

Qorvo® Broadband Access, CATV & FTTH Product Selection Guide

Upgrade Your Network



qorvo
all around you

Technology Leadership in Broadband Connections Through Best-in-Class Innovative RF Solutions

Qorvo offers leading technology and comprehensive product solutions for demanding hybrid fiber coaxial (HFC) and broadband applications. Qorvo's broadband portfolio includes high power amplifiers in industry-standard SOT 115J package and in multi-chip modules (MCMs), low power MMICs and control products. These products are designed for HFC headend, CMTS, optical nodes and distributed architecture supporting DOCSIS® standards in various configurations like fiber deep, node split, remote PHY, full duplex, and extended spectrum DOCSIS. In addition, Qorvo offers products for FTTx and xPON system solutions with transimpedance amplifiers and complete optical modules.

High Output Hybrid & MCMs

1.2 GHz Power Doubler Amplifiers

Table A

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Max Out (dBmV)*	Max Comp Out (dBmV)*	CTB (dBc)	CSO (dBc)	XMOD (dBc)	CIN (dB)	Technology
				Current (mA)	Voltage (V)							
QPA3230	Hybrid	45-1218	23	370-470	24	63	73.8	-73	-76	-68	57	GaAs/GaN
RFPD3210	Hybrid	45-1218	23	470	24	63	73.8	-73	-76	-68	57	GaAs/GaN
RFCM3327	MCM	45-1218	23	370-470	24	63	73.8	-80	-80	-76	58	GaAs/GaN
QPA3240	Hybrid	45-1218	25	370-470	24	63	73.8	-73	-76	-68	57	GaAs/GaN
QPA3245*	Hybrid	45-1218	25	470	24	—	75	-81	-80	-80	60	GaAs/GaN
RFCM3328	MCM	45-1218	25	370-470	24	63	73.8	-80	-80	-76	58	GaAs/GaN
RFPD3220	Hybrid	45-1218	25	470	24	63	73.8	-73	-76	-68	57	GaAs/GaN
QPA3333	MCM	45-1218	28	320-450	24	59	68.8	-80	-74	-75	60	GaAs/GaN
QPA3357	Hybrid	45-1218	28	440	24	57	66.8	-83	-81	—	60	GaAs
QPB8857	5x7 QFN	45-1218	28	440	24	57	66.8	-83	-81	—	60	GaAs
RFPD3540	Hybrid	45-1218	28	420	24	59	68.8	-80	-80	-76	55	GaAs/GaN
RFPD3580	Hybrid	45-1218	23	430-530	34	67	76.8	-73	-74	-68	55	GaAs/GaN
QPA3250	Hybrid	45-1218	23	430-530	34	67	76.8	-73	-74	-68	55	GaAs/GaN
QPA3260*	Hybrid	45-1218	23	430-530	34	67	76.8	-82	-82	-74	58	GaAs/GaN
QPA3270*	Hybrid	45-1218	25	430-530	34	67	76.8	—	—	—	—	GaAs/GaN

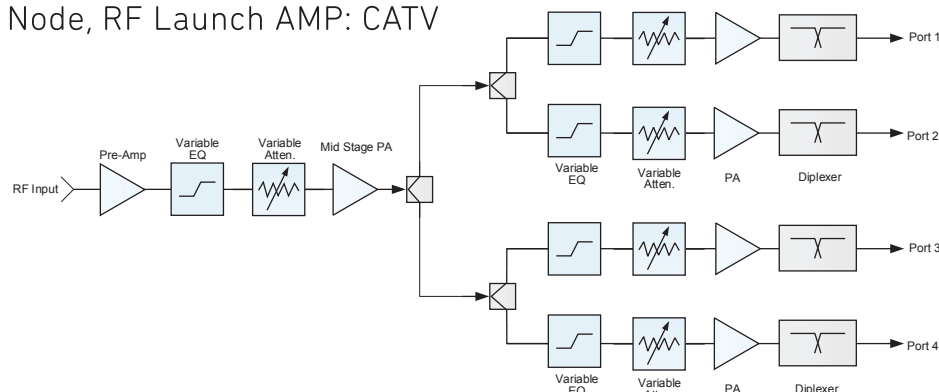
* Next Gen

1.2 GHz Push Pull Amplifiers (Interstage)

Table B

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Pout (dBmV)*	CTB (dBc)	CSO (dBc)	XMOD (dBc)	CIN (dB)	Technology
				Current (mA)	Voltage (V)						
QPA8801	5x7 QFN	47-1218	11	395	12	47	-70	-72	—	68.5	GaAs
RFAM3790	MCM	45-1218	28 (Var)	410	12	45	-67	-70	-60	64	GaAs
RFAM3620	MCM	45-1218	36 (Var)	510	12	46	-73	-75	-70	64	GaAs
QPA9831	Hybrid	45-1218	23	260	24	45	-67	-70	-60	66	GaAs/GaN
RFPP2590	Hybrid	45-1218	24	230	24	43	-64	-70	-60	66	GaAs
QPA4425	5x7 QFN	45-1218	25	290	24	47	-75	-70	—	65	GaAs
QPA3359	Hybrid	45-1218	28	270	24	44	-70	-76	-70	64	GaAs
QPA4428	5x7 QFN	45-1218	28	290	24	47	-75	-70	—	65	GaAs
RFCM4363	MCM	45-1218	28	200-260	24	45	-72	-80	-65	70	GaAs/GaN
RFPP3870	Hybrid	45-1218	28	260	24	45	-72	-78	-63	69	GaAs/GaN
QPA3358	Hybrid	47-1218	34	290	24	47	-75	-70	—	65	GaAs
QPB8858	5x7 QFN	47-1218	34	290	24	47	-75	-70	—	65	GaAs
RFPP3180	Hybrid	45-1218	34	240	24	45	-66	-72	-62	64	GaAs

4 Port Optical Node, RF Launch AMP: CATV



Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Pout (dBmV)	CTB (dBc)	CSO (dBc)	XMOD (dBc)	CIN (dB)	Technology
				Current (mA)	Voltage (V)						
D10040180GT	Hybrid	40-1000	18	375	24	44	-64	-65	-60	-	GaAs
D10040180GTH	Hybrid	40-1000	18	420	24	52	-65	-67	-62	-	GaAs
D10040200GT	Hybrid	40-1000	20	375	24	44	-64	-65	-60	-	GaAs
D10040200GTH	Hybrid	40-1000	20	420	24	52	-65	-67	-62	-	GaAs
D10040220GT	Hybrid	40-1000	22	375	24	44	-64	-65	-60	-	GaAs
D10040220GTH	Hybrid	40-1000	22	420	24	52	-65	-67	-62	-	GaAs
QPA3223	Hybrid	40-1000	23	410	24	50	-70	-71	-65	62	GaAs/GaN
QPA3238	Hybrid	40-1000	23	370-470	24	61	-73	-76	-65	60	GaAs/GaN
QPA3340	Hybrid	40-1000	23	470	24	61	-73	-76	-65	60	GaAs/GaN
D10040240GT	Hybrid	40-1000	24	375	24	44	-64	-65	-60	-	GaAs
D10040240GTH	Hybrid	40-1000	24	420	24	52	-65	-67	-62	-	GaAs
TAT8888	Hybrid	50-1000	24	445	24	61	-75	-69	-65	58	GaAs/GaN
D10040250GT	Hybrid	40-1000	25	375	24	44	-64	-65	-60	-	GaAs
D10040250GTH	Hybrid	40-1000	25	440	24	52	-65	-67	-62	-	GaAs
QPA3248	Hybrid	40-1000	25	370-470	24	61	-73	-76	-65	60	GaAs/GaN
QPA3350	Hybrid	40-1000	25	470	24	61	-73	-76	-65	60	GaAs/GaN
D10040270GT	Hybrid	40-1000	27	375	24	44	-64	-65	-60	-	GaAs
D10040270GTH	Hybrid	40-1000	27	420	24	52	-65	-67	-62	-	GaAs
D10040270GTL	Hybrid	40-1000	27	325	24	40	-61	-63	-58	-	GaAs
RFPD3890	Hybrid	40-1000	27	370	24	56	-73	-70	-67	62	GaAs
QPB8957	5x7 QFN	50-1003	28	350	24	56	-78	-79	-	64	GaAs
D10040300GTH	Hybrid	40-1000	30	420	24	52	-65	-65	-62	-	GaAs

1 GHz Push Pull Amplifiers (Interstage)

Table D

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Pout (dBmV)	CTB (dBc)	CSO (dBc)	XMOD (dBc)	Technology
				Current (mA)	Voltage (V)					
S10040140P1	Hybrid	40-1003	14	250	24	46	-64	-64	-55	GaAs
S10040180P1	Hybrid	40-1003	18	250	24	46	-68	-68	-59	GaAs
S10040200P	Hybrid	40-1003	20	255	24	46	-60	-63	-57	GaAs
S10040220GT	Hybrid	40-1003	22	230	24	42	-63	-59	-58	GaAs
S10040220P	Hybrid	40-1003	22	260	24	46	-66	-66	-59	GaAs
S10040230GT	Hybrid	40-1003	23	240	24	42	-63	-59	-58	GaAs
S10040240P	Hybrid	40-1003	24	250	24	46	-66	-66	-59	GaAs
S10040280GT	Hybrid	40-1003	28	250	24	42	-65	-63	-58	GaAs
QPA3320	Hybrid	40-1003	34	280	24	44	-66	-65	-60	GaAs
QPB8958	5x7 QFN	50-1003	34	260	24	47	-75	-70	-	GaAs

Return Path Amplifiers

Table E

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		CTB (dBc)	CSO (dBc)	XMOD (dBc)	Technology
				Current (mA)	Voltage (V)				
QPA5368	MCM	5-300	35.3	195	12	-72	-75	-63	Si
RFCM5304	MCM	5-220	39 (Var)	205	12	-70	-70	-60	Si
R0605250L	Hybrid	5-65	25	133	24	-69	-70	-59	Si
R1005250L	Hybrid	5-100	25	133	24	-69	-70	-59	Si
R3005250L	Hybrid	5-300	25	138	24	-71	-75	-63	Si
R2005280L	Hybrid	5-210	28	135	24	-69	-70	-65	Si
RFRP2920	Hybrid	5-100	28	158	24	-72	-70	-64	Si
R0605300L	Hybrid	5-65	30	133	24	-64	-68	-55	Si
R1005300L	Hybrid	5-100	30	130	24	-64	-68	-55	Si
RFRP2241	Hybrid	5-100	30	130	24	-66	-70	-57	Si
R2005300L	Hybrid	5-210	30	138	24	-72	-72	-65	Si
R3005300L	Hybrid	5-300	30	148	24	-70	-72	-63	Si
R2005350L	Hybrid	5-210	35	158	24	-72	-72	-64	Si
RFRP3120	Hybrid	5-300	35	158	24	-70	-75	-63	Si

Medium and Low Power MMICs

Return Amps MMIC Differential

Table F-1

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPB2318	SOIC 8	5-210	Reverse Amp	15.5	26.2	48	3.8	5, 8	235
QPB2328	SOIC 8	5-210	Reverse Amp	17.8	27	46	3.5	5, 8	235
RFCA1008	SOIC 8	5-300	High Linearity RF Amplifier	17	23	40	4	5	217
QPL8834	SOIC 8	5-700	High Linearity RF Amplifier	12	24	40	4	5	275
QPL8833	SOIC 8	5-700	High Linearity RF Amplifier	15	24	40	3.5	5	275
QPL8831	SOIC 8	5-700	High Linearity RF Amplifier	17	24	42	3	5	275
QPL8832	SOIC 8	5-700	High Linearity RF Amplifier	19	24	40	3	5	275
QPL8830	SOIC 8	5-700	High Gain High Linearity	21	24	43	3	5	275
QPB8896	SOIC 8	5-700	Low Noise Reverse Amp	25	22.6	38	1.8	5	275

1 GHz MMIC Differential Amps

Table F-2

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
CGA6618Z	ESOP-8	50-1000	High Linearity RF Amplifier	13	21	39	5.4	5	160
AG606	SOIC 8	50-1000	Dual RF Amplifier	14	20.3	37	5	5	165
RFCA1008	SOIC 8	50-1000	High Linearity RF Amplifier	17	23	40	4	5	217
QPB8957	5x7 QFN	50-1000	Power Doubler	28	28	51	4.5	24	350
QPB8958	5x7 QFN	50-1000	Push Pull	34	26	46	4.5	24	240

1.2 GHz Differential MMIC Amps

Table F-3

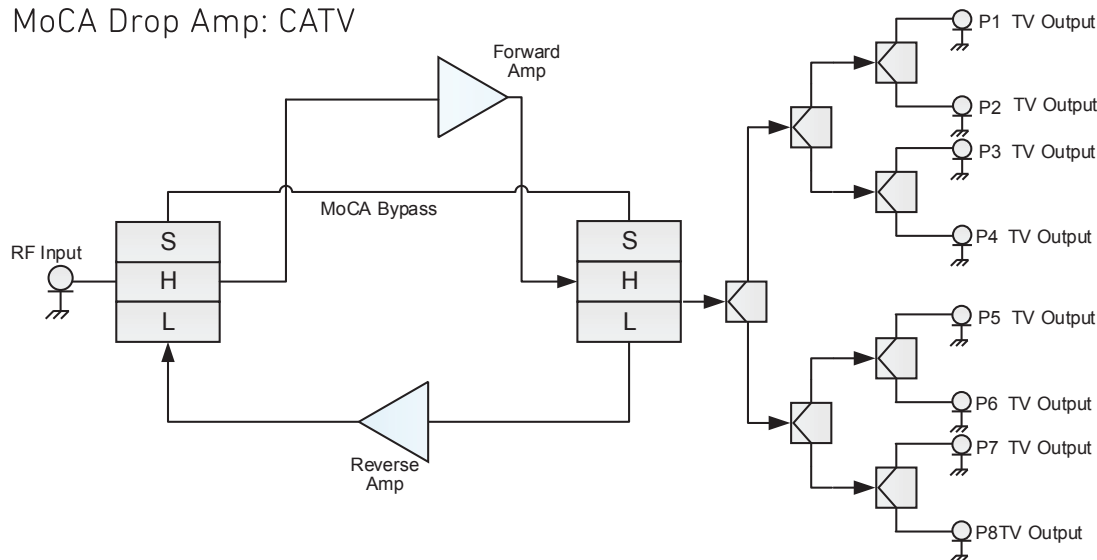
Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPL8834	SOIC 8	5-1218	High Linearity RF Amplifier	12	24	40	4	5	275
QPL8833	SOIC 8	5-1218	High Linearity RF Amplifier	15	24	40	3.5	5	275
TAT7472A1F	SOIC 8	50-1218	Dual RF Amplifier	15.4	24.5	44	2.5	5	320
RFCA8828	SOIC 8	50-1218	High Linearity RF Amplifier	16.4	25	44	2.75	5	293
QPL8831	SOIC 8	5-1218	High Linearity RF Amplifier	17	24	42	3	5	275
TAT7467E1F	SOIC 8	50-1218	Dual RF Amplifier	18	25	43	4.7	5	380
QPL8832	SOIC 8	5-1218	High Linearity RF Amplifier	19	24	40	3	5	275
RFCA8830	SOIC 8	45-1218	High Linearity RF Amplifier	19	24	40	2.5	5	280
QPL8830	SOIC 8	5-1218	High Gain High Linearity	21	24	43	3	5	275
QPL7434	4x4 QFN	47-1218	Dual 7432 TIA	25	24	36	2.8 EINC	5	230
QPB8808	5x7 QFN	50-1218	Power Doubler	20.5	33	50	4.5	12	525
TAT8804D1H	5x7 QFN	50-1218	Power Doubler	21	34	49	4.5	12	650
QPB8857	5x7 QFN	50-1218	Power Doubler	28	30	53	4.5	24	440
QPB8858	5x7 QFN	50-1218	Push Pull	34	27	48	4.5	24	290

1.8 GHz Differential MMIC Amps

Table F-4

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPL1821	12pin 5x5 Laminate	45-1800	45 dB @ +63 dBmV TCP @5 V 45 dB @ +67 dBmV TCP @8 V	19	24.5	40	3.8	5 to 8	260/350
QPL1820	12pin 5x5 Laminate	45-1800	45 dB @ +63 dBmV TCP @5 V 45 dB @ +67 dBmV TCP @8 V	22	26	45	3.5	5 to 8	260/350
QPL1815	SOIC 8	45-1800	Dual RF Amplifier	11	24	40	4	7	210
QPL1811	SOIC 8	45-1800	42 dB @ +64 dBmV TCP	16	24	42	3.5	7	290

8 Port with MoCA Drop Amp: CATV



Return Amps MMIC Single Ended

Table G-1

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPB3311	SOIC 8	5-210	Return Path RF Amplifier	15	23.5	48	3.8	5, 8	172
QPB3321	SOIC 8	5-210	Return Path RF Amplifier	17.5	24	48	3.4	5, 8	170
QPB0066	6x6 MCM	5-500	Digital Controlled VGA	44	23	40	3.5	8	240
QPB7420	SOT 89	5-700	Low Noise Amplifier	20	20	35.5	1.2	5, 8	90
QPB7425	SOT 89	5-700	Return Path RF Amplifier	25	24.7	39	1.1	5, 8	90

1 GHz Single Ended MMIC

Table G-2

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
TAT7430B	SOT 89	50-1000	High Gain RF Amplifier	22	22	41	2	5-8	190
TAT7461	SOT 89	50-1000	General Purpose RF Amplifier	16.1	-	39	2.3	6	130
TAT7427BT1	SOT 89	50-1000	High Gain RF Amplifier	18.5	-	38	2.5	6-8	145

1.2 GHz Single Ended MMIC

Table G-3

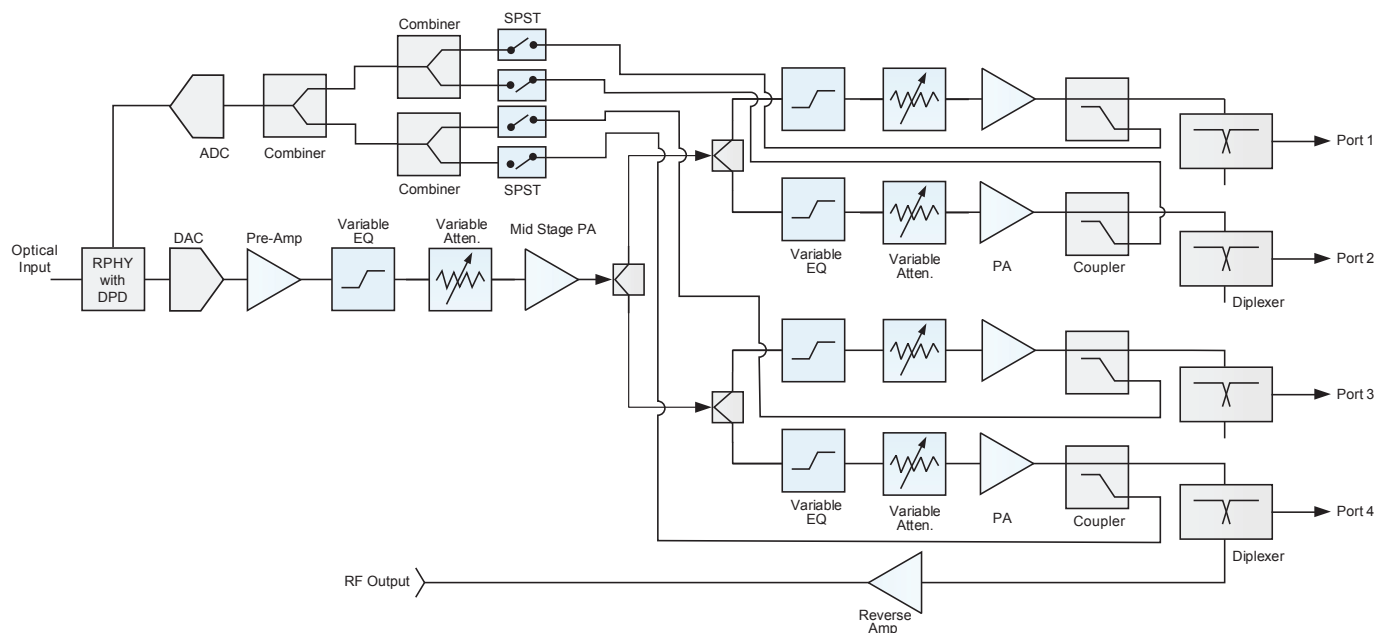
Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPB7420	SOT 89	47-1218	Low Noise Amplifier	20	20	35.5	1.2	3, 5, 8	50
QPB7425	SOT 89	47-1218	Low Noise Amplifier	25	24.7	39	1.1	3, 5, 8	105
TAT7460	SOT 89	50-1218	General Purpose RF Amplifier	17	20.5	36	2.5	5	100
QPB7432	SOT 89	47-1218	Low EINC Optical Rec Front End	32	20	-	0.6	5	105
TAT7457	SOT 89	50-1218	Adjustable Gain Amplifier, TIA	19	21	40	2.3	5-8	120

1.8 GHz Single Ended MMIC

Table G-4

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP2 (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPL1818	3x3 QFN	50-1800	Low Noise Amplifier	15	19	50	37	2	5	100
QPL7433	2x2 DFN 8	44-3300	Low Noise Amplifier	17	20	42	33	1.5	5	90
QPL1819	3x3 QFN	50-1800	Low Noise Amplifier	19.5	19	52	34	1.6	5	120
QPL7442	2x2 DFN 8	44-4000	Low Noise Amplifier	20	20.5	35	32	1.5	5	90
QPL1816	SOT 89	50-1800	RF Amplifier	9	16	50	32	3.5	6	130
QPL1812	SOT 89	50-1800	High Linearity RF Amplifier	19	21	63	41	3.5	8	180
QPL1810	SOT 89	50-1800	Low Noise Amplifier	20	24	52	40	1.5	8	102

4 Port Optical Node with Feedback for DPD and Four SPST Switches



Control Products

Switches

Table H

Part Number	Package	Product Description	Freq Range (MHz)	Impedance (Ω)	Insertion Loss (dB)	Isolation (dB)	P1/0.1dB (dBmV)	IP3 (dBm)	Vcc (V)
QPC6742	1.8x1.8 QFN	SP4T Reflective Switch	5-2000	75	0.40	30	40.2/34	82	3-5
QPC6762	2x2 QFN	SP6T Reflective Switch	5-2000	75	0.40	34	37/33	75	3-5
QPC3024	4x4 QFN	SPDT Absorptive Switch	5-3000	75	0.82	66	36/36	61	3-5
QPC7512	2x2 QFN	SPDT Reflective Switch	5-3300	75	0.30	36	36	75	3-5
QPC7522	1.1x1.5 LGA	SPDT Reflective Switch	5-3300	75	0.25	46	37	73	5
QPC4270	3x3 QFN	SPST Absorptive Switch	5-3000	75	0.30	62	37	74	3

Voltage Controlled Attenuators (VCAs)

Table I

Part Number	Package	Product Description	Freq Range (MHz)	Impedance (Ω)	Insertion Loss (dB)	P1dB (dBm)	Range (dB)	IP3 (dBm)	Vcc (V)
RFSA3043	3x3 QFN	Voltage Controlled Attenuator	5-3000	75	1.5	30	30	50	3-5
QPC4043	3x3 LGA	Closed Loop VCA	5-3000	75	1.5	30	25	>45	3-5

Digital Step Attenuators (DSAs)

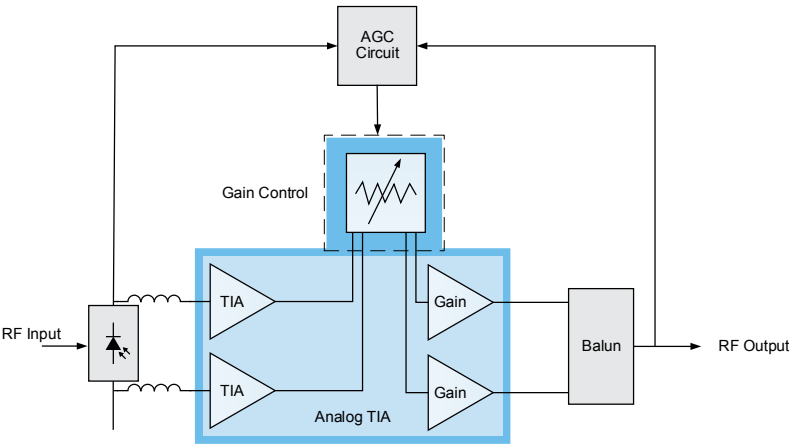
Table J

Part Number	Package	Product Description	Freq Range (MHz)	Impedance (Ω)	Insertion Loss (dB)	Step Size (dB)	Range (dB)	IP3 (dBm)	Vcc (V)
QPC3614	4.2x4.2 QFN	6-Bit Digital Step Attenuator	5-1500	75	1.2	0.5	31.5	65	5
QPC3624	4x4 QFN	6-Bit Digital Step Attenuator	47-2000	75	1.2	0.5	31.5	55	3.3
QPC4614	4x4 LGA	6-Bit Digital Step Attenuator	50-2000	75	1.2	0.5	31.5	65	5

Voltage Controlled Equalizer

Table K

Part Number	Package	Product Description	Freq Range (MHz)	Impedance (Ω)	Insertion Loss (dB)	Return Loss (dB)	Tilt Range (dB)	IP3 (dBm)	Vcc (V)
QPC7334	6x6 MCM	Voltage Controlled Equalizer	5-684	75	2.2	16	0.4-16	50	5
QPC7335	6x6 MCM	Voltage Controlled Equalizer	45-1000	75	2.75	16	0.5-20	50	5
QPC7332	6x6 MCM	VC Cable Compensation Equalizer	45-1218	75	2.75	16	5-15	50	5
QPC7336	6x6 MCM	Voltage Controlled Equalizer	45-1218	75	2.75	16	0.5-22	50	5
QPC7337	6x6 MCM	Voltage Controlled Equalizer	256-1800	75	2.75	16	0.5-20	50	5



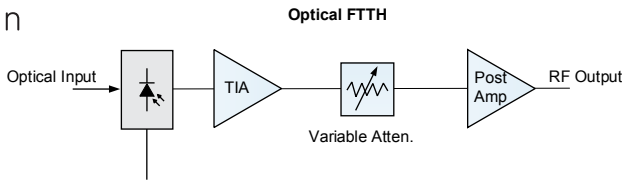
Optical

FTTH Optical Receive Amplifiers

Table L

Part Number	Package	Optical Rx	Freq Range (MHz)	Gain (dB)	Power Consumption Current (mA)	Voltage (V)	P _{OUT} dBmV/ Channel (dBmV)	Optical Input Pow- er MIN/MAX (dBm)	Equivalent Input Noise (pA/rtHz)
QPB8888	4x4 QFN	Optical Video Receiver	45-1218	37	130	12	23	-10 /+2	3.5
QPB9015	11x11 MCM	xPON Optical Video Receiver with Integrated Attenuator	45-1218	37	300	5	23	-10 /+2	3.5
TAT6254C	4x4 QFN	Optical Video Receiver	47-1000	33	120	12	23	-10 /+2	3.9

Optical Reference Design



Transformers and Protection

Transformers

Table M

Part Number	Package	Freq Range (MHz)	Product Description	Insertion Loss @ 50 MHz (dB)	Amplitude Balance (dB)	Phase Balance (deg)	Impedance Ratio	Input Return Loss (dB)	Type Transmission Line
RFXF0006H	SP5	45-1218	1:1 SMT Transformer, 75 Ω	1.3	0.4	4	1:1	15	Unbalanced to Balanced
RFXF0008H	SP6	45-1218	1:2.78 SMT Transformer, 75 Ω	1.6	0.3	2	1:2.78	14	Balanced to Balanced
RFXF0009H	SP5	45-1218	1:1 SMT Transformer, 75 Ω	0.4	1.3	5	1:1	25	Unbalanced to Balanced
RFXF0010	SP5	45-1218	1:1 SMT Transformer, 75 Ω	1.1	0.2	0.8	1:1	16	Unbalanced to Balanced
RFXF0007	SP5	45-1218	1:1 SMT Transformer, 75 Ω	0.4	1.4	7	1:1	13	Unbalanced to Balanced

Protection

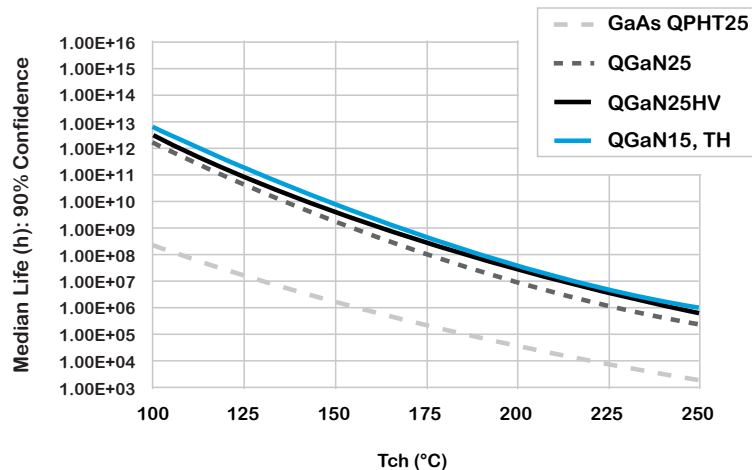
Table N

Part Number	Package	Freq Range (MHz)	Product Description	Insertion Loss @ 50 MHz (dB)	Amplitude Balance (dB)	Phase Balance (deg)	Impedance Ratio	Input Return Loss (dB)	Type Transmission Line
TQP200002	3pin TSLP	50-1200	ESD Protection Diode	0.3	41	-52	-63	15 @ 1 V 300 @ 15 V	220 @ 1 V, 10 MHz

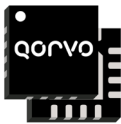
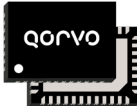
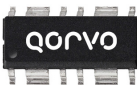
Qorvo has driven innovation and development of gallium nitride (GaN) products and technologies that enable next-generation systems for over 15 years. With Qorvo, not only are you getting world-class electrical performance, our partners also benefit from a 'trusted' supplier with industry-leading GaN reliability. Qorvo is also the only GaN supplier to reach manufacturing readiness level MRL 10.

Key Qorvo GaN attributes:

- >65 million device hours on 16,900 devices in the field, with less than 0.013% failures per million hours
- Applications from DC through Ka-band
- High power density
- Proven reliability at high junction temperatures, mean time to failure (MTTF) of greater than 10^7 (10 million) to 10^9 (1 billion) hours at 200 degrees (C) and greater than 10^6 (1 million) to 10^8 (100 million) hours at 225 degrees (C)



Guide to Qorvo CATV Product Packages

 LGA	 4x4 QFN	 SP5	 SP6
 MCM	 SOT 115J	 5x7 QFN	 DFN (T/SLP-3)
 CJ2BAT0	 SOIC 16W	 SOIC 8	 SOT 89

1) All values are typical except where otherwise indicated.
2) Refer to individual product datasheets for test conditions.

www.qorvo.com/cable
info-catv@qorvo.com



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800.348.5580
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rellpower.com
rellpower@rell.com