TriQuint SEMICONDUCTOR

Microwave / Millimeter Wave Products

GaAs MMICs and Discretes for Broadband, Military and Space

TriQuint uses proven 0.25μm and 0.15μm power pHEMT and 0.15μm LN processes to design MMICs for microwave and millimeter wave applications. Power MMICs with output levels from 250 mW to over 8W and state-of-the-art LNAs are available for key bands across DC to 100 GHz supporting point-to-point, point-to-multipoint and fiber optic communications, military phased array radar, plus both Ku and Ka band satellites and ground terminals. All devices are 100% DC and RF tested on-wafer to ensure performance compliance and are available in chip form, with selected devices also available in a variety of standard industry packages.

Connecting the Digital World to the Global Network

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High-Performance MMICs for Broadband Wireless, SatCom & Military

*( ) = Package Performance * Psat*

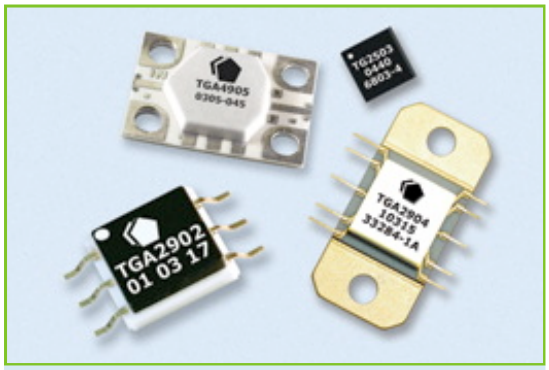
Low Noise Amplifiers

LNA MMICs	Description	Freq. (GHz)	Gain (dB)	P1dB (dBm)	NF	V+(V)	IQ (mA)	
TGA4811	Ultra Wide Band LNA	DC - 60	15	13	3.0	6.0	50	
TGA4830	LNA	DC - 40	13	11.5	3.2	5.0	50	
TGA8061-SCC	LNA, Self Bias	0.1 - 3.5	18	15	2.4	12	112	
TGA2602-SM	High IP3 Dual Low Noise FET	800 MHz - 3 GHz	22	21	0.6	4	100	New!
TGA8310-SCC	LNA with AGC	2 - 20	9	17.5	3.5	5 - 8	60	
TGA2513 & -SM	LNA with AGC	2 - 23 (20)	17 (15)	17 (16)	2 (2.5)	2 - 5	75	New!
TGA2512 & -SM	LNA, Self Bias, w/AGC	5 - 15 (14)	27 (25)	6	1.4 (2.3)	5	90	New!
TGA2600-EPU	X Band Ultra LNA	6 - 12	31	2	0.7	2.5	17	
TGA2511	LNA, Self Bias, w/AGC	6 - 14	20	6	1.3	5	90	New!
TGA8399B-SCC	LNA, Self Bias	6 - 13	26	11	1.5	5	65	
TGA4506 & -SM	K Band LNA	20 (21) - 27	21	12 (10)	2.2 (2.5)	3.5	60	
TGA4507-EPU	Ka Band LNA	28 - 36	22	12	2.3	3.0	60	
TGA4508-EPU	Ka Band LNA	30 - 42	21	14	2.8	3.0	40	
TGA4600-EPU	V Band LNA	57 - 69	13	–	4.0	3.0	40	

Driver and Power Amplifiers

PA MMICs	Description	Freq. (GHz)	P1dB (dBm)	Gain (dB)	V+(V)	IQ (mA)	
TGA4832	Wideband Amp	DC - 35	18	12	5	135	
TGA4830	LNA / Gain Block	DC - 40	11.5	13	5	50	
TGA2509 & -FL	Wideband PA	2 - 22 (20)	29 / 30*	17 (15)	12	1100	
TGA2701	High Power Amp	7 - 8.5	38*	21	4 - 9	1000	New!
TGA2704	High Power Amp	9 - 10.5	38*	20	4 - 9	1000	New!
TGA2710	High Power Amp	10.5 - 12	38*	19	4 - 9	1000	New!
TGA4502-SCC	K Band HPA	17 - 27	29	22	6 - 7	760	
TGA4525-SM	K Band HPA	17 - 27	28	20	6 - 7	760	New!
TGA1135-SCC	K Band HPA	18 - 27	29	14	6	480	
TGA4022	K Band 2W HPA	18 - 23	32 / 33*	26	7 - 8	1000	
TGA1073G-SCC	K Band MPA	19 - 27	25	22	5 - 7	220	
TGA4036	K Band Gain Block	19 - 36	22*	20	5	160	
TGA4040 & -SM	K Band Gain Block, 2x & 3x	17 - 43 (35)	22	25 (20)	5	225	New!
TGA9070-SCC	K Band PA	23 - 29	30	24	7	400	
TGA4902-SM	Ka Band MPA Driver	25 - 35	25	18	6	220	New!
TGA4905-CP	Ka Band HPA	25 - 31	35.5 / 36*	22	6	2100	
TGA4505	Ka Band HPA	25 - 31	35.5 / 36*	23	6 - 7	2100	
TGA1073A-SCC	Ka Band MPA	26 - 35	25	19	5 - 7	220	
TGA1073B-SCC	Ka Band HPA	27 - 32	28.5	25	6 - 8	420	
TGA4509 & -SM	Ka Band Driver / HPA	27 - 31	29 (27)	22 (18)	4 - 6	420	
TGA4513 & -CP	Ka Band 2W Balanced HPA	27 - 31	32.5 / 33*	20	6	840	
TGA4510 & -SM	Ka Band Driver	29 - 37 (31)	16	16	6	60	
TGA4514-EPU	Ka Band 2W HPA	31 - 35	31 / 33.5*	19	6 - 7	1150	
TGA4516	Ka Band 2W HPA	30 - 40	33*	20	6	1050	
TGA4517	Ka Band 3.5W HPA	31 - 37	35.5*	20	6	2000	
TGA4521	Ka Band PA	32 - 45	24 / 25*	16	6	175	
TGA4522	Ka Band PA	33 - 47	27 / 27.5*	18	6	400	
TGA1141-EPU	Ka Band HPA	33 - 36	31 / 33*	17	6 - 7	880	
TGA1073C-SCC	Ka Band HPA	36 - 40	26	15	5 - 7	240	
TGA1171-SCC	Ka Band HPA	36 - 40	30	14	6 - 7	500	
TGA4042-EPU	Q Band Driver	41 - 45	18	14	6	168	
TGA4043	Q Band HPA	40 - 45	28	9	7	500	
TGA4046	Q Band 2W HPA	41 - 47	33*	16	6	2000	

High-Performance MMICs for VSAT Applications



2W & 4W, Ku and Ka Band HPAs for VSAT

TriQuint MMICs for VSAT applications are designed using proven and tested 0.5 and 0.25μm power pHEMT processes. TriQuint's power pHEMT process, coupled with 2MI and 3MI high density interconnect technology, delivers world-class electrical performance in the most compact die size available in the industry. TriQuint's performance and price provide the winning combination required for cost-sensitive commercial VSAT applications.

MMICs with output power levels from 15 dBm to over 7W are available for Ku and Ka VSAT bands and support a variety of Ku and Ka band satellite spacecraft and ground terminal applications.

TriQuint offers VSAT products in several package options including SMT: land (grid) array, SMT: gull wing, SMT: QFN / MLP, carrier plate and flange mount.

Driver and Power Amplifiers

PA MMICs	Description	Freq. (GHz)	P1dB (dBm)	Gain (dB)	V+(V)	IQ (mA)	
TGA2506-EPU	Ku Band Driver (2-stage) (Self B.)	12 - 18	14	17	6	40	
TGA2507-EPU & -SM	Ku Band Driver (3-stage) (Self B.)	12 - 18 (17)	20 (17)	26 (23)	6	80	
TGA2508-EPU & -SM	Ku Band 1W HPA (4-stage)	12 - 18	30* (29*)	30 (25)	5 - 7	435	
TGA2519-SG	Ku Band PA w/ Power Detector	13.75 - 14.5	33.5*	25	7.5	650	*New!*
TGA2520	Ku Band PA	12.3 - 15.7	33.5*	31	7	680	*New!*
TGA2510 & -SG	Ku Band 2W HPA	12.5 - 17	34* (33.5*)	26 (25)	7.5	650	
TGA2502	Ku Band 4W HPA	13 - 15	36*	25	6 - 7	1300	
TGA2505	Ku Band 2W HPA (3-stage)	13 - 17	34*	26	6 - 7	640	
TGA2503 & -SM	Ku Band 2W HPA (4-stage)	13 - 17 (15.5)	34* (32*)	33 (32)	6 - 7	680	
TGA2904-FL	Ku Band 2W HPA (4-stage)	13 - 17	34*	33	5 - 8	680	
TGA8658-SG	Ku Band 2W HPA (4-stage)	13 - 17	34*	33	6 - 7	680	
TGA2902-SCC-SG	Ku Band 2W HPA (3-stage)	13 - 17	34*	26	7.5	650	
TGA8659-FL	Ku Band 4W HPA	13 - 15	36*	25	7	1300	
TGA2514-EPU & -FL	Ku Band 6.5W HPA	13 - 18 (16)	38*	23	8	2600	
TGA4902-SM	Ka Band MPA Driver	25 - 35	25	18	6	220	
TGA4905-CP	Ka Band HPA	25 - 31	35.5 / 36*	22	6	2100	
TGA4505	Ka Band HPA	24 - 31	35.5 / 36*	23	6 - 7	2100	
TGA4915-CP	Ka Band 7W HPA	26 - 31	38.5*	22	6	4200	
TGA1073A-SCC	Ka Band MPA	26 - 35	25	19	5 - 7	220	
TGA4509 & -SM	Ka Band Driver / HPA	27 - 31	29 (27)	22 (18)	4 - 6	420	
TGA4513 & -CP	Ka Band 2W Balanced HPA	27 - 31	32.5 / 33*	20 (22)	6	840	
TGA4510 & -SM	Ka Band Driver	29 - 37 (31)	16	16 (15)	6	60	

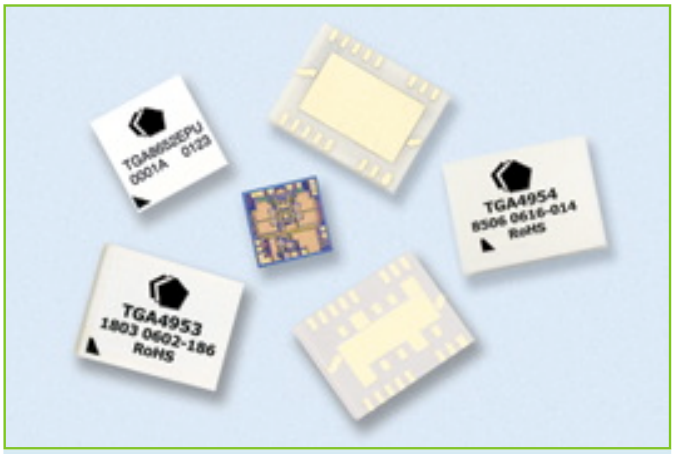
( ) = Package Performance ** Psat*

Package Codes

Flange, Lead Solder (FL)	-FL	SMT: Gull Wing	-SG	SMT: MLP / MLF / QFN	-SM
SMT: Land (Grid) Array	-SL	SMT: Down Set	-SD	Carrier: Carrier Plate	-CP

Broadband Amplifiers for Fiber Optics Applications

TriQuint is committed to the development of performance-critical components for the physical media dependent (PMD) market. The technology behind our standard product family has evolved through years of custom product design research and development for the high performance telecom IC market. TriQuint's Richardson, Texas facility has been supplying PMD integrated devices for the OC192 / STM64 and OC768 / STM256 telecom / datacom infrastructure build-out since the mid-1990s. TriQuint continues to supply high performance MZ modulator drivers: **NRZ, RZ and Duo-Binary applications** both packaged and as MMICs. TriQuint also offers AGC MMICs, transimpedance amplifiers (TIA), wide band attenuators (analog and discrete), Bessel filters and low noise amplifiers (LNA) to meet the continuing needs of these markets. TriQuint continues to grow its TGA495x family of optical modulator drivers. Our new TGA4954-SL is a low-priced MZ driver for metro and long-haul markets. All products listed in this table are RoHS compliant and lead-free.



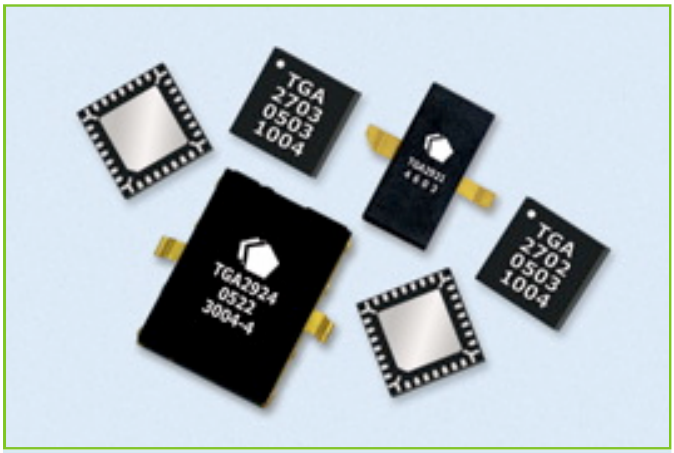
10 Gb/s PMD Components

OC192 and OC768

Fiber Optic MMICs	Tx/Rx	Description	Freq. (GHz)	Gain (dB)	P-P Vout (V)	NF	Vd	Id (mA)	Package
TGA8652-EPU-SL	Tx/Rx	12.5 Gb/s NRZ Driver	DC - 18	16	8	3.5	8	70 / 175	SMT
TGA4953-SL, RoHS***	Tx	9.9 - 12.5 Gb/s Driver	DC - 16	35	3 - 10	2.5	5.5 - 8	210	SMT
TGA4954-SL, RoHS	Tx	9.9 - 12.5 Gb/s Driver	DC - 16	33	3 - 9	2.5	5.5 - 8	210	SMT *New!*
TGA4819-SL	Tx	10.7 Gb/s Linear Driver	DC - 8	20	10	–	8	310	SMT
TGA1328-SCC	Tx/Rx	12.5 Gb/s NRZ Driver	DC - 18	16	8	3.5	8	70 / 175	Die
TGA4802-EPU	Tx/Rx	12.5 Gb/s RZ Driver	DC - 25	15	8	–	9	100	Die
TGA2951-EPU	Tx/Rx	Single to Diff Amp	DC - 10	21 Diff	2	–	5	72	Die
TGL4203-EPU	Tx/Rx	Analog Attenuator	DC - >50	To -17	–	–	0 - 1	–	Die
TGL4201-00,2,3,6,10	Tx/Rx	Discrete Attenuators	DC - 65	0 to -10	–	–	–	–	Die
TGB2010-EPU-00,-06...-11	Rx	Bessel Filter Family	DC - 6-11	–	–	–	–	–	Die
TGB2010-EPU-SM	Rx	Bessel Filter Package	DC - 5-9	–	–	–	–	–	SMT
TGA4830	Rx	40 Gb/s LNA	DC - 40	13	2	3.2	5	50	Die
TGA4803	Tx	43 Gb/s EAM Driver	DC - 78	8	4	–	6	82	Die
TGA4832	Tx	43 Gb/s EAM Driver	DC - 38	12	5.5	–	5 - 6	150	Die
TGA4811	Rx	43 Gb/s LNA	DC - 60	15	2	3.0	6	50	Die
TGA4815-EPU	Rx	10 Gb/s TIA	DC - 10	8000*	–	6**	3.3	80	Die
TGA4816-EPU	Rx	10 Gb/s TIA	DC - 10	1600*	–	6**	3.3	60	Die
TGA4817-EPU	Rx	10 Gb/s TIA	DC - 10	3200*	–	11**	3.3	70	Die
TGA4812-EPU	Rx	40 Gb/s TIA	DC - 40	250*	–	15**	5	30	Die

** dB ohms, SE ** pA/√Hz *** NRZ, RZ and Duo-Binary (ODB)*

High Power, GaAs FET Power Devices for BWA / WiMAX



1W, 4W & 10W HPAs for Broadband Wireless Access Applications

TriQuint Semiconductor has fabricated high power, high linearity field effect transistor (FET) devices for point-to-point radio and cellular base station markets since the late-1980s. Our high power amplifier (HPA) devices are also widely used and ideally suited for high-performance, high-reliability military and SatCom applications. TriQuint has recently released a new product line of packaged HFET power amplifiers, the TGA292x series, that is ideally suited for broadband wireless access (BWA) applications. This family offers 2W to 10W of peak power (0.25W-2W linear power) in low-cost, partially matched plastic packages. Partial in-package matching simplifies board layout and reduces performance variability and board-level tuning. TGA292x amplifiers are optimized around key center frequencies of 2.6 GHz, 3.5 GHz and 5.8 GHz to support 802.11a and 802.16 base station and subscriber BWA applications. Evaluation boards are available.

Plastic Packaged, Partially Matched, GaAs Power FETs and MMIC Amplifiers for BWA / WiMAX

HPA and Drivers	Description	Freq. (GHz)	Gain (dB)	P1dB (dBm)	PWR (dBm) @ 2.5% EVM	TOI	V+(V)	IQ (mA)
TGA2702-SM	2.6 GHz WiMAX Driver / PA	2.4 - 2.8	28	29	23	40	5 - 6	710
TGA2924-SG	10W 2.6 GHz HPA	2.6*	12	40	30	51	8	1200
TGA2703-SM	3.5 GHz WiMAX Driver / PA	3.4 - 3.8	24	29	22	41	5 - 6	780
TGA2925-SG	5W 3.5 GHz HPA	3.5*	11	37	29	49	8	750
TGA2923-SG	10W 3.5 GHz HPA	3.5*	9	40	30	51	8	1200
TGA2922-SG	2W 5.8 GHz HPA	5.8*	11	34	25	49	7 - 9	480
TGA2921-SG	4W 5.8 GHz HPA	5.8*	11	36	26	49	7 - 9	700 - 800

* *Center frequency tunable to 200 MHz of bandwidth.*

Discrete GaAs FET Power Devices (In die form)

Discrete	Description	Freq. (GHz)	Gain (dB)	P1dB (dBm)	NF / PAE	Vd (V)	IQ (mA)
TGF1350-SCC	0.3mm MesFET	DC - 18.0	11	13	1.5 dB@10 GHz	3	15
TGF2021-XX	1-12mm PWR pHEMT Family	DC - 13.0	11 - 13	30 - 42	55%@10 GHz	12	–
TGF2022-XX	0.6-6mm PWR pHEMT Family	DC - 20.0	8 - 12	27 - 38	42%@18 GHz	12	–
TGF4112-EPU	12mm HFET	DC - 8.0	14	37	55%@2.3 GHz	8	750
TGF4118-EPU	18mm HFET	DC - 6.0	13.5	38.5	53%@2.3 GHz	8	1690
TGF4124-EPU	24mm HFET	DC - 4.0	12.5	40	51%@2.3 GHz	8	2170
TGF4230-SCC	1.2mm HFET	DC - 12.0	10	28.5	55%@8.5 GHz	8	50
TGF4240-SCC	2.4mm HFET	DC - 12.0	10	31.5	56%@8.5 GHz	8	100
TGF4250-SCC	4.8mm HFET	DC - 10.5	8.5	34	53%@8.5 GHz	8	200
TGF4260-SCC	9.6mm HFET	DC - 10.5	9.5	37	52%@6 GHz	9	520
TGF4350-EPU	0.3mm pHEMT (0.25μm)	DC - 22.0	12	16	0.8 dB@10 GHz	3	15

TriQuint Texas Fabrication Process Summary

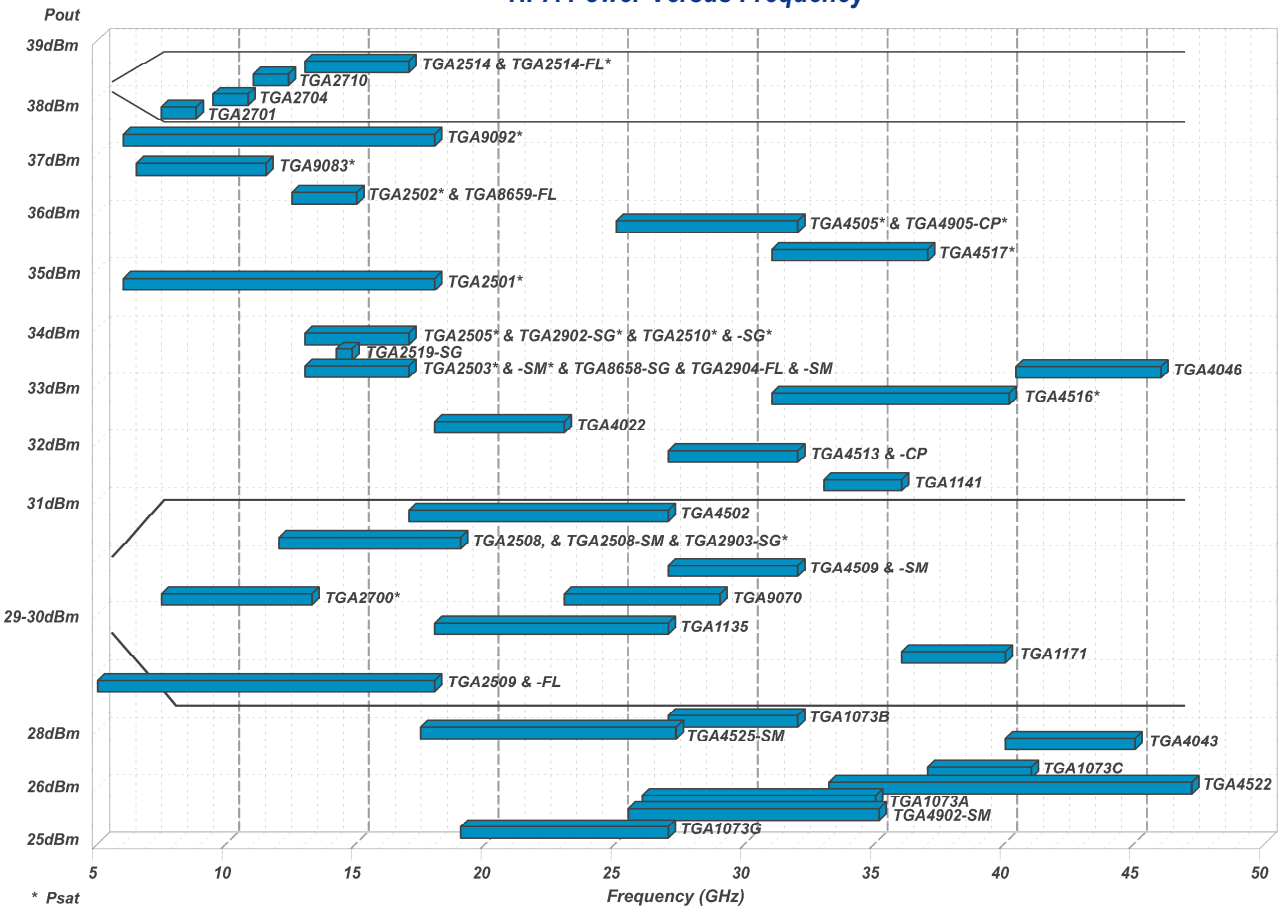
- HFET (Heterojuction FET) process: High power, high voltage applications through 20 GHz.
- Vertical PIN diode process: Low-loss limiters, switches and phase-shifters through 100 GHz.
- pHEMT (Pseudomorphic HEMT) 0.35μm, 0.25μm and 0.15μm PWR processes: High power and low-noise applications through 80 GHz for 0.15μm, 50 GHz for 0.25μm and 20 GHz for 0.35μm.
- pHEMT 0.15μm LN process: Lower noise performance and lower power consumption than 0.25μm pHEMT for applications through 80 GHz.
- mHEMT (Metamorphic HEMT) 0.15μm LN process: Lower noise performance than the 0.15μm LN pHEMT process for applications through 100 GHz.

Texas Process Summary as of May 2006

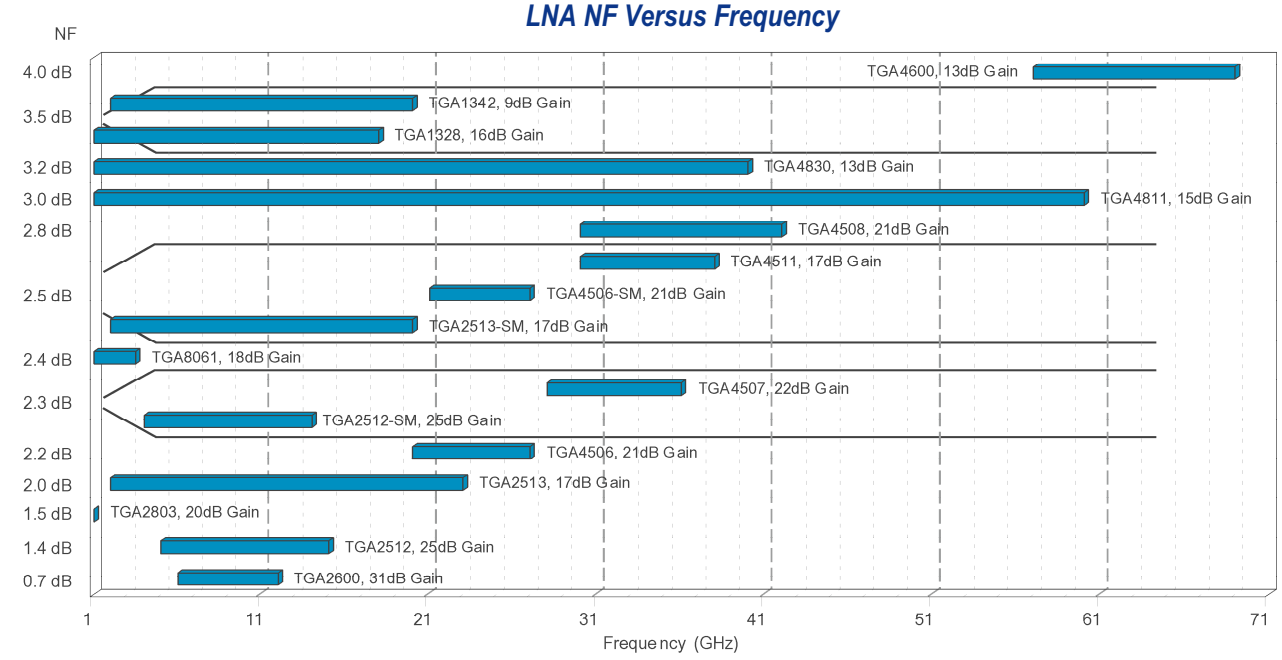
Material	Size (μm, # fingers)	VDD / IDS (V, mA)	Freq. (GHz)	NF Min (dB)	MSG / MAG (dB)	PAE (%)	P_{OUT} (W/mm)	f_t (GHz)	f_{MAX} (GHz)	I_{DSS} (mA/mm)	G_m (mS/mm)	V_{BD} (V)	V_P (V)	Passives
0.5μm HFET	300, 4	8, 22.5	2 10 18	0.8 2.2 3.3	20.8 13.8 10.4	>70 65 50	0.6	19[B]	57[C]	225	165[A]	-22	-1.8	2MI
0.35μm PWR pHEMT	300, 4	12, 45	10	–	14	56	1.6	–	–	300	375[A]	-22*	-1	3MI
0.25μm PWR pHEMT	300, 4	3, 15	10 18 26	0.7 1.1 1.5	15.6 13.2 11.9	60 50 40	0.1	60[B]	75[C]	300	400[A]	-18	-1	2MI, 3MI
	600, 10	8, 45	10 18 26	– – –	17.6 15.4 11.4	65 55 45	0.6							
0.15μm LN pHEMT	200, 4	3, 15	10 20 30 40	0.5 1.0 1.4 1.8	15 12 10.5 9.5	– – – –	0.1	110[B]	–	130	533[A]	-10	-0.4	3MI
0.15μm PWR pHEMT	300, 6	3, 15	30 40	1.3 1.5	11.1 10.2	– –	– –	110[B]	130[C]	375	450[A]	-14	-1	3MI
		6, 30	30 40	1.5 1.9	12.7 9.2	52 42	0.78 0.55							
0.15μm LN mHEMT	100, 4	0.8, 8	10 26	0.3 0.9	15 12	– –	– –	135[B]	212[C]	225	800[A]	-3	-0.4	3MI
		1, 15	10 26	0.4 1.0	16 13	– –	– –							

*Notes: A. $G_{M(MAX)}$ B. $|h_{21}| = 0$ C. $G_{MAX} = 0$ * V_{BD10}*

HPA Power Versus Frequency



LNA NF Versus Frequency



Additional TriQuint Texas Standard Products

*( ) = Package Performance * Psat*

DC-20 GHz MMICs	Description	Freq. (GHz)	Pwr / IP3 (dBm)	Gain (dB)	NF / PAE	V+(V)	IQ (mA)
TGA8349-SCC	Low Noise Amp, AGC	DC - 14	16	11	3.1 dB	8	80
TGA2801B-SG	CATV Ultra Linear HPA	40 MHz - 1 GHz	28.5 / 47.5	12	3.5	12	425
TGA2801D-SG	CATV Ultra Linear HPA	40 MHz - 1 GHz	31.5 / 53	12	3.5	12	510
TGA2803-SM	CATV TIA / Gain Block (Self Biased)	40 MHz - 1 GHz	26 / 45	20	1.5	5 - 8	350
TGA8061-SCC	Low Noise Amp, Self Bias	0.1 - 3.5	15	18	2.4 dB	12	112
TGA8226-SCC	Gain Block	2.0 - 6.0	17	13.5	5.5 dB	15	68
TGA8810-SCC	Gain Block, Self Bias	2.0 - 10	17	17	6 dB	5	90
TGA8300-SCC	Gain Block	2.0 - 18	20	7.5	5.5 dB	6	100
TGA8344-SCC	Low Noise Amp, AGC	2.0 - 18	16	19	4 dB	5	120
TGA8310-SCC	Low Noise Amp, AGC	2.0 - 20	17.5	9	3.5 dB	5 - 8	60
TGA8334-SCC	Power Amp, AGC	2.0 - 20	26	8	–	8	440
TGA6345-EEU	Gain Block, AGC	2.0 - 18	22	23	6 dB	7	340
TGA8622-SCC	Gain Block, AGC	2.0 - 20	20	7.5	7 dB	6	150
TGA1342-SCC	Low Noise Amp, AGC	2.0 - 20	17.5	9	3.5 dB	5 - 8	60
TGA2509-EPU & -FL	Wideband PA w/AGC	2.0 - 22	28.5 / 30* (29)	17 (15)	–	12	1100
TGA2513 & -SM	Low Noise Amp, AGC	2.0 - 23 (20)	17 / 26	17 (15)	2 (2.5)	5	75
TGA2512 & -SM	LNA, Self Bias	5.0 - 15 (14)	6 / 13 (16 / 24)	25	1.4 (2.3)	5	90 / (160)
TGA8399B-SCC	LNA, Self Bias	6.0 -13	11	26	1.5 dB	5	65
TGA2600	X Band Ultra LNA	6.0 - 12	2	31	0.7	2.5	17
TGA8014-SCC	Power Amp	6.0 - 18	27	11	8 dB	8	400
TGA8035-SCC	Gain Block	6.0 - 18	12.5	13	5 dB	5	80
TGA6316-EEU	Power Amp (Per Stage), AGC	6.0 - 17	29.5 / 31	20.5	–	8	700
TGA2700	X Band Driver	7.0 - 13	30 / 37	25	25% - 30%	9	.3 (.45)A
TGA8399C-EPU	Wideband Driver	8.0 - 18	13	17	5 dB	5	50
TGA9083-SCC	Power Amp - pHEMT	6.5 - 11.5	37 / 39*	19	40 / 35%	7 - 9	1200
TGA2501	6 -18 GHz 2.8W HPA	6.0 - 18	34.5	24	20%	7 - 9	800 / 1200
TGA9092-SCC	Power Amp (Per Channel)	6.0 - 18	34.5*	24	20%	8	1200

mmWave	Description	Freq. (GHz)	Pwr / IP3 (dBm)	Gain (dB)	NF / PAE	V+(V)	IQ (mA)
TGA4040 & -SM	K Band Gain Block, Multiplier 2X & 3X	17 - 45 (35)	22	25 (20)	–	5	140 *New!*
TGA4046	Q Band 2W HPA	40.5 - 46	>33*	15	–	6	2A
TGA4517	Ka Band 3.5W HPA	31 - 37	35.5*	20	–	6	2A (4A)
TGA4600-EPU	LNA 60 GHz	57 - 65	–	13	4	3	41

Passive Devices	Description	Freq. (GHz)			S11 / S22 (dB)		
TGB2001-EPU	Lange Coupler	12 - 21	Very low loss < 0.25dB		< -24		
TGB4001-EPU	Lange Coupler	18 - 32	Very low loss < 0.25dB		< -24		
TGB4002-EPU	Lange Coupler	27 - 45	Very low loss < 0.25dB		< -24		
TGB2010-EPU-00,06...-11, & -SM	Bessel Filter (Packaged also)	8 GHz	6,7,8,9,10,& 11 GHz Cut-Off Freq		–		
TGB2010-03	Bessel Filter for Optical DuoBinary	3 GHz	–				*Coming Soon*

Frequency Converters	Description	Freq. (GHz)	Conv Gain (dB)			V+(V)	IQ (mA)
TGC1430F-EPU	Doubler	20 - 40	-12			–	–
TGC1430G-EPU	Tripler	20 - 40	-15			–	–
TGC4401-EPU	Mixer (Passive)	20 - 40	-7			Passive	–

Control Products	Description	Freq. (GHz)	IL (dB)	Attn Rng (dB)	P1dB (dBm)	V+(V)	IQ (mA)
TGP6336-EEU	5 Bit Phase Shifter	6.0 - 18	9	–	–	6	–
TGP2103-EPU	6 Bit Phase Shifter	8.5 - 11	5	–	–	0 / -5	–
TGP1439-EPU	5 Bit Phase Shifter	18 - 20	5	–	–	-2.5	–
TGP2100-EPU	5 Bit Phase Shifter	30 - 31	6	–	–	+5; 0,5	–
TGP2102-EPU	5 Bit Phase Shifter	33 - 37	6	–	–	-5; 0,5	–
TGP2104	1 Bit 180° Phase Shifter	34 - 36	4	–	–	0 / +5	– *New!*
TGL4203-EPU	Analog Attenuator	DC - >50	2	17	–	0 to -2	–
TGL8784-SCC	Analog Attenuator	2.0 - 20	2	13	12	3	–
TGL6425-SCC	Digital Attenuator	0.5 - 18	4	15.5	20	0 / -5	–
TGL4201-00, 02, 03, 06, 10	Discrete Att: 0, 2, 3, 6, 10 w/Vias	DC - 65	–	0, 2, 3, 6, 10	–	–	–
TGL2201-EPU	Dual Stage Passive WB limiter	3 - 25	0.75	–	20	–	–

Switches	Description	Freq. (GHz)	IL (dB)	ISO (dB)	P1dB (dBm)	V+(V)	IQ (mA)
TGS2302	SP2T VPIN	4 - 21	0.9	35	20	+/-2.6	20 / Arm *New!*
TGS2313	SP3T VPIN	4 - 21	0.9	35	20	+/-2.6	20 / Arm *New!*
TGS2303-EEU	SP3T VPIN	1 - 20	0.5	35	–	–	10 / Arm
TGS2304-SCC	SP4T VPIN	1 - 20	0.6	38	23	–	10 / Arm
TGS2306-EPU	SPDT FET	DC - 20	1.5	36	27	-5	–
TGS8250-SCC	SPDT FET	DC - 18	2	39	21	-7 / 0	0.05
TGS8422-SCC	SP4T FET	DC - 18	2.5	37	19	0 / -5	–
TGS4301-EPU	SPDT VPIN	24 - 43	<2	36	–	+/-5	22
TGS4302	SPDT VPIN (High Power)	27 - 46	0.9	30	>34	+/-5 / 15	10 / 20
TGS4304	SPDT VPIN, Absorptive (High Power)	33 - 37	0.9	30	>40	+/-5 / 18	30 / 60
TGS4307-EPU	SP5T VPIN, Automotive	71 - 80	2.5	25 / 40	–	1.3	40