Driver Amp	29 - 31	16 (17) / 22	15	–	6 / 60	SM-A4-20	TGA4510-SM
Driver Amp	29 - 37	16 / –	16	–	6 / 60	Die	TGA4510
2W HPA	30 - 40	31.5 (33) / –	20	–	6 / 1050	Die	TGA4516
MPA	32 - 45	24 (25) / 33	16	–	6 / 175	Die	TGA4521
MPA	33 - 47	27 (27.5) / 36	18	–	6 / 400	Die	TGA4522
HPA	37 - 40	28 / 38	24	–	5 / 600	Die	TGA4538*
HPA	36 - 40	26 / –	15	–	5 - 7 / 240	Die	TGA1073C-SCC
HPA	36 - 40	30 / –	14	–	6 - 7 / 500	Die	TGA1171-SCC

NOTES: * = New, SB = Self Biased, AGC = Automatic Gain Control, PD = Power Detector

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, AGC	2 - 18	18 / 29	17	2.0	5 / 75	Die	TGA2525
LNA, AGC	2 - 20	19 / –	17.5	2.5	5 / 100	Die	TGA2526
LNA, AGC	2 - 20	17.5 / –	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
LNA, AGC	2 - 20	16 / –	17	2.5	5 / 75	SM-O7-12	TGA2513-SM
LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	SM-O4-12	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	SM-O4-12	TGA2512-2-SM
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA	6 - 12	2 / –	31	0.7	2.5 / 17	Die	TGA2600
LNA, SB	6 - 13	11 / –	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511
LNA	20 - 27	12 / –	21	2.2	3.5 / 60	Die	TGA4506
LNA	21 - 27	10 / –	21	2.5	3.5 / 60	SM-A4-20	TGA4506-SM
LNA	28 - 36	12 / 21	22	2.3	3 / 60	Die	TGA4507
LNA	30 - 42	14 / –	21	2.8	3 / 40	Die	TGA4508
LNA	57 - 69	–	13	4	3 / 41	Die	TGA4600

NOTES: SB = Self Biased, AGC = Automatic Gain Control, GB = Gate Bias

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
24mm HFET	DC - 4	40	13	– / 51	8 / 2170	Die	TGF4124
18mm HFET	DC - 6	38.5	13.5	– / 53	8 / 1690	Die	TGF4118
12mm HFET	DC - 8	37	14	– / 55	8 / 750	Die	TGF4112
4.8mm HFET	DC - 10.5	34	8.5	– / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37	9.5	– / 52	8.5 / 520	Die	TGF4260-SCC

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
1.2mm HFET	DC - 12	28.5	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5	10	- / 56	8 / 100	Die	TGF4240-SCC
1mm Pwr pHEMT	DC - 12	(31.5)	11	- / 55	12 / 900	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5)	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5)	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2)	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42)	11	- / 52	12 / 900	Die	TGF2021-12
0.3mm MESFET	DC - 18	13	11	1.5 / -	3 / 15	Die	TGF1350-SCC
0.6mm Pwr pHEMT	DC - 20	(29)	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32)	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35)	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38)	13	- / 58	12 / 360	Die	TGF2022-48
6.0mm Pwr pHEMT	DC - 20	(39)	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16	13	0.8 / -	3 / 15	Die	TGF4350

Switches

Description	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP2T 802.11 a, b, g	DC - 6	0.6	28	31.5	3 / 0	SLIM7	TQS5200
SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
SPDT FET	DC - 18	2	39	21	-7 / 0	Die	TGS8250-SCC
SP4T FET	DC - 18	2.5	37	19	0 / -5	Die	TGS8422-SCC
SP3T VPIN	1 - 20	0.5	35	23	10 mA	Die	TGS2303-EEU
SP4T VPIN	1 - 20	0.6	38	23	10 mA	Die	TGS2304-SCC
SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1	36	>33	+/- 5 / 18	Die	TGS4304

Frequency Converters & Mixers

Description	RF Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Doubler w/Amplifier	16 - 30	18	30	-	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	18	30	-	5 / 150	SM-O11-16	TGC4403-SM
Upconverting Mixer	17 - 26	-9	40	-	-0.9 / 0	SM-O11-16	TGC4402-SM
Upconverting Mixer	17 - 27	-9	35	18	-0.9 / 0	Die	TGC4402
Upconverter	17 - 27	13	30	-	5 / 425	Die	TGC4405
Upconverter	17 - 27	13	30	-	5 / 425	SM-O11-16	TGC4405-SM
Gain Block & 2x / 3x Multiplier	17 - 37	9	N/A	6	5 / 140	SM-O3-16	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	9	N/A	2	5 / 140	SM-A3-16	TGA4031-SM
Doubler (Input 10 - 20 GHz)	20 - 40	-12	25	18	-	Die	TGC1430F
Tripler (Input 8.5 - 13.5 GHz)	20 - 40	-15	15	18	-	Die	TGC1430G

Control Products

Description	Frequency (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Discrete Thru (0 dB Attenuator)	DC - 65	0	0	-	N/A	Die	TGL4201-00
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203
Analog Attenuator	DC - 30	2	17	-	0 to -2	SM-O12-16	TGL4203-SM

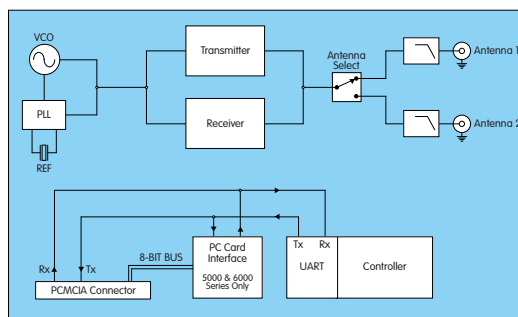
Control Products (cont.)

Description	Frequency (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Discrete Attenuators	DC - 65	-	2,3,6,10	-	N/A	SM-012-16	TGL4201-02, 03, 06, 10
Digital Attenuator	0.5 - 18	4	15.5	20	0 / -5	Die	TGL6425-SCC
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	N/A	18	N/A	Die	TGL2201
Large Coupler	12 - 21	<0.25	-	-	N/A	Die	TGB2001
Large Coupler	18 - 32	<0.25	-	-	N/A	Die	TGB4001
Large Coupler	27 - 45	<0.25	-	-	N/A	Die	TGB4002

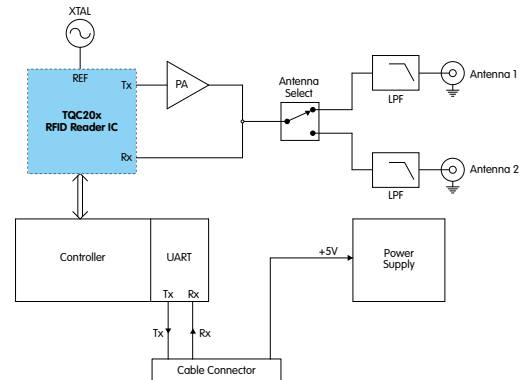
Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
High Selectivity IF Filter	140	1.5	12.1	SE and BAL	48 @ 143.00	9.1x4.8	856691
High Selectivity IF Filter	140	3	13.6	SE and BAL	46 @ 144.00	9.1x4.8	856692
High Selectivity IF Filter	140	6	11	BAL / BAL	39 @ 147.00	9.1x4.8	856693
High Selectivity IF Filter	140	7	13.6	SE and BAL	43 @ 147.00	9.1x4.8	856694
High Selectivity IF Filter	140	10	10	BAL / BAL	41 @ 152.50	9.1x4.8	856695
High Selectivity IF Filter	140	14	8.5	SE and BAL	43 @ 155.00	9.1x4.8	856696
High Selectivity IF Filter	140	20	9.8	BAL / BAL	40 @ 158.50	9.1x4.8	856697
High Selectivity IF Filter	140	28	18	SE and BAL	42 @ 168.00	9.1x4.8	856698

GUIDE BY MARKET | **RFID**



WJR Series Functional Block Diagram



WJM Series Application Block Diagram

UHF RFID Modules

Description	Frequency (MHz)	Channels / Spacing (kHz)	Max Output Power (W)	Protocol Support	Region of Operation	Interface	Part Number
Reader PCMCIA Form Factor Module (ETSI 302.208)	865.7 - 867.5	4 / 600	1	ISO18000-6B & -6C	Europe	Serial TTL	WJR7081
Reader PCMCIA Form Factor Module (FCC Pt 15)	902.75 - 927.25	50 / 500	1	ISO18000-6C	N. America	Serial TTL	WJR7000
PCMCIA Reader Module (FCC Pt 15)	902.75 - 927.25	50 / 500	0.5	ISO18000-6B & -6C	N. America	PCMCIA	MPR6000
PCMCIA Reader Module (FCC Pt 15) w/Int. Antenna	902.75 - 927.25	50 / 500	0.5	ISO18000-6B & -6C	N. America	PCMCIA	MPR5000
Embedded Reader Module (FCC Pt 15)	902.75 - 927.25	50 / 500	1	ISO18000-6B & -6C	N. America	Serial TTL	WJM3000
Embedded Reader Module (FCC Pt 15)	902.75 - 927.25	50 / 500	0.25	ISO18000-6B & -6C	N. America	Serial TTL	WJM1000
PCMCIA Form Factor Module	910.6 - 913.4	15 / 200	1	ISO18000-6B & -6C	Korea	Serial TTL	WJR7090

Qualified Amplifiers

TriQuint has a proud space / aerospace history, supplying highly-reliable active / passive devices for satellite and planetary missions. Space-level qualification includes high-level visual inspection, 100% element electrical results and wafer lot qualification testing. See tables for standard products already space qualified; most foundry and standard products throughout this brochure may be space qualified.

Qualified Amplifiers							
Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
12.5 Gb/s NRZ Driver	DC - 18	24 / -	16	3.5 / -	5 - 8 / 70 - 175	Die	TGA1328-SCC
Wideband Driver (40 Gb/s)	DC - 35	18 / -	12	-	5 / 135	Die	TGA4832
Gain Block, SB	2 - 10	17 / -	17	6	5 / 90	Die	TGA8810-SCC
Gain Block, AGC	2 - 18	22 / -	23	6	7 / 340	Die	TGA6345-EEU
Gain Block	2 - 18	20 / -	7.5	5.5	6 / 100	Die	TGA8300-SCC
Wideband Gain Block, AGC	2 - 20	20 / -	7.5	7	6 / 150	Die	TGA8622-SCC
Wideband PA, AGC	2 - 20	26 / -	8	-	8 / 440	Die	TGA8334-SCC
0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
HPA	6.5 - 11.5	37 (39) / -	19	35	7 - 9 / 1200	Die	TGA9083-SCC
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
HPA	9 - 10.5	(38) / -	20	>38	4 - 9 / 2000	Die	TGA2704
Driver Amp, SB	11 - 17	17 / -	23	6	6 / 75	SM-O6-12	TGA2507-SM
Driver Amp, SB	12 - 18	20 / -	28	6	6 / 80	Die	TGA2507
4W HPA, Balanced	13 - 17	(36) / 44	25	30	6 - 7 / 1300	Die	TGA2502
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036
HPA	24 - 31	35.5 (36) / -	23	-	6 / 2100	Die	TGA4505
3.5W HPA	31 - 37	(35.5) / -	20	-	6 / 2000	Die	TGA4517
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521

NOTES: SB = Self Biased, AGC = Automatic Gain Control

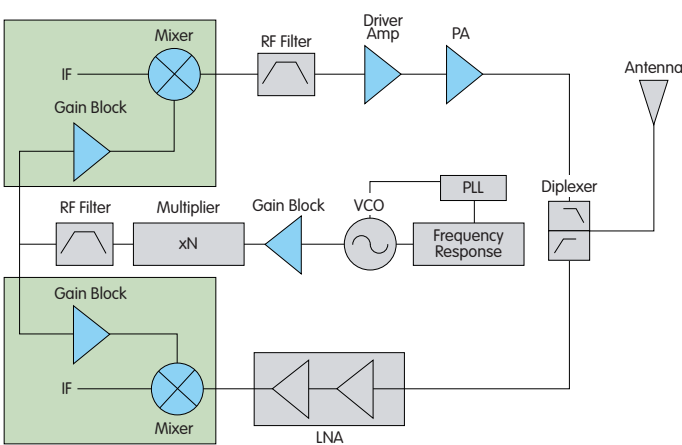
Qualified Low Noise Amplifiers							
Description	Frequency Range (GHz)	P1dB (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, AGC	DC - 14	16	11	3.1	8 / 80	Die	TGA8349-SCC
LNA, AGC	2 - 18	16	19	4	5 / 120	Die	TGA8344-SCC
LNA, AGC	2 - 20	17.5	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
LNA, AGC	2 - 20	17.5	9	3.5	5 - 8 / 60	Die	TGA8310-SCC
LNA, SB	6 - 13	11	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA	20 - 27	12	21	2.2	3.5 / 60	Die	TGA4506
LNA	21 - 27	10	21	2.5	3.5 / 60	SM-A4-20	TGA4506-SM
LNA	30 - 42	14	21	2.8	3 / 40	Die	TGA4508

NOTES: SB = Self Biased, AGC = Automatic Gain Control

Qualified Frequency Converters & Mixers							
Description	RF Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Tripler (Input 8.5 - 13.5 GHz)	20 - 40	-15	15	18	-	Die	TGC1430G

Qualified Optical Drivers							
Description	Frequency (GHz)	Power (Vpp or dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
12.5 Gb/s NRZ Driver	DC - 18	24 dBm	16	3.5	5 - 8 / 70 - 175	Die	TGA1328-SCC
Wideband Driver (40 Gb/s)	DC - 35	4V	12	-	5 / 135	Die	TGA4832

Qualified Control Products							
Description	Frequency (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203
Digital Attenuator	0.5 - 18	4	15.5	20	0 / -5	Die	TGL6425-SCC
Analog Attenuator	2 / 20	2	15	23	2.5	Die	TGL8784-SCC



VSAT RF Subsystem

Amplifiers							
Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Driver Amp, SB	11 - 17	17 / -	23	6 / -	6 / 75	SM-O6-12	TGA2507-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	SM-O6-12	TGA2508-SM
2W HPA	12.3 - 15.7	(31) / -	33	7 / -	6 / 850	Die	TGA2520
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	SM-O1-24	TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.5 - 17	(33.5) / -	25	- / 25	7.5 / 650	SG-A1-6	TGA2510-SG
4W HPA	13 - 15	(36) / 41	25	-	7 / 1300	FL-A1-10	TGA8659-FL
6.5W HPA	13 - 16	(38) / -	24	-	8 / 2600	FL-A2-10	TGA2514-FL
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
2W HPA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
2W HPA	13 - 17	(34) / -	33	-	5 - 8 / 680	FL-A1-10	TGA2904-FL
2W HPA	13 - 17	(34) / 40	33	-	5 - 8 / 680	SG-A1-6	TGA8658-SG
2W HPA, PD	13 - 17	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-1-SG
4W HPA, Balanced	13 - 17	(36) / 44	25	- / 30	6 - 7 / 1300	Die	TGA2502
6.5W HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
2W HPA, PD	13.75 - 14.5	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-2-SG
4W HPA	24 - 31	35.5 (36) / -	23	-	6 / 2100	Die	TGA4505
4W HPA	25 - 31	35.5 (36) / -	22	-	6 / 2100	CP-A1-8	TGA4905-CP

Amplifiers (cont.)

Description	Frequency Range (GHz)	PI dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
MPA	25 - 35	25 / -	18	-	6 / 220	SM-A4-20	TGA4902-SM
7W HPA	26 - 31	(38.5) / -	22	-	6 / 4200	CP-A3-8	TGA4915-CP
1W HPA	27 - 31	30 / -	22	- / 25	4 - 6 / 420	Die	TGA4509
2W HPA	27 - 31	32.5 (33) / 36.5	20	- / 25	6 / 840	Die	TGA4513
MPA	27 - 32	24 / -	15	-	5 / 170	4x4 QFN	TGA4903-SM*
1W HPA	28 - 31	30 / -	19	- / 25	6 / 420	SM-A4-20	TGA4509-SM
4W HPA	28 - 31	36 (36.5) / -	22	- / 22	6 / 1600	Die	TGA4906
4W HPA	28 - 31	36 (36.5) / -	22	- / 22	6 / 1600	SM-A5-24	TGA4906-SM
7W HPA	28 - 31	(38.5) / -	22	- / 20	6 / 3200	Die	TGA4916
Driver Amp	28 - 32	17 / 24	14.5	-	6 / 60	3x3 QFN	TGA4512-SM*
Driver Amp	29 - 31	16 (17) / 22	15	-	6 / 60	SM-A4-20	TGA4510-SM
Driver Amp	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510

NOTES: * = New, SB = Self Biased, PD = Power Detector

Frequency Converters & Mixers

Description	RF Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Doubler w/Amplifier	16 - 30	18	30	-	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	15	25	-	5 / 150	SM-O11-16	TGC4406-SM

Up to 1W

Description	Frequency Range (GHz)	1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage Current (V / mA)	Package Style	Part Number
Bluetooth® PA	DC - 2.5	22.5 / -	26	- / 50	0 - 5.5 / 200	SLIM-7	CGB241
12.5 Gb/s NRZ Driver	DC - 18	24 / -	16	3.5 / -	5 - 8 / 70 - 175	Die	TGA1328-SCC
12.5 Gb/s NRZ Driver	DC - 18	8 Vpp	16	3.5 / -	8 / 175	SL-A1-12	TGA8652-SL
Wideband Driver (40 Gb/s)	DC - 35	18 / -	12	-	5 / 135	Die	TGA4832
24dBm HBT Amplifier	0.01 - 2.5	24 / 40	15.5	5.1 / -	5 / 160	SOT89	EC1089
CATV TIA / Gain Block, SB	0.04 - 1	27 / 46	20	1.5 / -	8 / 350	SM-O8-02	TGA2806-SM
CATV Gain Block	0.04 - 1	28 / -	18.5	2.5	6 / 318	5x5 QFN	TGA2807-SM*
On-Chip Linearized Amplifier DOCSIS® 3.0 Out	0.04 - 1	- / 43	17	4.7	5 / 380	SOIC-8	TAT7467H*
MESFET IF Gain Block	0.05 - 0.87	20 / 41	13	3 / -	5 / 150	SOT89	AH3
MESFET Amplifier	0.05 - 1	20 / 40	14.8	3.5 / -	5 / 150	SOT89	AH2
Dual HBT Amplifier	0.05 - 1	20 / 37	13.5	4.5 / -	>7 / 165	SOIC-8	AG606
Dual MESFET Amplifier	0.05 - 1	25.5 / 43	11.1	4.5 / -	5 / 320	SOIC-8	AH22S
MESFET IF Amplifier	0.05 - 1	22 / 42	19	2.2 / -	5 / 150	SOT89	AH31
Fiber to the Home TIA + Output Amp (RfOg)	0.05 - 1	-62 dBc CTB/CSO	32	3.9 pA/rfHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254D*
Fiber to the Home TIA + Output Amp (Hi Out)	0.05 - 1	-63 dBc CTB/CSO	33	3.9 pA/rfHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254C*
Dual pHEMT Amplifier, High Gain	0.05 - 1	- / 38	17.5	3.2	5 / 235	SOIC-8	TAT7469*
CATV Gain Block, High Gain, MOCA Multi	0.05 - 1	- / 41	22.5	2.0	8 / 190	SOT89	TAT7430B*
CATV Gain Block, High Gain, MOCA	0.05 - 1	- / 39	18	2.0	6 / 145	SOT89	TAT7427*
CATV Gain Block	0.05 - 1	- / 39	16	2.7	6 / 130	SOT89	TAT7461*
MESFET Amplifier	0.05 - 1.5	26.5 / 47	13.5	3.5 / -	9 / 200	SOT89	AH101
Dual pHEMT Amplifier	0.05 - 2	- / 41	13	4.0	6 / 190	SOIC-8	TAT7466*
VGA, 20 dB Range, 5V Control	0.05 - 2.2	22 / 42	15.5	4.5 / -	5 / 150	4x4 QFN16	VG025
30 dBm MESFET Amplifier	0.05 - 2.2	30 / 47	17	2.5	11 / 330	6x6 QFN28	AH202
Dual pHEMT Amplifier, Wideband	0.05 - 2.6	-77 dBc CTB / -83 dBc CSO	13	4.4	5 / 160	SOIC-8	TAT7464*
CATV Gain Block, Wideband	0.05 - 2.6	- / 36	16.5	2.5	5 / 100	SOT89	TAT7460*
28.5 dBm HBT Amplifier	0.05 - 2.7	28.5 / 45	20	4.5 / -	5 / 150	SOT89	AH125
E-pHEMT LNA Gain Block	0.05 - 4	21 / 36	20	1.3 / -	5 / 85	SOT89	TQP3M9008*
E-pHEMT LNA Gain Block	0.05 - 5	22 / 40	21.5	1.3 / -	5 / 125	SOT89	TQP3M9009*
24 dBm HBT Amplifier	0.06 - 2.5	24 / 40	19	5 / -	5 / 150	SOT89	AH114
MESFET Amplifier, 2-Stage	0.06 - 2.7	27 / 46	29	2.5 / -	4.5; 9 / 275	SOIC-8	AH103A
MESFET Gain Block	0.06 - 3	15 / 32	14	2.4 / -	4.5 / 50	SOT89	AG101
MESFET Gain Block	0.06 - 3	18 / 36	14	2.4 / -	4.5 / 70	SOT89	AG102
MESFET Gain Block	0.06 - 3	18 / 39	14	2.4 / -	4.5 / 78	SOT89	AM1
24 dBm HBT Amplifier	0.06 - 3.5	24 / 40	19.5	4 / -	5 / 160	SOT89	AH118
24.6 dBm HBT Amplifier	0.06 - 3.5	25 / 40	19.5	4.6 / -	5 / 115	SOT89	AH128
MESFET Dual Amplifier	0.15 - 3	24 / 46	12	4.1 / -	5 / 300	SOIC-8	AH11
MESFET Amplifier	0.25 - 4	21.5 / 42	14	3.2 / -	5 / 150	SOT89	AH1
MESFET Amplifier	0.25 - 4	21.5 / 42	14	3.2 / -	5 / 150	SOT89	AH1-1
MESFET Amplifier	0.35 - 3	27 / 46	14.5	3.1 / -	9 / 200	SOT89	AH102A
VGA, 29 dB Range, 5V Control	0.70 - 1	22 / 40	16	3.5 / -	5 / 150	6x6 QFN28	VG101
28 dBm HBT Amplifier	0.7 - 3.8	28 / 42	28.5	2.9 / -	5 / 225	4x4 QFN24	TQP8M9013*
28.7 dBm HBT Amplifier	0.8 - 1	28.7 / 43	17.5	7 / -	5 / 250	SOIC-8	AH116
28.7 dBm HBT Amplifier	0.8 - 1	28.7 / 43	17.5	7 / -	5 / 250	4x4 QFN16	ECP052
VGA, 28 dB range, 5V Control	1.8 - 2.2	30 / 46	23	8 / -	5 / 415	6x6 QFN28	VG112
28.5 dBm HBT Amplifier	1.8 - 2.3	28.5 / 44	14.5	6 / -	5 / 250	SOIC-8	AH115
VGA, 27 dB Range, 5V Control	1.8 - 2.7	22 / 39.5	13.5	4.5 / -	5 / 150	6x6 QFN28	VG111
Wideband PA, AGC	2 - 20	26 / -	8	-	8 / 440	Die	TGA8334-SCC
Wideband PA, AGC	2 - 22	28.5 (30) / 36	17	-	12 / 1100	Die	TGA2509
WiMAX Driver Amp / PA, SB	2.3 - 2.8	29 / 40	28	-	6 / 710	SM-O5-28	TGA2702-SM

Up to 1W (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Bluetooth® Class 1 PA	2.4 - 2.5	21.5 / -	27	- / 50	0 - 3.3 / 160	STSLP-12	TQP770001
ISM Band Matched PA, PD	2.4 - 2.5	25 / -	30	-	3.3 / 200	VQFN-16	TQP777002
WiMAX Driver Amp / PA, SB	3.4 - 3.8	30 / 42	24	-	6 / 770	SM-O5-28	TGA2703-SM
0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	SM-O6-12	TGA2508-SM
1W HPA, PD	17 - 20	30 (32) / 42	20	-	5 - 7 / 825	Die	TGA4530
1W HPA, PD	17 - 21	29 (31) / 41	21	-	6 / 825	SM-A4-20	TGA4530-SM
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	SM-O9-16	TGA2521-SM
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	SM-O10-20	TGA2522-SM
HPA	17 - 27	29 (31) / 37	22	-	7 / 760	Die	TGA4502-SCC
HPA	18 - 27	29 / 37	14	-	6 / 480	Die	TGA1135-SCC
MPA	19 - 27	25 / 32	22	-	5 - 7 / 220	Die	TGA1073G-SCC
MPA	25 - 35	25 / -	18	-	6 / 220	SM-A4-20	TGA4902-SM
MPA	26 - 35	25 (32) / -	19	-	5 - 7 / 220	Die	TGA1073A-SCC
1W HPA	27 - 31	30 / -	22	- / 25	4 - 6 / 420	Die	TGA4509
MPA	27 - 32	24 / -	15	-	5 / 170	4x4 QFN	TGA4903-SM*
HPA	27 - 32	28.5 / -	25	-	6 - 8 / 420	Die	TGA1073B-SCC
1W HPA	28 - 31	30 / -	19	- / 25	6 / 420	SM-A4-20	TGA4509-SM
Driver Amp	28 - 32	17 / 24	14.5	-	6 / 60	3x3 QFN	TGA4512-SM*
Driver Amp	29 - 31	16 (17) / 22	15	-	6 / 60	SM-A4-20	TGA4510-SM
Driver Amp	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521
HPA	36 - 40	26 / -	15	-	5 - 7 / 240	Die	TGA1073C-SCC
HPA	36 - 40	30 / -	14	-	6 - 7 / 500	Die	TGA1171-SCC
MPA	33 - 47	27 (27.5) / 36	18	-	6 / 400	Die	TGA4522
HPA	37 - 40	28 / 38	24	-	5 / 600	Die	TGA4538*
0.5W HPA	40 - 45	28 / -	9	-	7 / 500	Die	TGA4043
Driver Amp	41 - 45	18 / -	14	-	6 / 168	Die	TGA4042

NOTES: * = New, SB = Self Biased, AGC = Automatic Gain Control, PD = Power Detector

1W to 4W

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
CATV Ultra Linear HPA	0.04 - 1	31.5 / 55	12	2.75 / -	12 / 510	SG-O1-16	TGA2801D-SG
31 dBm HBT Amplifier	0.4 - 2.3	31 / 46	18	7 / -	5 / 450	4x4 QFN16	ECP100
33 dBm HBT Amplifier	0.4 - 2.3	33 / 49	18	8 / -	5 / 800	4x4 QFN16	ECP200
31 dBm HBT Amplifier	0.4 - 2.3	31 / 46	18	7 / -	5 / 450	SOIC-8	AH215
33 dBm HBT Amplifier	0.4 - 2.3	33 / 49	18	8 / -	5 / 800	SOIC-8	AH312
31.5 dBm HBT Amplifier	0.4 - 2.7	31 / 47	20	5.9 / -	5 / 300	SOIC-8	AH225
33.5 dBm HBT Amplifier	0.4 - 2.7	33.5 / 50	19	4.6 / -	5 / 500	SOIC-8	AH322
35.5 dBm HBT Amplifier	0.4 - 2.7	35.5 / 50	16	7 / -	5 / 800	4x5 DFN12	AH420
33 dBm HBT Amplifier	0.7 - 2.7	33 / 50	27.5	7	5 / 680	5x5 QFN20	AH323*
InGaP HBT PA, 1.8W, Ultra High Linearity	0.8 - 2.35	32.5 / 49	15.8	- / 55	28 / 40	5x6 DFN14	AP601
InGaP HBT PA, 3.7W, Ultra High Linearity	0.8 - 2.35	35.7 / 52	15.5	- / 55	28 / 80	5x6 DFN14	AP602
30 dBm HBT Amplifier	1.8 - 2.7	30.5 / 46.5	27	5.5 / -	5 / 400	SOIC-8 / 4x5 DFN12	AH212
33 dBm HBT Amplifier	3.3 - 3.8	33 / -	25	-	5 / 600	5x5 QFN20	AH315
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	SM-O13-24	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 / 42	18	7.5 / 37	6 / 1000	SM-O14-28	TGA2701-SM*

1W to 4W (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
2W HPA	12.3 - 15.7	(31) / -	33	7 / -	6 / 850	Die	TGA2520
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	SM-O1-24	TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.5 - 17	(33.5) / -	25	- / 25	7.5 / 650	SG-A1-6	TGA2510-SG
4W HPA	13 - 15	(36) / 41	25	-	7 / 1300	FL-A1-10	TGA8659-FL
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
2W HPA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
2W HPA, PD	13 - 17	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-1-SG
2W HPA	13 - 17	(34) / -	33	-	5 - 8 / 680	FL-A1-10	TGA2904-FL
2W HPA	13 - 17	(34) / 40	33	-	5 - 8 / 680	SG-A1-6	TGA8658-SG
2W HPA, PD	13.75 - 14.5	(34) / 38.5	26	- / 30	7.5 / 650	SG-A1-6	TGA2902-2-SG
HPA	17 - 20	30.5 / 41	23	- / -	6 / 900	Die	TGA4532*
HPA	17 - 20	31 / 41	22	6.5 / -	6 / 820	SM-O10-20	TGA4532-SM*
HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
2W HPA	18 - 23	32 (33) / 39	26	-	7 / 840	Die	TGA4022
4W HPA	24 - 31	35.5 (36) / -	23	-	6 / 2100	Die	TGA4505
4W HPA	25 - 31	35.5 (36) / -	22	-	6 / 2100	CP-A1-8	TGA4905-CP
2W HPA	27 - 31	32.5 (33) / 36.5	20	- / 25	6 / 840	Die	TGA4513
2W HPA	30 - 40	31.5 (33) / -	20	-	6 / 1050	Die	TGA4516
2W HPA	31 - 35	31.5 (33.5) / -	19	-	6 - 7 / 1150	Die	TGA4514
3.5W HPA	31 - 37	(35.5) / -	20	-	6 / 2000	Die	TGA4517
2W HPA	41 - 47	(33) / -	16	-	6 / 2000	Die	TGA4046
77 GHz MPA	76 - 80	14 / -	12	-	3.5 / 75	Die	TGA4706-FC

NOTES: * = New, PD = Power Detector

More Than 4W

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	PAE (%)	Voltage / Current (V / mA)	Package Style	Part Number
10W HPA	0.03 - 3	39.5 / 43	19.5	40	35 / 360	Flange	TGA2540-FL*
39 dBm HBT Amplifier	0.7 - 2.9	39 / -	16.5	8	12 / 300	5x6 DFN14	AP561
InGaP HBT PA, 7W Ultra High Linearity	0.8 - 2.35	38.5 / 55.5	17	53	28 / 160	5x6 DFN14	AP603
14W HPA	2 - 18	41.5 / -	10	23	35 / 1200	Die	TGA2573*
10W HPA, HFET	2.6	40 / 51	12	-	8 / 1200	SG-A4-2	TGA2924-SG
39 dBm HBT Amplifier	3.3 - 3.8	39 / -	11.5	-	12 / 400	5x6 DFN14	AP562
10W HPA, HFET	3.3 - 3.8	40 / 51	9	-	7 - 9 / 1200	SG-A3-2	TGA2923-SG
5W HPA, HFET	3.5	37.5 / 49	11	-	8 / 750	SG-A4-2	TGA2925-SG
HPA	6.5 - 11.5	37 (39) / -	19	35	7 - 9 / 1200	Die	TGA9083-SCC
16W HPA	6.5 - 12.5	42 / -	27	35	12 / 3000	Die	TGA2517
HPA	7 - 8.5	(38) / -	21	42	7 / 2000	Die	TGA2701
HPA	9 - 10.5	(38) / -	20	>38	4 - 9 / 2000	Die	TGA2704
HPA	10.5 - 12	(38) / -	19	>39	4 - 9 / 2000	Die	TGA2710
6.5W HPA	13 - 16	(38) / -	24	-	8 / 2600	FL-A2-10	TGA2514-FL
4W HPA, Balanced	13 - 17	(36) / 44	25	30	6 - 7 / 1300	Die	TGA2502
6.5W HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
7W HPA	26 - 31	(38.5) / -	22	-	6 / 4200	CP-A3-8	TGA4915-CP
4W HPA	28 - 31	36 (36.5) / -	22	22	6 / 1600	Die	TGA4906
4W HPA	28 - 31	36 (36.5) / -	22	- / 22	6 / 1600	SM-A5-24	TGA4906-SM
7W HPA	28 - 31	(38.5) / -	22	20	6 / 3200	Die	TGA4916

NOTES: * = New, PD = Power Detector

Gain Block

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
General Purpose Gain Block	DC - 3	18.5 / 33	16.5	3.8	6 / 75	SOT89	AG603
General Purpose Gain Block	DC - 3.5	18.5 / 33	13.6	4.4	6 / 75	SOT89	AG602
General Purpose Gain Block	DC - 3.5	20.5 / 33.5	17.2	3.5	7 / 96	SOT89	EC1078
General Purpose Gain Block	DC - 4	19.5 / 31	18.5	2.9	6 / 70	SOT89	EC1019
General Purpose Gain Block	DC - 4	17.5 / 32	21.5	3.4	6 / 65	SOT89	ECG005
General Purpose Gain Block	DC - 4	23.5 / 37	14.3	4.6	9 / 120	SOT89	ECG008
General Purpose Gain Block	DC - 4	18 / 34.5	15.3	5.5	6 / 70	SOT89	ECG040
General Purpose Gain Block	DC - 5.5	15 / 30	14.2	3.7	5 / 45	SOT86 / SOT363 / SOT89	ECG006
General Purpose Gain Block	DC - 6	5.8 / 18.5	11	4.4	5 / 20	SOT86 / SOT363	AG201
General Purpose Gain Block	DC - 6	7.5 / 19.5	17.7	3.1	5 / 20	SOT86 / SOT363	AG203
General Purpose Gain Block	DC - 6	12 / 25	14.3	3.2	5 / 35	SOT86 / SOT363	AG302
General Purpose Gain Block	DC - 6	12.5 / 25	18.4	3	5 / 35	SOT86 / SOT363	AG303
General Purpose Gain Block	DC - 6	16 / 28.5	14.5	3.7	6 / 60	SOT86 / SOT89	AG402
General Purpose Gain Block	DC - 6	16 / 28	18.9	3	6 / 60	SOT86 / SOT89	AG403
General Purpose Gain Block	DC - 6	14.5 / 27.5	19.1	2.9	6 / 45	SOT86 / SOT89	AG503
General Purpose Gain Block	DC - 6	19 / 33	18.2	3.5	6 / 75	SOT86 / SOT89	AG604
General Purpose Gain Block	DC - 6	12.5 / 26	21.4	3.4	5 / 30	SOT363 / SOT89	ECG001
General Purpose Gain Block	DC - 6	15 / 29	19.5	3.7	5 / 45	SOT86 / SOT363 / SOT89	ECG002
General Purpose Gain Block	DC - 6	23 / 36	19	3.5	9 / 110	SOT89	ECG003
General Purpose Gain Block	DC - 6	13 / 27	15.5	3.2	5 / 35	SOT89	ECG004
General Purpose Gain Block	DC - 6	18.2 / 32	20.1	3.4	6 / 65	SOT86 / SOT89	ECG055
LNA / Gain Block	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
LNA / Gain Block	DC - 60	13 / 21	15	3	6 / 50	Die	TGA4811
CATV TIA / Gain Block, SB	0.04 - 1	27 / 46	20	1.5	8 / 350	SM-O8-20	TGA2803-SM
+5V Active Bias IF Gain Block	0.05 - 1	20.5 / 33	17.5	5	5 / 95	SOT89	WJA1500
+5V Active Bias IF Gain Block	0.05 - 1	19 / 33.5	17.5	4.7	5 / 65	SOT89	WJA1505
+5V Active Bias IF Gain Block	0.05 - 1	20 / 36	14	5.4	5 / 95	SOT89	WJA1510
+5V Active Bias Gain Block	0.05 - 2.3	19 / 28.5	14	5.2	5 / 85	SOT89	WJA1010
+5V Active Bias Gain Block	0.05 - 3	20 / 34	16.7	5.4	5 / 100	SOT89	WJA1001
+5V Active Bias Gain Block	0.05 - 4	20 / 37.5	16.7	5.6	5 / 90	SOT89	WJA1021
+5V Active Bias Gain Block	0.05 - 4	19.3 / 36.5	14.5	5.5	5 / 80	SOT89	WJA1030
Gain Block	2 - 6	17 / -	13.5	5.5	15 / 68	Die	TGA8226-SCC
Gain Block, SB	2 - 10	17 / -	17	6	5 / 90	Die	TGA8810-SCC
Gain Block, AGC	2 - 18	22 / -	23	6	7 / 340	Die	TGA6345
Gain Block	2 - 18	20 / -	7.5	5.5	6 / 100	Die	TGA8300-SCC
Wideband Gain Block, AGC	2 - 20	20 / -	7.5	7	6 / 150	Die	TGA8622-SCC
Gain Block	6 - 18	12.5 / -	13	5	5 / 80	Die	TGA8035-SCC
Driver Amp, SB	11 - 17	17 / -	23	6	6 / 75	SM-O6-12	TGA2507-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6	6 / 80	Die	TGA2507
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7	5 / 140	SM-O3-16	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7	5 / 140	SM-A3-16	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036

NOTES: SB = Self Biased, AGC = Automatic Gain Control

Low Noise

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, Discrete	DC - 4	- / 13	17	0.5	3 / 30	SOT343	CFH800
LNA, AGC	DC - 14	16 / -	11	3.1	8 / 80	Die	TGA8349-SCC

Low Noise (cont.)

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA / Gain Block	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
LNA / Gain Block	DC - 60	13 / 21	15	3	6 / 50	Die	TGA4811
LNA, SB	0.1 - 3.5	15 / -	18	2.4	12 / 112	Die	TGA8061-SCC
LNA, Balanced FET Low Band	0.7 - 0.92	- / 13.5	17	0.7	2.5 / 100	4x4 QFN16	TQP3M6004
LNA, Discrete Low Band	0.7 - 0.92	26 / 23.5	16	0.8	5 / 150	SOT89	TGF2021-04-SD
LNA, Balanced FET	0.8 - 3	21 / 11	22	0.7	4 / 100	SM-O2-6	TGA2602-SM
LNA, AGC	2 - 18	18 / 29	17	2.0	5 / 75	Die	TGA2525
LNA, AGC	2 - 18	16 / -	19	4	5 / 120	Die	TGA8344-SCC
LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
LNA, AGC	2 - 20	19 / -	17.5	2.5	5 / 100	Die	TGA2526*
LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA8310-SCC
LNA, AGC	2 - 20	16 / -	17	2.5	5 / 75	SM-O7-12	TGA2513-SM
LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	SM-O4-12	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	SM-O4-12	TGA2512-2-SM
LNA	4.9 - 6	5 / -3	18	1.3	3 / 8	SLIM-7	TQL5000
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA	6 - 12	2 / -	31	0.7	2.5 / 17	Die	TGA2600
LNA, SB	6 - 13	11 / -	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511
LNA	20 - 27	12 / -	21	2.2	3.5 / 60	Die	TGA4506
LNA	21 - 27	10 / -	21	2.5	3.5 / 60	SM-A4-20	TGA4506-SM
LNA	28 - 36	12 / 21	22	2.3	3 / 60	Die	TGA4507
LNA	30 - 42	14 / -	21	2.8	3 / 40	Die	TGA4508
LNA	57 - 69	-	13	4	3 / 41	Die	TGA4600
77 GHz LNA	72 - 80	-	20	5	3.5 / 54	Die	TGA4705-FC

NOTES: * = New, SB = Self Biased, AGC = Automatic Gain Control, GB = Gate Bias

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
MESFET	DC - 2.5	26.5 / -	11	1.72 / 55	2 - 6 / 350	SOT223	CLY5
MESFET	DC - 3	23.5 / -	15.5	1.48 / 55	2 - 6 / 180	MW6	CLY2
24mm HFET	DC - 4	40 / -	13	- / 51	8 / 2170	Die	TGF4124
18mm HFET	DC - 6	38.5 / -	13.5	- / 53	8 / 1690	Die	TGF4118
0.5W HFET	DC - 6	28 / 40	18	3.2 / -	8 / 100	SOT89	TGF2960-SD
1W HFET	DC - 6	31 / 43	16	4 / -	8 / 200	SOT89	TGF2961-SD
12mm HFET	DC - 8	37 / -	14	- / 55	8 / 750	Die	TGF4112
4.8mm HFET	DC - 10.5	34 / -	8.5	- / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37 / -	9.5	- / 52	8.5 / 520	Die	TGF4260-SCC
1.2mm HFET	DC - 12	28.5 / -	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5 / -	10	- / 56	8 / 100	Die	TGF4240-SCC
1mm Pwr pHEMT	DC - 12	(31.5) / -	11	- / 55	12 / 900	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5) / -	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5) / -	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2) / -	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42) / -	11	- / 52	12 / 900	Die	TGF2021-12
0.3mm MESFET	DC - 18	13 / -	11	1.5 / -	3 / 15	Die	TGF1350-SCC
1.25mm GaN HEMT	DC - 18	38	15	- / 55	28 / 125	Die	TGF2023-01*
2.5mm GaN HEMT	DC - 18	41	15	- / 55	28 / 250	Die	TGF2023-02*
5.0 GaN HEMT	DC - 18	44	15	- / 55	28 / 500	Die	TGF2023-05*

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
10mm GaN HEMT	DC - 18	47	15	- / 55	28 / 1000	Die	TGF2023-10*
20mm GaN HEMT	DC - 18	50	15	- / 55	28 / 2000	Die	TGF2023-20*
0.6mm Pwr pHEMT	DC - 20	(29) / -	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32) / -	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35) / -	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38) / -	13	- / 58	12 / 360	Die	TGF2022-48
6.0mm Pwr pHEMT	DC - 20	(39) / -	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16 / -	13	0.8 / -	3 / 15	Die	TGF4350
4W pHEMT	0.02 - 4	36 / -	10	- / 45	12 / 100	Ceramic Gullwing	TGF2021-04-SG
7W pHEMT	0.02 - 4	38 / -	10	- / 40	12 / 200	Ceramic Gullwing	TGF2021-08-SG
50W HVHBT	0.02 - 2	47 / -	10	- / 50	28 / 200	PowerBand™	TIH2005028-SP
7W GaN HEMT	0.02 - 6	38 / -	9.5	- / 50	28 / 50	Ceramic Flat Lead	TIG6000528-Q3
25W GaN HEMT	0.02 - 6	44 / -	11.5	- / 50	28 / 100	PowerBand™	TIG6003028-SP
MESFET	0.05 - 4	21 / 42	19	2 / -	5 / 140	SOT89	FH1
MESFET	0.05 - 4	18 / 36	19	2 / -	5 / 140	SOT89	FH101
0.5W HFET	0.05 - 4	27 / 40	19	2.7 / -	8 / 125	SOT89	FP1189
1W HFET	0.05 - 4	30 / 44	18	4.5 / -	8 / 250	SOT89	FP2189
2.5W HFET	0.05 - 4	34 / 46	18	3.5 / -	9 / 450	6x6 QFN28	FP31QF
30W LDMOS	0.5 - 2	45 / -	10	- / 45	28 / 200	PowerBand™	TIL2003028-SP
10W pHEMT	0.5 - 3	40 / -	10	- / 45	12 / 200	PowerBand™	TIP2701012-SP

NOTES: * = New

GUIDE BY PRODUCT TYPE | **Control Products**

Frequency Converters & Mixers

Description	RF Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
WB Mixer, LO	0.5 - 2.5	-5.7	8	24	3 - 6 / 6	MW6	CMY210
WB Mixer, LO, IF	0.5 - 2.5	10	8	9	3 - 6 / 12	SCT598	CMY212
WB Mixer, LO, IF, Low Current	0.5 - 2.5	9.5	10	10	3 - 6 / 8	SCT598	CMY213
WB Mixer, LO	0.5 - 2.5	4	-	9	3 - 6 / 6.2	SOT23-6	TQ5M31
Mixer, LO	0.7 - 1	-9	17	36	5 / 50	MSOP-8	ML483*
Single Branch Bonverter, RF, LO, IF	0.8 - 0.92	22	60	15	5 / 360	6x6 QFN28	CV110-1A
Dual Branch Converter, LO, IF	0.8 - 0.92	10	20	20	5 / 385	6x6 QFN28	CV210-1A
Mixer	0.8 - 0.96	-7.3	30	34	N/A	SOIC-8	MH203A
Mixer	0.8 - 0.96	-7	37	35	N/A	SOIC-8	MH205A
Single Branch Converter, RF, LO, IF	0.8 - 0.96	22	60	15	5 / 360	6x6 QFN28	CV110-3A
Dual Branch Converter, LO, IF	0.8 - 0.96	10.5	14	18.5	5 / 390	6x6 QFN28	CV210-3A
Mixer, LO	1.6 - 3.2	-8.5	2	35	5 / 40	MSOP-8	ML485
Mixer	1.7 - 2.0	-8.3	30	35	N/A	SOIC-8	MH1A
Single Branch Converter, RF, LO, IF	1.7 - 2.0	21	45	17	5 / 360	6x6 QFN28	CV111-1A
Dual Branch Converter, LO, IF	1.7 - 2.0	10	8	19.5	5 / 380	6x6 QFN28	CV211-1A
Mixer, LO	1.7 - 2.2	-8.2	9	30	5 / 105	SOIC-8	ML401
Single Branch Converter, RF, LO, IF	1.9 - 2.2	21	40	17	5 / 360	6x6 QFN28	CV111-3A
Dual Branch Converter, LO, IF	1.9 - 2.7	10	12	20	5 / 380	6x6 QFN28	CV211-2A
Mixer, LO	1.9 - 2.7	-8.1	9	30	5 / 110	SOIC-8	ML501
Mixer	1.9 - 2.7	-8.2	28	34	N/A	SOIC-8	MH103A
Doubler w/Amplifier	16 - 30	18	30	22	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	18	30	19	5 / 150	SM-O11-16	TGC4403-SM
Upconverting Mixer	17 - 26	-9	40	-	-0.9 / 0	SM-O11-16	TGC4402-SM

Frequency Converters & Mixers (cont.)

Description	RF Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Upconverting Mixer	17 - 27	-9	35	18	-0.9 / 0	Die	TGC4402
Upconverter	17 - 27	13	30	-	5 / 425	Die	TGC4405
Upconverter	17 - 27	13	30	-	5 / 425	SM-O11-16	TGC4405-SM
Gain Block & 2x / 3x Multiplier	17 - 37	9	N/A	6	5 / 140	SM-O3-16	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	9	N/A	2	5 / 140	SM-A3-16	TGA4031-SM
19 GHz VCO w/8:1 Prescaler	18.5 - 19.5	-	-105**	- / 7.0	5 / 158	Die	TGV2204-FC
Doubler (Input 10 - 20 GHz)	20 - 40	-12	25	18	-	Die	TGC1430F
Tripler (Input 8.5 - 13.5 GHz)	20 - 40	-15	15	18	-	Die	TGC1430G
19 / 38 GHz Converter / MPA	36 - 40	9.0	-	- / 14.5	3.5 / 65	Die	TGC4703-FC
Down Converting I/Q Mixer	75 - 80	-13.5	22	-	1.1 / 7	Die	TGC4702-FC
38 / 77 GHz Converter / MPA	76 - 78	6.0	-	- / 15.0	4 / 230	Die	TGC4704-FC

NOTES: * = New, ** = Phase Noise (dBc / Hz @ 1 MHz Offset), LO = LO Amplifier, IF = IF Amplifier

Signal Conditioning

Description	Frequency (GHz)	Insertion Loss (dB)	Control Range dB or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
6-Bit, Digital Attenuator, Parallel Ctrl	DC - 4	1.3	31.5	30	5 / 0	4x4 QFN24	TQP4M9071*
6-Bit, Digital Attenuator, Serial Ctrl	DC - 4	1.3	31.5	30	5 / 0	4x4 QFN24	TQP4M9072*
Analog Attenuator	DC - 30	2	17	-	0 to -2	SM-O12-16	TGL4203-SM
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203
Discrete Thru (0 dB Attenuator)	DC - 65	0	0	-	N/A	Die	TGL4201-00
Discrete Attenuators	DC - 65	-	2,3,6,10	-	N/A	SM-O12-16	TGL4201-02, 03, 06, 10
Digital Attenuator	0.5 - 18	4	15.5	20	0 / -5	Die	TGL6425-SCC
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	N/A	18	N/A	Die	TGL2201
5-Bit Phase Shifter	6 - 18	9	(348)	-	6	Die	TGP6336
Bessel Filter	-	6,7,8,9,10 & 11 Cut-Off Freq	N/A	-	N/A	Die	TGB2010-00,-09 etc.
Bessel Filter	-	5,6,6.5,7.5,8 & 9 Cut-Off Freq	N/A	-	N/A	SM-O2-6	TGB2010-00,-09-SM etc.
6-Bit Phase Shifter	8.5 - 11	5	(354)	-	0 / -5	Die	TGP2103
Lange Coupler	12 - 21	<0.25	-	-	N/A	Die	TGB2001
5-Bit Phase Shifter	18 - 20	5	(180)	-	-2.5	Die	TGP1439
Lange Coupler	18 - 32	<0.25	-	-	N/A	Die	TGB4001
Lange Coupler	27 - 45	<0.25	-	-	N/A	Die	TGB4002
5-Bit Phase Shifter	28 - 32	6	(348)	-	5	Die	TGP2100
5-Bit Phase Shifter	33 - 37	6	(348)	-	-5	Die	TGP2102
1-Bit Phase Shifter	34 - 36	4	180	-	0 / 5	Die	TGP2104

NOTES: * = New

Switches

Description	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T High Power CDMA	DC - 2	0.45	28	>36.5	2.6 / 0	MLP12	TQP4M3018
SP3T High Power CDMA	DC - 2	0.6	22	34.5	2.6 / 0	STSLP12	TQP4M3019
SP2T General Purpose	DC - 2.5	0.3	24	30	3 / 0	SOT363	CSH210R
SP2T 802.11 a, b, g	DC - 6	0.6	28	31.5	3 / 0	SLIM7	TQS5200
Diversity Switch 802.11 a, b, g	DC - 6	0.8	33	33	3 / 0	MLP12	TQS5202
SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
SPDT FET	DC - 18	2.0	39	21	-7 / 0	Die	TGS8250-SCC

Switches (cont.)

Description	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	PI dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP4T FET	DC - 18	2.5	37	19	0 / -5	Die	TGS8422-SCC
SP3T VPIN	1 - 20	0.5	35	23	10 mA	Die	TGS2303
SP4T VPIN	1 - 20	0.6	38	23	10 mA	Die	TGS2304-SCC
SP3T VPIN	4 - 18	1.0	35	20	+/- 2.7	Die	TGS2313
SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1.0	36	>33	+/- 5 / 18	Die	TGS4304
SP3T	60 - 90	2.3	20	>-13	-5 / 1.35	Die	TGS4305-FC
SP4T	70 - 90	3.0	20	>-8	-5 / 1.35	Die	TGS4306-FC
SP5T VPIN 77 GHz	71 - 90	2.5	25 / 40	>-8	-5 / 1.35	Die	TGS4307

Protectors

Description	Application	Leakage Current (nanoAmps)	Trigger Voltage (V)	Series Capacitance (pF)	Package Area (mm ²)	Package Style	Part Number
CATV Protector	ESD & Secondary Protection	20 @ 1V, 500 @ 15V	18, 25, 41	0.29, 0.29, 0.22	1.8	T / SLP-3	TQP200002

GUIDE BY PRODUCT TYPE I Filters

SAW

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Cable IF Filter	36.15	8	19.7	SE / SE	38 @ 10.23	DIP	855748
Cable IF Filter	44	6	20.4	SE / SE	38 @ 7.60	DIP	855079
Cable IF Filter	44	6	20.8	SE / SE	38 @ 7.40	24.6x9.0	856129
CDMA IF Filter	69.99	1.26	17.1	SE / SE	25 @ 1.68	24.6x9.0	856199
BWA / WiMAX IF Filter	70	8	12.95	SE / SE	35 @ 3.20	13.3x6.5	855677
Low Loss IF Filter	70	0.5	7.6	SE / SE	35 @ 1.28	19.0x6.5	854651
Low Loss IF Filter	70	1	7.3	SE / SE	40 @ 2.80	19.0x6.5	854652
Low Loss IF Filter	70	1.5	7.5	SE / SE	40 @ 3.20	19.0x6.5	854653
Low Loss IF Filter	70	2	7.85	SE / SE	40 @ 4.25	19.0x6.5	854654
Low Loss IF Filter	70	2.5	8.75	SE / SE	40 @ 4.60	19.0x6.5	854655
Low Loss IF Filter	70	3	6.95	SE / SE	35 @ 6.90	13.3x6.5	854656
Low Loss IF Filter	70	3.5	7.25	SE / SE	35 @ 7.20	13.3x6.5	854657
Low Loss IF Filter	70	4	6.8	SE / SE	40 @ 8.25	13.3x6.5	854658
Low Loss IF Filter	70	4.5	6.8	SE / SE	35 @ 8.50	13.3x6.5	854659
Low Loss IF Filter	70	5	7.25	SE / SE	40 @ 9.35	13.3x6.5	854660
Low Loss IF Filter	70	6	7.5	SE / SE	40 @ 10.20	13.3x6.5	854661
Low Loss IF Filter	70	7	8.5	SE / SE	40 @ 11.55	13.3x6.5	854662
Low Loss IF Filter	70	8	9	SE / SE	40 @ 13.25	13.3x6.5	854663
Low Loss IF Filter	70	9	9.75	SE / SE	40 @ 13.90	13.3x6.5	854664
Low Loss IF Filter	70	10	10	SE / SE	40 @ 15.00	13.3x6.5	854665
Low Loss IF Filter	70	12	11.5	SE / SE	40 @ 17.35	13.3x6.5	854666
Low Loss IF Filter	70	14	12.5	SE / SE	40 @ 19.50	13.3x6.5	854667
Low Loss IF Filter	70	16	12.5	SE / SE	40 @ 21.40	13.3x6.5	854668
Low Loss IF Filter	70	18	13.5	SE / SE	40 @ 23.40	13.3x6.5	854669
Low Loss IF Filter	70	20	14.5	SE / SE	40 @ 25.40	13.3x6.5	854670
Low Loss IF Filter	70	22	15	SE / SE	40 @ 27.25	13.3x6.5	854671
Low Loss IF Filter	70	24	16.25	SE / SE	40 @ 29.65	13.3x6.5	854672

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Low Loss IF Filter	70	26	17	SE / SE	40 @ 32.00	13.3x6.5	854673
Low Loss IF Filter	70	28	17.6	SE / SE	40 @ 33.75	13.3x6.5	854674
Low Loss IF Filter	70	30	17.5	SE / SE	40 @ 37.00	13.3x6.5	854675
Low Loss IF Filter	70	36	20.2	SE / SE	40 @ 43.30	13.3x6.5	854678
Low Loss IF Filter	70	40	21.5	SE / SE	40 @ 47.25	13.3x6.5	854680
High Selectivity IF Filter	70	0.3	16.36	SE / SE	40 @ 0.90	24.6x9.0	855735
High Selectivity IF Filter	70	0.5	21.3	SE / SE	40 @ 1.63	24.6x9.0	855736
High Selectivity IF Filter	70	1	22.2	SE / SE	40 @ 2.11	24.6x9.0	855737
High Selectivity IF Filter	70	1.5	21.6	SE / SE	40 @ 2.52	24.6x9.0	855738
High Selectivity IF Filter	70	2	23	SE / SE	40 @ 3.40	24.6x9.0	855739
High Selectivity IF Filter	70	2.5	20.25	SE / SE	40 @ 4.30	24.6x9.0	855740
High Selectivity IF Filter	70	3	23	SE / SE	40 @ 4.46	24.6x9.0	855741
High Selectivity IF Filter	70	3.5	19	SE / SE	40 @ 6.00	15.3x6.5	855742
High Selectivity IF Filter	70	4	23	SE / SE	40 @ 6.00	19.0x6.5	855743
High Selectivity IF Filter	70	4.5	23.7	SE / SE	40 @ 6.64	19.0x6.5	855744
High Selectivity IF Filter	70	5.5	22.2	SE / SE	40 @ 7.84	19.0x6.5	855745
CDMA IF Filter	73.59	1.2	11.9	SE / SE	45 @ 79.58	19.0x6.5	856111
BWA / WiMAX IF Filter	80	8	11.7	SE / SE	35 @ 14.25	13.3x6.5	855679
GSM IF Filter	86.6	0.4	5.3	SE / BAL	28 @ 1.58	19.0x6.5	854823
GSM IF Filter	87	0.4	4.4	BAL / BAL	28 @ 1.59	19.0x6.5	855500
CDMA IF Filter	118.58	3.69	17.4	SE / SE	43 @ 123.48	13.3x6.5	855958
GSM IF Filter	125	0.4	5.9	SE / SE	20 @ 2.40	9.1x4.8	856444
Low Loss IF Filter	140	4	10.85	SE / SE	40 @ 9.10	13.3x6.5	854909
Low Loss IF Filter	140	7	5.5	SE / SE	40 @ 11.10	13.3x6.5	854913
Low Loss IF Filter	140	10	8.3	SE / SE	35 @ 15.00	13.3x6.5	854916
Low Loss IF Filter	140	10	11	SE / SE	35 @ 15.00	13.3x6.5	856656
Low Loss IF Filter	140	12	8.87	SE / SE	35 @ 21.30	13.3x6.5	854917
Low Loss IF Filter	140	15	11	SE / SE	35 @ 22.00	13.3x6.5	856684
Low Loss IF Filter	140	16	8.4	SE / SE	35 @ 22.00	13.3x6.5	854919
Low Loss IF Filter	140	18	9.1	SE / SE	40 @ 48.00	13.3x6.5	854920
Low Loss IF Filter	140	20	11	SE / SE	35 @ 24.00	13.3x6.5	856592
Low Loss IF Filter	140	24	11.3	SE / SE	35 @ 33.50	13.3x6.5	854923
Low Loss IF Filter	140	32	11.5	SE / SE	35 @ 44.00	13.3x6.5	854927
High Selectivity IF Filter	140	0.8	20.8	SE / SE	40 @ 1.93	19.0x6.5	856062
High Selectivity IF Filter	140	1.5	21.9	SE / SE	40 @ 2.71	19.0x6.5	856063
High Selectivity IF Filter	140	2	21.5	SE / SE	40 @ 3.45	19.0x6.5	856064
High Selectivity IF Filter	140	3	22.4	SE / SE	40 @ 4.86	19.0x6.5	856065
High Selectivity IF Filter	140	6	23	SE / SE	40 @ 8.34	13.3x6.5	856066
High Selectivity IF Filter	140	7	24.5	SE / SE	40 @ 9.15	13.3x6.5	856067
High Selectivity IF Filter	140	8	23.4	SE / SE	40 @ 11.28	13.3x6.5	856068
High Selectivity IF Filter	140	10	20.87	SE / SE	40 @ 13.17	13.3x6.5	856069
High Selectivity IF Filter	140	14	23.3	SE / SE	40 @ 18.26	13.3x6.5	856070
High Selectivity IF Filter	140	16	21.7	SE / SE	40 @ 20.69	13.3x6.5	856071
High Selectivity IF Filter	140	28	20	SE / SE	40 @ 37.00	9.0x7.0	856019
High Selectivity IF Filter	140	28.56	27.7	SE / SE	40 @ 44.00	13.3x6.5	856817
High Selectivity IF Filter	140	32	21.7	SE / SE	40 @ 40.70	9.0x7.0	856072
High Selectivity IF Filter	140	44	21.75	SE / SE	40 @ 54.10	9.0x7.0	856073
High Selectivity IF Filter	140	56	18.65	SE / SE	40 @ 75.60	9.0x7.0	856074
High Selectivity IF Filter	140	64	17.8	SE / SE	40 @ 84.00	9.0x7.0	856020
High Selectivity IF Filter	140	72	21	SE / SE	40 @ 102.00	9.0x7.0	856314
High Selectivity IF Filter	140	1.5	12.1	SE and BAL	48 @ 143.00	9.1x4.8	856691

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
High Selectivity IF Filter	140	3	13.6	SE and BAL	46 @ 144.00	9.1x4.8	856692
High Selectivity IF Filter	140	6	11	BAL / BAL	39 @ 147.00	9.1x4.8	856693
High Selectivity IF Filter	140	7	13.6	SE and BAL	43 @ 147.00	9.1x4.8	856694
High Selectivity IF Filter	140	10	10	BAL / BAL	41 @ 152.50	9.1x4.8	856695
High Selectivity IF Filter	140	14	8.5	SE and BAL	43 @ 155.00	9.1x4.8	856696
High Selectivity IF Filter	140	20	9.8	BAL / BAL	40 @ 158.50	9.1x4.8	856697
High Selectivity IF Filter	140	28	18	SE and BAL	42 @ 168.00	9.1x4.8	856698
CDMA IF Filter	141	1.18	11.7	SE / SE	42.5 @ 2.50	19.0x6.5	855395
High Selectivity IF Filter	144	75	21.2	SE / SE	40 @ 91.81	9.0x7.0	856727*
CDMA IF Filter	150	1.18	18.6	SE / BAL	30 @ 4.50	19.0x6.5	854833-1
CDMA IF Filter	150	8	12.1	SE / SE	35 @ 14.25	13.3x6.5	855678
CDMA IF Filter	153.6	3.75	12.04	SE / SE	45 @ 9.80	13.3x6.5	856048
TDSCDMA / WCDMA IF Filter	153.6	15	10	SE / SE	40 @ 25.00	13.3x6.5	856748
CDMA IF Filter	160	1.18	19.5	SE / BAL	30 @ 4.50	19.0x6.5	855049
GSM IF Filter	160	0.2	3.3	BAL / BAL	30 @ 12.00	7.0x5.5	855626
WCDMA IF Filter	167	5	8	SE / SE	20 @ 11.80	9.1x4.8	856683
CDMA IF Filter	167.1	1.18	10.9	SE / SE	15 @ 2.00	19.0x6.5	855394
CDMA IF Filter	167.1	11	13.1	SE / SE	40 @ 16.00	13.3x6.5	855753
WCDMA IF Filter	168.5	20	8	SE / BAL	33 @ 190.00	5.0x5.0	856512
WCDMA IF Filter	168.96	3.84	11.5	SE / SE	30 @ 16.00	9.1x4.8	856320
GSM IF Filter	170.6	0.18	5	BAL / BAL	40 @ 1.60	9.1x4.8	856706
WCDMA IF Filter	172.8	8.84	12.5	SE / BAL	32 @ 16.00	7.0x5.5	856620
WCDMA IF Filter	172.8	20	8	SE / BAL	30 @ 194.30	5.0x5.0	856802
WCDMA IF Filter	172.8	21	8.2	BAL / BAL	50 @ 200.00	7.0x5.5	856893*
WCDMA IF Filter	190	5.5	9.8	SE / BAL	30 @ 7.60	13.3x6.5	855529
WCDMA IF Filter	190	5	8	SE / SE	25 @ 9.00	5.0x5.0	855770
GSM IF Filter	190	0.2	4.2	BAL / BAL	30 @ 12.00	7.0x5.5	855625
GSM IF Filter	199	0.2	5.4	SE / SE	20 @ 1.20	9.0x7.0	856730
GSM IF Filter	199	0.2	6	SE / SE	45 @ 1.60	19.0x6.5	855131
GSM IF Filter	199	0.5	6.8	SE / SE	30 @ 47.00	13.3x6.5	855780
GSM IF Filter	201	0.22	6.1	BAL / BAL	27 @ 0.80	13.3x6.5	856541
Cable IF Filter	202.75	1.2	6.6	SE / SE	40 @ 10.00	13.3x6.5	855068
GSM IF Filter	208	0.4	5.9	SE / SE	20 @ 2.40	9.1x4.8	856445
WCDMA IF Filter	208	3.84	11.5	BAL / BAL	17 @ 5.03	9.1x4.8	856496
GSM IF Filter	211	0.2	5.2	SE / SE	25 @ 0.80	13.3x6.5	856378
WCDMA IF Filter	219	20	9.6	BAL / BAL	35 @ 36.00	9.0x7.0	856795
WCDMA IF Filter	230	4	16.2	SE / SE	40 @ 10.00	13.3x6.5	855832
CDMA IF Filter	240	3.6	14.3	SE / SE	12 @ 5.00	13.3x6.5	855992
CDMA IF Filter	240	1.1	13	SE / SE	10 @ 1.80	19.0x6.5	856151
BWA / WiMAX IF Filter	240	2	9.8	SE / BAL	45 @ 10.50	7.0x5.5	855091
BWA / WiMAX IF Filter	240	10	11	SE / BAL	40 @ 35.00	7.0x5.5	855092
CDMA IF Filter	249.6	3.84	16.11	SE / SE	40 @ 11.00	7.0x5.5	855915
BWA / WiMAX IF Filter	280	34	8.2	BAL / BAL	45 @ 15.00	7.0x5.5	855393
BWA / WiMAX IF Filter	280	17	8.95	SE / BAL	38 @ 60.00	5.0x5.0	855975
GPS IF Filter	298.75	2.4	8.35	BAL / BAL	50 @ 20.00	7.0x5.5	856305
BWA / WiMAX IF Filter	325	10	9.6	BAL / BAL	40 @ 35.00	7.0x5.5	855094
CDMA IF Filter	326.4	15	12.61	SE / SE	40 @ 25.00	7.0x5.5	855914
BWA / WiMAX IF Filter	330	5.45	18.26	SE / SE	50 @ 13.60	15.3x6.5	855730
BWA / WiMAX IF Filter	350	2.4	13.1	SE / BAL	35 @ 12.00	7.0x5.5	855398
BWA / WiMAX IF Filter	350	1.7	13.7	SE / BAL	45 @ 6.00	13.3x6.5	855399

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
BWA / WiMAX IF Filter	350	1	8.2	SE / BAL	45 @ 15.00	7.0x5.5	855377
WCDMA IF Filter	358.4	19.2	10.1	BAL / BAL	40 @ 61.40	7.0x5.5	856771
WLAN IF Filter	374	17	8.5	SE / BAL	10 @ 33.00	7.0x5.5	855653
WLAN IF Filter	374	17	8.5	SE / BAL	35 @ 33.00	5.0x5.0	855898
WLAN IF Filter	374	17	9	SE / BAL	30 @ 33.00	3.8x3.8	856278
BWA / WiMAX IF Filter	374	10	9	BAL / BAL	10 @ 25.00	3.8x3.8	856466
Low Loss IF Filter	374	17	9	SE / BAL	36 @ 357.00	3.8x3.8	856438
WCDMA IF Filter	380	5.4	15.4	SE / BAL	30 @ 8.30	13.3x6.5	855530
BWA / WiMAX IF Filter	380	13.75	9.4	SE / SE	40 @ 367.00	7.0x5.5	856272
General Purpose IF Filter	380	3.75	10	SE / SE	35 @ 8.00	7.0x5.5	856279
BWA / WiMAX IF Filter	380	3.75	11	BAL / BAL	30 @ 8.30	7.0x5.5	856464
BWA/WiMAX IF Filter	380	7	10	BAL / BAL	40 @ 20.00	7.0x5.5	856490
BWA / WiMAX IF Filter	380	10	8.7	BAL / BAL	40 @ 36.00	7.0x5.5	856631
WCDMA IF Filter	398	4.3	9.9	SE / SE	50 @ 36.00	9.1x4.8	855561
WCDMA / WiMAX IF Filter	398	15	7.5	SE / SE	30 @ 60.00	9.1x4.8	855559
WCDMA IF Filter	398	35	12	SE / SE	50 @ 368.00	9.1x4.8	856097
BWA / WiMAX IF Filter	398	10	11.2	BAL / BAL	35 @ 388.50	5.0x5.0	856652
BWA / WiMAX IF Filter	426	5.16	18.02	SE / SE	50 @ 14.00	13.3x6.5	855731
Duplexer, 450 Block C	452.4 / 462.4	4.8 / 4.8	2.7 / 3.0	SE / BAL	-	5.0x5.0	856820
Uplink Filter, 450 Block C	452.4	4.8	1.5	SE / SE	30 @ 460.00	3.8x3.8	856867
Duplexer, 450 Block A	455 / 465	5 / 5	2.6 / 3.0	SE / BAL	-	5.0x5.0	856799
Uplink Filter, 450 Block A	455	5	1.5	SE / SE	30 @ 462.5	3.8x3.8	856847
BWA / WiMAX IF Filter	456	7	12	BAL / BAL	33 @ 449.30	7.0x5.5	856498
WiBRO IF Filter	456	8.75	7.9	BAL / BAL	36 @ 443.25	5.0x5.0	856549
BWA / WiMAX IF Filter	456	10	8.3	BAL / BAL	37 @ 440.00	7.0x5.5	856672
BWA / WiMAX IF Filter	456	10	8.3	BAL / BAL	37 @ 440.00	5.0x5.0	856638
WCDMA IF Filter	456	19	10	BAL / BAL	40 @ 61.40	7.0x5.5	856687
General Purpose IF Filter	460	3.75	11.1	SE / SE	35 @ 8.00	7.0x5.5	856282
BWA / WiMAX IF Filter	464	3.5	10.6	BAL / BAL	53 @ 417.00	7.0x5.5	856623
WLAN IF Filter	465	17	11.9	SE / BAL	40 @ 50.00	5.0x5.0	855991
FRS RF or GPS IF Filter	465	6	1.43	SE / SE	40 @ 445.00	3.0x3.0	856288
BWA / WiMAX IF Filter	467	7	3	SE / SE	65 @ 438.00	3.8x3.8	856660
BWA / WiMAX IF Filter	468	7	13	SE / SE	70 @ 305.00	7.0x5.5	856624
BWA / WiMAX IF Filter	479.75	9	19.5	SE / SE	35 @ 22.00	7.0x5.5	855271
BWA / WiMAX IF Filter	479.75	23	9.8	BAL / BAL	35 @ 36.00	7.0x5.5	855272
Cable IF Filter	499.25	1	7	SE / SE	35 @ 6.00	9.0x7.0	855104
BWA / WiMAX IF Filter	580	10	10.7	BAL / BAL	40 @ 36.00	5.0x5.0	856665
RF Filter, 700 MHz Band	707	18	1.5	SE / SE	9 @ 728.00	3.0x3.0	856884*
Duplexer, Band 17	710 / 740	12 / 12	1.2 / 1.8	SE / BAL	-	2.5x2.0	856931
Uplink Filter, Band 17	710	12	1.8	SE / SE	40 @ 734.00	1.4x1.2	856911
RF Filter, 700 MHz Band	737	18	1.8	SE / SE	37 @ 708.00	3.0x3.0	856883*
Duplexer, Band 13	751 / 782	9 / 9	2.3 / 1.8	SE / BAL	-	2.5x2.0	856879
Uplink Filter, Band 13	782	9	1.9	SE / SE	20 @ 768.00	1.4x1.2	856894
WLAN IF Filter	770	17	3	BAL / BAL	32.5 @ 750.00	5.0x5.0	855942
RF Filter, 700 MHz Band	781.5	11	1.5	SE / SE	38 @ 757.00	3.0x3.0	856764
RF Filter, 700 MHz Band	782	10	1.52	SE / SE	15 @ 765.00	3.0x3.0	856844*
BWA / WiMAX IF Filter	810	10	3.5	SE / SE	10 @ 31.00	3.0x3.0	856526
RF Filter, Cell Band	836.5	25	2.7	SE / SE	28 @ 869.00	3.0x3.0	855729
RF Filter, Cell Band	836.5	25	2.0	SE / SE	10 @ 869.00	3.0x3.0	856704
RF Filter, Cell Band	836.5	25	1.8	SE / SE	30 @ 869.00	3.0x3.0	855779
RF Filter, Cell Band	836.5	25	1.9	SE / SE	35 @ 869.00	3.0x3.0	855821

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Duplexer, Cell Band	836.5 / 881.5	25 / 25	1.9 / 1.9	SE / SE	–	3.8x3.8	856356
Duplexer, Cell Band	836.5 / 881.5	25 / 25	1.9 / 2.4	SE / SE	–	3.8x3.8	856450
GSM850 Rx Filter - Auto Qualified	881.5	25	1.6	SE / BAL	40 @ 836.50	1.4x1.2	856522
RF Filter, Cell Band	881.5	25	2.7	SE / SE	40 @ 849.00	3.0x3.0	855728
RF Filter, Cell Band	881.5	25	1.8	SE / SE	35 @ 849.00	3.0x3.0	855782
Single Rx Filter	881.5	25	1.6	SE / BAL	–	1.4x1.2	856522
CDMA 2-in-1 Rx Filter	881.5 / 1960	25 / 60	1.6 / 2.2	SE / BAL	–	2.0x1.5	856565
Cell Band Delay Filter, 450 ns	881.5	25	25	SE / BAL	N/A	7.0x5.5	856716
RF Filter, EGSM	897.5	35	1.4	SE / SE	10 @ 984.00	3.0x3.0	856824*
RF Filter, EGSM	897.5	35	1.5	SE / SE	15 @ 930.00	3.0x3.0	856657
RF Filter, EGSM	897.5	35	1.9	SE / SE	14 @ 930.00	3.0x3.0	856671
ISM 915 Band RF Filter	915	26	2.3	SE / SE	35 @ 882.50	2.0x1.5	856327
ISM 915 Band RF Filter	915	4.4	2.4	SE / SE	55 @ 849.00	3.0x3.0	856686
RF Filter, EGSM	942.5	35	2	SE / SE	5 @ 915.00	3.0x3.0	855820
RF Filter, EGSM	942.5	35	3.2	SE / SE	12 @ 915.00	3.0x3.0	855810
RF Filter, EGSM	942.5	35	2.5	SE / SE	25 @ 915.00	3.0x3.0	856528
GSM Band Delay Filter, 450 ns	942.5	35	25.5	SE / SE	N/A	7.0x5.5	856766
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046.00	3.0x3.0	855964
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046.00	3.0x3.0	856330
Tuner IF Filter	1090	10	5	BAL / BAL	50 @ 1050.00	3.8x3.8	856096
WLAN IF Filter	1150	16	4.4	BAL / BAL	20 @ 1170.00	3.0x3.0	856256
GPS L5 RF Filter	1176	20	2.4	SE / SE	20 @ 1226.00	2.0x1.5	856440
Tuner IF Filter	1216	8	3.75	BAL / BAL	12 @ 24.00	3.0x3.0	856365
Tuner IF Filter	1220	10	4.5	BAL / BAL	30 @ 60.00	3.0x3.0	856298
Tuner IF Filter	1220	50	3.9	BAL / BAL	33 @ 96.00	3.8x3.8	856598
GPS L2 RF Filter	1227.6	20	1.1	SE / SE	27 @ 1152.00	2.0x1.5	856700
Tuner IF Filter	1250	96	6	BAL / BAL	44 @ 1152.00	3.0x3.0	856653
GPS RF Filter	1575.42	2	1.3	SE / SE	30 @ 1625.00	3.0x3.0	855969
GPS RF Filter	1575.42	2	1.25	SE / SE	30 @ 1624.00	2.0x1.5	856584
GPS RF Filter	1575.42	2	1.1	SE / SE	20 @ 1628.00	2.5x2.0	856042
GPS RF Filter	1575.42	2	2.5	SE / SE	30 @ 1625.00	2.5x2.0	856049
GPS RF Filter	1575.42	2	0.75	SE / SE	35 @ 1635.00	1.4x1.2	856561
GPS RF Filter	1575.42	2	1.1	SE / BAL	20 @ 1635.00	1.4x1.2	856576
GPS RF Filter	1575.42	2	0.53	SE / SE	16.5 @ 1700.00	2.0x1.5	856326
GPS RF Filter	1575.42	2	1	SE / SE	27 @ 800.00	1.5x1.5	856463
GPS RF Filter	1575.42	2	0.5	SE / SE	20 @ Cell Bands	1.4x1.2	856756
GPS RF Filter	1575.42	2	0.7	SE / SE	27 @ 1700.00	1.5x1.5	856398
GPS RF Filter	1575.42	2	0.6	SE / SE	21 @ Cell Bands	1.4x1.2	856793
GPS RF Filter, Auto	1575.42	2	1.8	SE / SE	45 @ 1637.00	3.0x3.0	856039
GPS RF Filter, Auto	1575.42	2	1.3	SE / SE	45 @ 1640.00	3.0x3.0	856139
RF Filter, DCS	1747.5	75	2	SE / SE	22 @ 1676.00	3.0x3.0	856654
RF Filter, DCS	1747.5	75	2.6	SE / SE	10 @ 1681.00	3.0x3.0	856846*
RF Filter, DCS	1842.5	75	1.9	SE / SE	10 @ 1785.00	3.0x3.0	855860
RF Filter, PCS (Split Band)	1880	30	2.0	SE / SE	35 @ 1930.00	3.0x3.0	855833
RF Filter, PCS	1880	60	2.2	SE / SE	15 @ 1806.00	3.0x3.0	856705
RF Filter, PCS	1880	60	2.3	SE / SE	10 @ 1790.00	3.0x3.0	856880*
RF Filter, PCS	1880	60	2.4	SE / SE	7 @ 1930.00	3.0x3.0	855849
RF Filter, PCS	1880	60	2.8	SE / SE	30 @ 1930.00	3.0x3.0	856530

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Tuner IF Filter	1892	8	4.2	BAL / BAL	23 @ 1932.00	2.5x2.0	856236
RF Filter, UMTS	1950	60	1.8	SE / SE	20 @ 2100.00	3.0x3.0	856678
RF Filter, UMTS	1950	60	2.2	SE / SE	40 @ 2110.00	3.0x3.0	856532
GSM1900 Rx Filter - Auto Qualified	1960	60	1.5	SE / BAL	17 @ 1880.00	1.4x1.2	856577
RF Filter, PCS	1960	60	2.1	SE / SE	10.3 @ 1910.00	3.0x3.0	855817
RF Filter, PCS	1960	60	2.3	SE / SE	8 @ 1910.00	3.0x3.0	855850
RF Filter, PCS	1960	60	2.9	SE / SE	15 @ 1910.00	3.0x3.0	855859
RF Filter, PCS	1960	60	2.25	SE / SE	14 @ 1910.00	3.0x3.0	856531
Delay Filter, PCS 450 ns	1960	60	25	SE / BAL	N/A	7.0x5.5	856717
Delay Filter, UMTS 450 ns	2140	60	25	SE / BAL	N/A	7.0x5.5	856649
RF Filter, UMTS	2140	60	2.3	SE / SE	25 @ 1980.00	3.0x3.0	856738
Bluetooth® RF Filter	2441	83.5	2.8	SE / SE	26 @ 2200.00	3.0x3.0	855916
Bluetooth® RF Filter	2441	83.5	2.5	SE / SE	20 @ 2300.00	1.5x1.5	856486
Bluetooth® RF Filter	2441	83.5	2.7	SE / BAL	35 @ 2250.00	1.5x1.5	856435
Bluetooth® RF Filter	2441	83.5	2	SE / SE	28 @ 2300.00	1.4x1.2	856539
Bluetooth® RF Filter	2441	83.5	2.7	SE / BAL	39 @ 2250.00	1.4x1.2	856548
Bluetooth® & GPS Filter	2441 / 1575.42	83.5 / 2	2 / 1.2	SE / SE	-	2.0x1.5	856646

Notes: * = New

BAW

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF Filter	710	20	2	SE / SE	50 @ 140.00	3.81x2.54	880370
RF Filter, ISM	915	15	3.5	SE / SE	40 @ 35.00	6.35x4.57	880371
RF Filter	1030	15	2.5	SE / SE	40 @ 45.00	3.81x2.54	880367
RF Filter	1090	15	2.5	SE / SE	40 @ 45.00	3.81x2.54	880374
GPS RF Filter, L5	1176	28	2.75	SE / SE	40 @ 140.00	3.26x1.60	880364
GPS RF Filter, L2	1227	30	2.75	SE / SE	40 @ 140.00	3.26x1.60	880272
GPS RF Filter, L2	1227	15	1.5	SE / SE	40 @ 250.00	3.26x1.60	880366
GPS RF Filter, L2	1227	15	3	SE / SE	40 @ 45.00	3.81x2.54	880372
RF Filter	1280	20	3	SE / SE	40 @ 105.00	3.81x2.54	880368
GPS RF Filter, L3 / L4	1380	30	3	SE / SE	40 @ 160.00	3.26x1.60	880365
GPS RF Filter, L1	1575	30	3	SE / SE	40 @ 160.00	3.26x1.60	880273
GPS RF Filter, L1	1575	18	1.5	SE / SE	40 @ 350.00	3.26x1.60	880085
GPS RF Filter, L1	1575	25	3	SE / SE	40 @ 60.00	3.81x2.54	880373
RF Filter	2324	38	3	SE / SE	40 @ 150.00	3.81x2.54	880148
WCS Passband RF Filter	2332.5	55	3	SE / SE	10 @ 2300.00 & 2370.00	1.70x1.30	885002
SDARS	2332.5	45	1.7	SE / BAL	35 @ 2100.00	1.4x1.2	856604
SDARS Notch RF Filter	2332.5	55	1.5 (Out of Band IL)	SE / SE	17 @ 2332.50 (Notch Rej)	1.70x1.30	885003
ISM Passband Filter	2436	72	2	SE / SE	20 @ 2495.00	1.70x1.30	885007
ISM Notch RF Filter	2440	72	1.5 (Out of Band IL)	SE / SE	25 @ 2440.00	1.70x1.30	885008
ISM Notch RF Filter	2440	85	2 (Out of Band IL)	SE / SE	18 @ 2440 (Notch Rej)	1.70x1.30	885010
RF Filter, MMDS	2560	30	3	SE / SE	40 @ 150.00	3.81x2.54	880157
RF Filter, ISM	5775	100	4.5	SE / SE	20 @ 350.00	3.26x1.60	880369

Automotive

Description	Frequency Bands	Package Size (mm)	Part Number
QB GSM / GPRS Tx Module; PA / LPF / SP6T Switch	GSM850 / 900, DCS / PCS	6.0x6.0x1.1	TQM6M4003*
QB GSM / GPRS / EDGE-Polar PA Module	GSM850 / 900, DCS / PCS	5.0x5.0x1.0	TQM7M5012*

NOTES: * = New

GPS

Description	Frequency Bands	Features	Package Size	Part Number
GPS LNA MMIC	1575 MHz, GPS L1	Ultra Compact Package, Shut-off Function	1.3x2.0x0.4	TQP340003
GPS Filter-LNA-Filter Module	1575 MHz, GPS L1	Low Noise (1.56 dB) and High Gain (16 dB)	3.0x3.0x1.0	TQM640002

GSM / GPRS / EDGE

Description	Frequency Bands	Features	Package Size (mm)	Part Number
QB GSM / GPRS PA Module	GSM850 / 900, DCS / PCS	Low Band Ibatt < 1.5A @ Pcal w/PAE 55%	5.0x5.0x1.1	TQM7M4007
QB GSM / GPRS / EDGE-Linear HADRON II PA Module™	GSM850 / 900, DCS / PCS	Low Band Ibatt < 1.5A @ Pcal w/PAE 55%	5.0x5.0x1.0	TQM7M5005H
DB GSM / GPRS QUANTUM Tx Module™; PA / LPF / SP4T, Quad-Band Tx & Dual-Band Rx	GSM900 / DCS or GSM850 / PCS	High Efficiency Broadband Tx, 2 Rx Ports	6.0x6.0x1.1	TQM6M4048
QB GSM / GPRS QUANTUM Tx Module™; PA / LPF / SP6T	GSM850 / 900, DCS / PCS	High Efficiency & Smaller Application Size	6.0x6.0x1.1	TQM6M4049
QB GSM / GPRS / EDGE-Linear TRP QUANTUM Tx Module™; PA / LPF / SP6T	GSM850 / 900, DCS / PCS	High GMSK Efficiency & Best TRP	6.0x8.0x1.0	TQM6M5014

3G - CDMA / EV-DO, 4G - LTE

Description	Bands	Features	Package Size (mm)	Part Number
CDMA TRITUM II PA-Duplexer Module™; BAL Input w/Coupler	Cellular	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM613027
CDMA TRITUM II PA-Duplexer Module™; SE Input w/Coupler	Cellular	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM613029
CDMA TRITUM II PA-Duplexer Module™; SE Input w/Coupler	Cellular	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM613030
CDMA TRITUM II PA-Duplexer Module™; SE Input w/Coupler	PCS	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM663029A
CDMA TRITUM II PA-Duplexer Module™; SE Input w/Coupler	AWS	2-Bit (Hi / Med / Lo Power Modes)	7.0x4.0x1.1	TQM653029
CDMA SP3T Switch	Cellular / PCS / AWS	Antenna Routing	3.0x3.0x0.9	TQP4M3018
CDMA SP3T Switch	Cellular / PCS / AWS	Antenna Routing	2.0x2.0x0.57	TQP4M3019
LTE TRITON PA Module™, w/Coupler	Band 13	LTE, 2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM700013
CDMA TRITON PA Module™, w/Coupler	PCS	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM766012
CDMA TRITON PA Module™, w/Coupler	AWS	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM756014
CDMA TRITON PA Module™, w/Coupler	Cellular	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM716015
CDMA TRITON PA Module™, w/Coupler	PCS	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM766062
CDMA TRITON PA Module™, w/Coupler	Cellular	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM716065

3G - WCDMA / WGPRES / WEDGE, 4G - LTE

Description	Bands	Features	Package Size (mm)	Part Number
QB GSM / GPRS / EDGE-Polar HADRON PA Module™	GSM850 / 900, DCS / PCS	-87 dBm Typ Rx Noise, +3 to +8 dBm Pin Nom	7.0x7.0x1.1	TQM7M5008
QB GSM / GPRS / EDGE-Polar HADRON II PA Module™	GSM850 / 900, DCS / PCS	-90 dBm Typ Rx Noise, +3 to +8 dBm Pin Nom	5.0x5.0x1.0	TQM7M5012H
QB GSM / GPRS / EDGE-Linear HADRON II PA Module™	GSM850 / 900, DCS / PCS	Input Power Controlled for GMSK & 8PSK	5.0x5.0x1.0	TQM7M5013
QB GSM / GPRS / EDGE-Polar HADRON II PA Module™	GSM850 / 900, DCS / PCS	+3 to +8 dBm Pin Nominal, Current Limiter	5.0x5.0x1.0	TQM7M5022

3G - WCDMA / WGP RS / WEDGE, 4G - LTE (cont.)

Description	Bands	Features	Package Size (mm)	Part Number
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 1	2-Bit (Hi / Med / Lo Power Modes)	4.0x4.0x0.9	TQM776003
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 1	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM776011
WCDMA / HSUPA TRITON PA Module™, w/Coupler	PCS / Band 2	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM766012
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 4	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM756014
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 5	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM716015
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 8	2-Bit (Hi / Med / Lo Power Modes)	3.0x3.0x0.9	TQM726018
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 1	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM776061
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 2	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM766062
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 5	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM716065
WCDMA / HSUPA TRITON PA Module™, w/Coupler	Band 8	1-Bit (Hi / Lo Power Modes)	3.0x3.0x0.9	TQM726068
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Band 1	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM676021
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Band 2	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM666022
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Band 4	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM656024*
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Bands 5 and 6	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM616025
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Bands 5 and 6	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM616020**
WCDMA / HSUPA TRITIUM III PA-Duplexer Module™ ; SE Input w/Coupler, Detector	Band 8	1-Bit (Hi / Lo Power Modes)	7.0x4.0x1.1	TQM626028L
QB GSM / GPRS / EDGE-Linear TRP QUANTUM II Tx Module™ : PA / LPF / SP8T WEDGE Switch w/Quad-Band WCDMA Antenna Pass-Through	GSM850 / 900, DCS / PCS & WCDMA B1, B2, B5 / 6, B8	Integrated QB GSM / GPRS / EDGE PA & Antenna Switch Supporting WCDMA	7.0x7.5x1.1	TQM6M9014

NOTES: * = **New**, ** For a specific HSDPA transceiver variant, contact Customer Service.

WLAN & Bluetooth® for Handsets

Description	Bands	Features	Package Size (mm)	Part Number
5 GHz WLAN PA MMIC	802.11 a	ETSLP-16 Package	3.0x3.0x0.45	TQP787011*
2.4 GHz WLAN LNA + SP3T Switch MMIC w/WLAN Tx & Bluetooth® Paths	802.11 b, g	LNA Bypass, ETSLP-12 Package	1.5x1.5x0.55	TQP879007
2.4 GHz WLAN PA + Switch MMIC w/WLAN Rx Balun & Bluetooth® Path	802.11 b, g, n	ETSLP-16 Package, Coupler / Detector	3.0x3.0x0.45	TQM679002A
2.4 GHz and 5 GHz WLAN PA + Switch MMIC w/WLAN Rx Baluns & Bluetooth® Path	802.11 a, b, g, n	ETSLP-24 Package, Coupler / Detector	4.0x4.0x0.45	TQP6M9002

NOTES: * = **New**

WLAN & Bluetooth® for Wireless Data & Personal Media Devices

Description	Bands	Features	Package Size (mm)	Part Number
2.4 GHz WLAN PA MMIC	802.11 b, g	VQFN-16 Package	3.0x3.0x0.90	TQP777002
5 GHz WLAN PA MMIC	802.11 a	ETSLP-16 Package	3.0x3.0x0.45	TQP787011*
5 GHz WLAN LNA MMIC	802.11 a	SLIM-7 Package	1.3x2.0x0.4	TQL5000
2.4 GHz & 5 GHz SPDT Switch MIMC	802.11 a, b, g	ETSLP-6 Package	1.3x2.0x0.45	TQS5200E

WLAN & Bluetooth® for Wireless Data & Personal Media Devices (cont.)

Description	Bands	Features	Package Size (mm)	Part Number
2.4 GHz WLAN LNA + SP3T Switch MMIC w/WLAN Tx & Bluetooth® Paths	802.11 b, g	LNA Bypass, ETSLP-12 Package	1.5x1.5x0.55	TQP879007
2.4 GHz WLAN PA + Switch MMIC w/WLAN Rx Balun & Bluetooth® Path	802.11 b, g, n	ETSLP-16 Package, Coupler / Detector	3.0x3.0x0.45	TQM679002A
2.4 GHz & 5GHz WLAN PA + Switch MMIC w/WLAN Rx Baluns & Bluetooth® Path	802.11 a, b, g, n	ETSLP-24 Package, Coupler / Detector	4.0x4.0x0.45	TQP6M9002
Bluetooth® EDR v2.0 Class 1 PA MMIC	2.4 to 2.5 GHz ISM Band	STSLP-12 Package	2.0x2.0x0.57	TQP770001
Bluetooth® Class 1 PA MMIC	2.4 to 2.5 GHz ISM Band	SLIM-7 Package	1.3x2.0x0.4	CGB241

NOTES: * = New

UHF RFID

Description	Frequency (MHz)	Channels / Spacing (kHz)	Max Output Power (W)	Protocol Support	Region of Operation	Interface	Part Number
Reader PCMCIA Form Factor Module (ETSI 302.208)	865.7 - 867.5	4 / 600	1W	ISO18000-6B & -6C	Europe	Serial TTL	WJR7081*
Reader PCMCIA Form Factor Module (FCC Pt 15)	902.75 - 927.25	50 / 500	1W	ISO18000-6C	N. America	Serial TTL	WJR7000
PCMCIA Reader Module (FCC Pt 15)	902.75 - 927.25	50 / 500	0.5W	ISO18000-6B & -6C	N. America	PCMCIA	MPR6000
PCMCIA Reader Module (FCC Pt 15) w/Int. Antenna	902.75 - 927.25	50 / 500	0.5W	ISO18000-6B & -6C	N. America	PCMCIA	MPR5000
Embedded Reader Mod (FCC Pt 15)	902.75 - 927.25	50 / 500	1W	ISO18000-6B & -6C	N. America	Serial TTL	WJM3000
Embedded Reader Mod (FCC Pt 15)	902.75 - 927.25	50 / 500	0.25W	ISO18000-6B & -6C	N. America	Serial TTL	WJM1000
PCMCIA Form Factor Module	910.6 - 913.4	15 / 200	1W	ISO18000-6B & -6C	Korea	Serial TTL	WJR7090

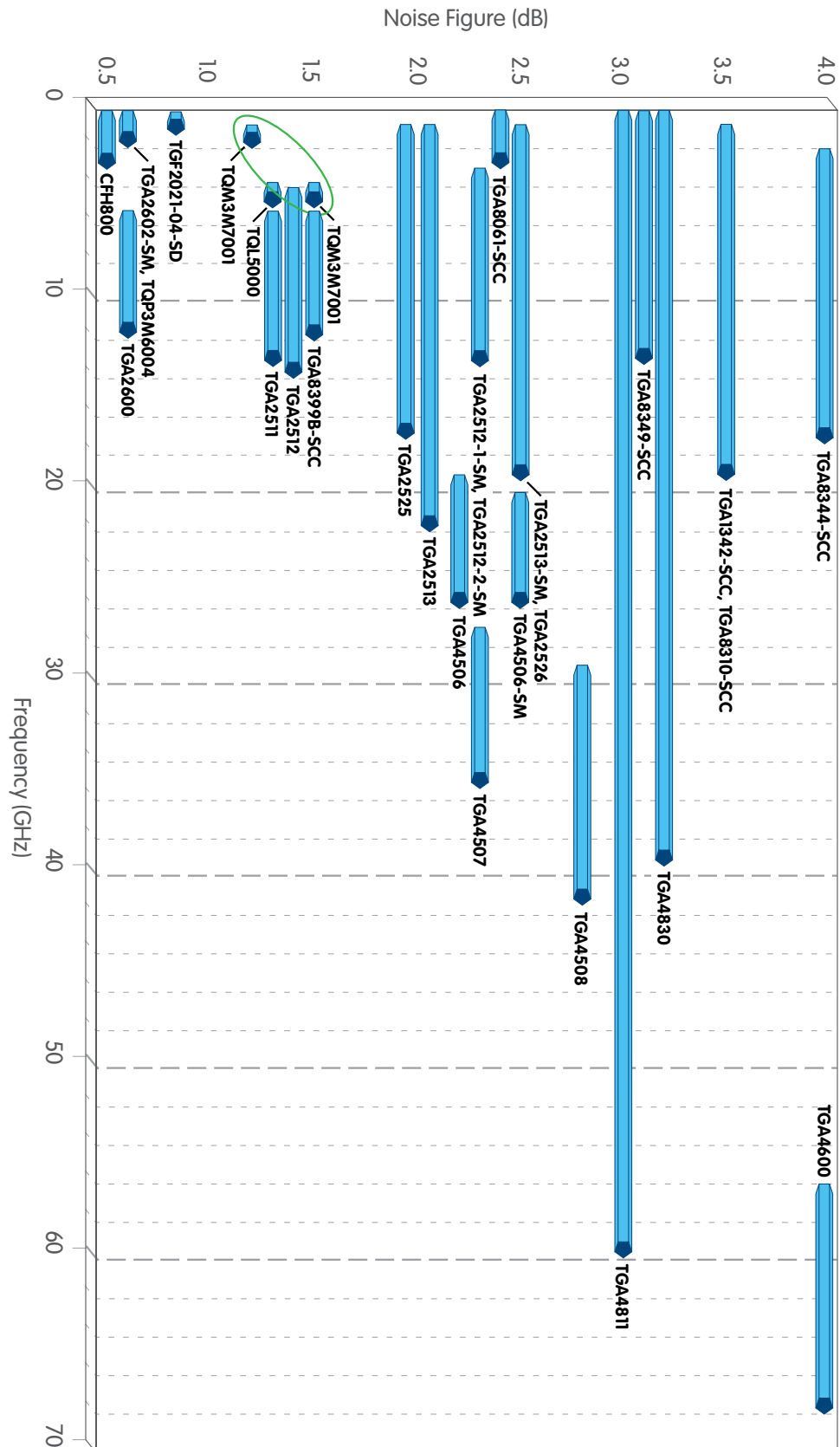
NOTES: * = New

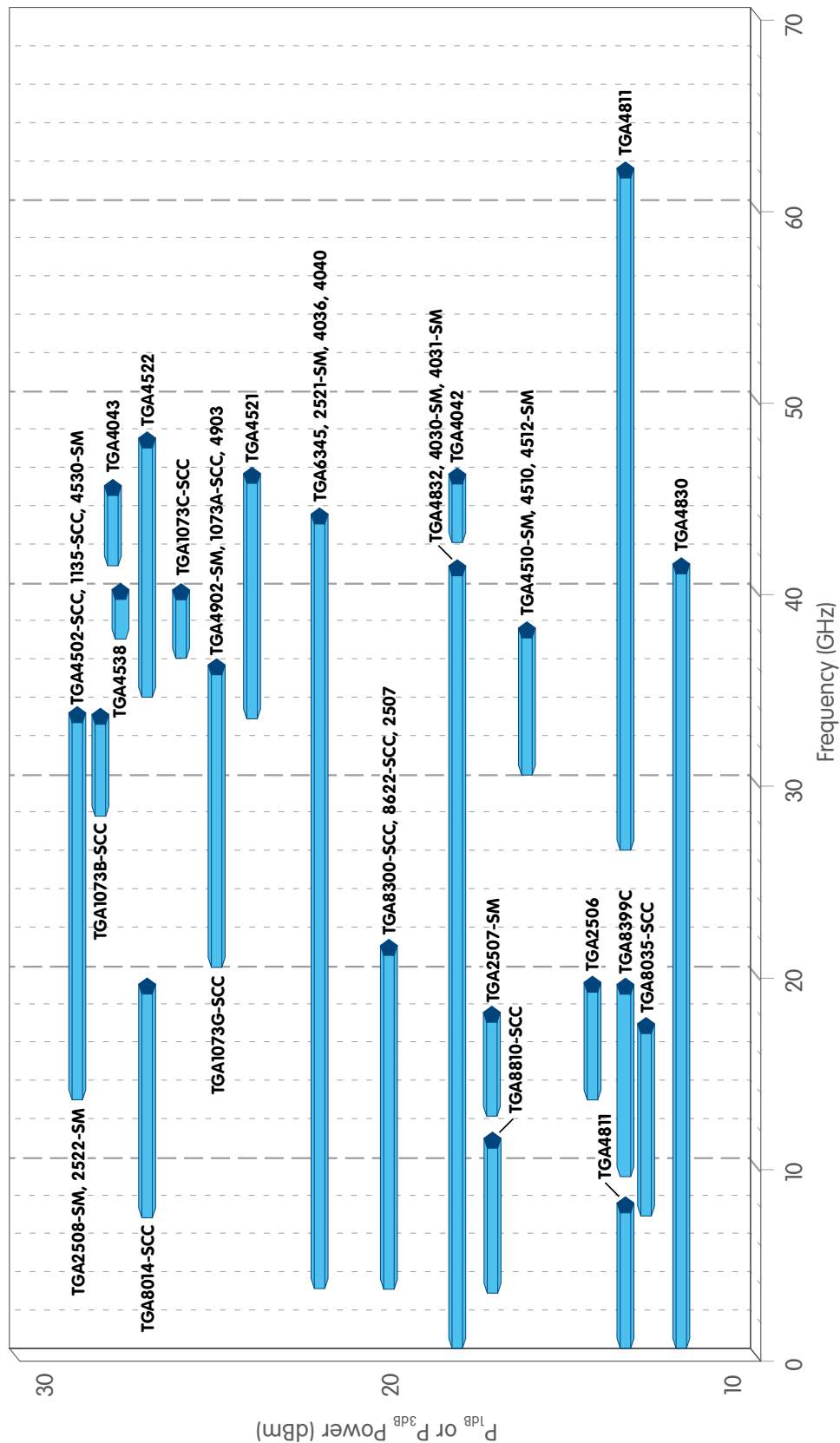
Amplifiers

Description	Frequency (GHz)	Power (Vpp or dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
9.9 - 12.5Gb/s 3V - 7V Driver	DC - 13	3 - 7 Vpp	32	-	3.3 - 5 / 115	SM-A8-28	TGA4956-SM
9.9 - 12.5 Gb/s Modulator Driver	DC - 16	3V - 10V	35	2.5	5.5 - 8 / 210	SL-A2-18	TGA4953-SL
9.9 - 12.5 Gb/s Modulator Driver	DC - 16	3V - 9V	35	2.5	5.5 - 8 / 210	SL-A4-18	TGA4954-SL
12.5 Gb/s NRZ Driver	DC - 18	11V	16	-	8 / 285	Die	TGA4807
12.5 Gb/s NRZ Driver	DC - 18	24 dBm	16	3.5	5 - 8 / 70 - 175	Die	TGA1328-SCC
12.5 Gb/s NRZ Driver	DC - 18	8V	16	3.5	8 / 175	SL-A1-12	TGA8652-SL
15 Gb/s 10V Modulator Driver	DC - 20	3 - 10 Vpp	22	-	7 / 280	6x6 QFN	TGA4826-SM*
40 & 100 Gb/s 8Vpp SE Driver	DC - 30	3 - 9 Vpp	32	-	6 - 7 / 270	SL-A7-21	TGA4943-SL
Wideband Driver (40 Gb/s)	DC - 35	4V	12	-	5 / 135	Die	TGA4832
45 Gb/s 8Vpp SE Driver	DC - 35	5 - 9 Vpp	30	-	6 - 7 / 300	SL-A7-21	TGA4942-SL**
45 Gb/s 10Vpp Diff In / Out Driver	DC - 35	6 - 10 Vpp Diff	27 Diff	-	5 - 6 / 500	-	TGA4958-SL**
40 Gb/s TIA, SE	DC - 40	-	250 dB W	15pA/Hz	5 / 30	Die	TGA4812
43 Gb/s Driver	DC - 78	3V	8	5	6 / 82	Die	TGA4803
10.7 - 12.5 Gb/s Linear Modulator Driver	30 kHz - 8	25 dBm	20	-	8 / 310	SM-A8-28	TGA4823-2-SM

NOTES: * = New, ** = Coming Soon, SE = Single-Ended

LNA Noise Figure vs. Frequency





Less Than 1W Amplifiers, Power vs. Frequency



PACKAGING

For detailed information on TriQuint product packaging, please visit our website at www.triquint.com/prodserv

ORDERING

TriQuint products can be purchased through:

- **Distributors / Resellers:**

TriQuint products can be purchased from any one of the distributors or resellers listed on our website at www.triquint.com/sales

- **Local Sales Representatives:**

Local sales representatives are skilled at examining application needs from a variety of angles to aid the design process. Their insight and specialized experience, paired with your goals, can find the combination of products that best meet overall objectives. Since these representatives work with a variety of customers in many different design environments, their experience can be valuable in determining the right 'fit' for a particular application. To locate a sales representative, please visit our website at www.triquint.com/sales

- **TriQuint Field Sales Offices:**

We have regional sales offices across the globe to work closely with you on your next TriQuint product purchase. To identify the closest regional sales office, please go to our website at www.triquint.com/sales

TERMS & CONDITIONS

For a complete listing of TriQuint terms and conditions of sale, please visit our website at www.triquint.com/sales

EXPORT COMPLIANCE

Virtually all products TriQuint offers for sale as detailed in the Product Selection Guide are available for export in compliance with US government regulations. Please contact your TriQuint salesperson for details.

PRODUCT SUPPORT

- **Product Data Sheets and Literature:**

Detailed information on our products including datasheets and other literature can be found on the TriQuint website at www.triquint.com/prodserv

- **Applications Support:**

Detailed product support information can be found on the TriQuint website at www.triquint.com/prodserv

RELIABILITY PROGRAMS

Our programs are in line with JEDEC and other industry standards.

ENVIRONMENTAL POLICY

TriQuint Semiconductor is committed to managing environmental matters as an integral part of our business, complying with all applicable laws, regulations and other requirements, preventing pollution and continually improving.

ENVIRONMENTAL SYSTEMS

- ISO-14001:2004 (Select Sites)

QUALITY POLICY

The people of TriQuint Semiconductor are committed to continuous improvement, quality, reliability and customer satisfaction in everything we do.

QUALITY SYSTEMS

- ISO-9001:2008 Certified (Select Sites)
- ISO / TS 16949:2009 Certified (Select Sites)
- ISO / AS9100 Certified (Select Sites)

QUALITY TOOLS UTILIZED

- Design Failure Mode & Effects Analysis (DFMEA)
- Process Failure Mode & Effects Analysis (PFMEA)
- Process Control Plan (PCP)
- Production Part Approval Process (PPAP)
- Eight Discipline Problem Solving (8-D)
- Real Time Statistical Process Control (SPC)
- Measurement System Analysis (MSA)
- Advanced Product Quality Planning (APQP)

For further details on TriQuint quality information, please visit our website at www.triquint.com/company/quality

PRODUCT COMPLIANCE POLICIES

TriQuint is committed to meeting all global product environmental regulations that affect its products. These regulations include:

- Directive 2002 / 95 / EC (RoHS Directive)
- Management Methods for Control of Pollution Caused by Electronic Information Products (China RoHS)
- Directive 94 / 62 / EC (Packaging Directive)
- Directive 2006 / 122 / EC (PFOS Directive)
- Regulation (EC) No 1907 / 2006 (REACH Regulation)
- Commission Decision 2009 / 251 / EC (Dimethylfumarate (DMF) Ban)

All active TriQuint commercial standard products are compliant with these Directives. Contact TriQuint for the RoHS Compliance status of custom products, military products and products manufactured prior to June 2006. All new product designs are halogen-free since late 2008. TriQuint does not use any REACH Substances of Very High Concern (SVHCs) in its products or packaging materials.

Contact TriQuint at rohs_info@tqs.com for any product compliance information requests.

In addition to being compliant with RoHS, TriQuint participates in the following customer programs:

- Sony Green Partner
- Samsung Eco-Partner

For further details on TriQuint Environmental, Health & Safety information, please visit our website at www.triquint.com/company/ehs

NOTICE

The data provided in this selection guide is subject to change without notice. TriQuint reserves the right to make changes to specifications and other information at any time.



*Connecting the Digital World
to the Global Network®*

Contact Information

OREGON, UNITED STATES

Phone: +1.503.615.9000

Facsimile: +1.503.615.8900

E-mail: infoamericas@tqs.com

TEXAS, UNITED STATES

Phone: +1.972.994.8200

Facsimile: +1.972.994.8504

E-mail: infoamericas@tqs.com

FLORIDA, UNITED STATES

Phone: +1.407.886.8860

Facsimile: +1.407.886.7061

E-mail: infoamericas@tqs.com

EUROPE / MID EAST / AFRICA

Phone: +49.89.99628.2600

Facsimile: +49.89.99628.2699

E-mail: infoemea@tqs.com

CHINA

Phone: +86.21.5011.7297

Facsimile: +86.21.5011.7295

E-mail: infoasia@tqs.com

TAIWAN

Phone: +886.2.2758.3066

Facsimile: +886.2.2758.3185

E-mail: infoasia@tqs.com

KOREA

Phone: +82.31.788.7231

Facsimile: +82.31.788.7245

E-mail: infoasia@tqs.com

JAPAN

Phone: +81.3.5449.7105

Facsimile: +81.3.5449.3021

E-mail: infoasia@tqs.com

Visit www.triquint.com/subscribe and register for TriQuint product and process updates.

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销世界各大品牌IC芯片和电子元器件的连锁经营综合性国际公司。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。我们公司专业开发生产、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、湿度变送器、湿度传感器、气体变送器、气体传感器、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:

商斯达中国传感器科技信息网: <http://www.sensor-ic.com/>

商斯达工控安防网: <http://www.pc-ps.net/>

商斯达电子元器件网: <http://www.sunstare.com/>

商斯达微波光电产品网: [HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网: <http://www.icasic.com/>

商斯达军工产品网: <http://www.junpinic.com/>

商斯达实业科技产品网: <http://www.sunstars.cn/> 传感器销售热线:

地址:深圳市福田区福华路福庆街鸿图大厦1602室

电话:0755-83607652 83376489 83376549 83370250 83370251 82500323

传真:0755-83376182 (0)13902971329 MSN: SUNS888@hotmail.com

邮编:518033 E-mail: szss20@163.com QQ: 195847376

深圳赛格展销部:深圳华强北路赛格电子市场2583号 电话:0755-83665529

技术支持:0755-83394033 13501568376