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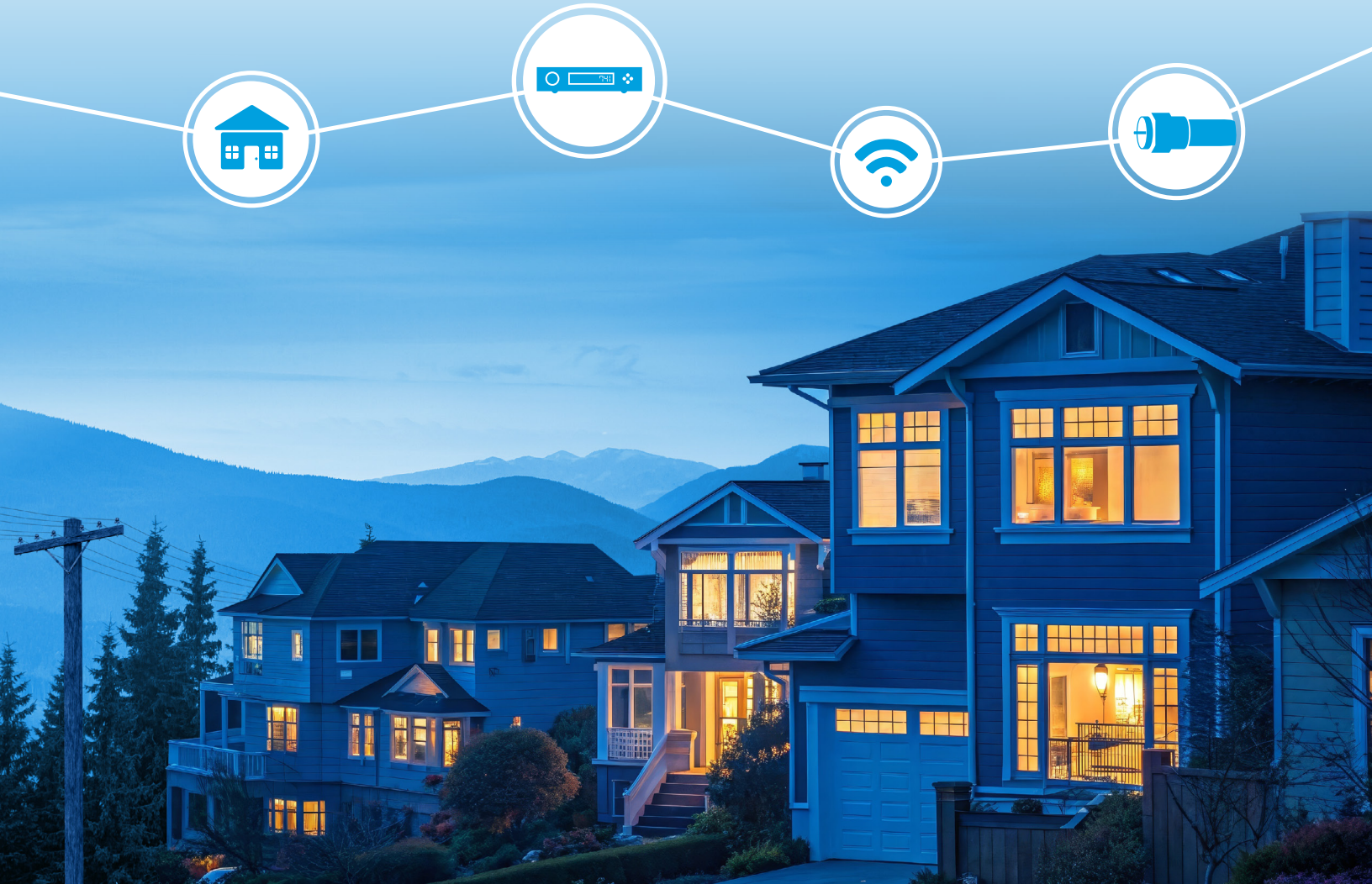
Qorvo® Broadband Access, CATV Product Selection Guide

Brilliant Networks Start with Qorvo



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.

High Output Hybrid & MCMs

1.8 GHz Power Doubler Amplifiers

Table A

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption Current (mA)	Power Consumption Voltage (V)	Power Consumption Watts (W)	TCP (dBmV)	MER/CCN (dB)	Technology
QPA3314	Hybrid	108-1794	23	520*	24	12.4	73	51	GaAs/GaN
QPA3390	MCM	108-1794	23	480	24	11.5	73	51	GaAs/GaN
QPA3311	Hybrid	108-1794	23	520*	24	12.4	74	51	GaAs/GaN
QPA3312	Hybrid	108-1794	23	520*	24	12.4	74+	51	GaAs/GaN
QPA3316	Hybrid	108-1794	23	530*	34	18	75+	51	GaAs/GaN
QPA3317	Hybrid	108-1794	24.3	530*	34	18	75+	51	GaAs/GaN

* Device has current adjust pin for variable current operation

1.2 GHz Power Doubler Amplifiers

Table B

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption Current (mA)	Power Consumption Voltage (V)	Max Output Capability* (dBmV)	Max Composite Output Capability (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	CIN Typ. (dB)	Technology
RFPD3540	Hybrid	45-1218	28	420	24	68.8	–	-80	-80	-76	55	GaAs/GaN
QPB8857	5x7 QFN	45-1218	28	440	24	66.8	–	-83	-81	–	60	GaAs
QPA3357	Hybrid	45-1218	28	440	24	66.8	–	-83	-81	–	60	GaAs
RFPD3210	Hybrid	45-1218	23	470	24	73.8	–	-73	-76	-68	57	GaAs/GaN
QPA3230	Hybrid	45-1218	23	370 - 470	24	73.8	–	-73	-76	-68	57	GaAs/GaN
RFCM3327	MCM	45-1218	23	370 - 470	24	73.8	42	-80	-80	-76	58	GaAs/GaN
RFPD3220	Hybrid	45-1218	25	470	24	73.8	46	-73	-76	-68	57	GaAs/GaN
QPA3240	Hybrid	45-1218	25	370 - 470	24	73.8	46	-73	-76	-68	57	GaAs/GaN
QPA3246*	Hybrid	45-1218	25	470	24	75	46	-73	-76	-68	57	GaAs/GaN
RFCM3328	MCM	45-1218	25	370 - 470	24	73.8	42	-80	-80	-76	58	GaAs/GaN
QPA3325*	MCM	45-1218	25	370 - 470	24	74	46	–	–	–	–	GaAs/GaN
RFPD3580	Hybrid	45-1218	23	430 - 530	34	76.8	40	-73	-74	-68	55	GaAs/GaN
QPA3270*	Hybrid	45-1218	25	430 - 530	34	76.8	45	-82	-82	-74	58	GaAs/GaN

* Next generation

1.2 GHz Push Pull Amplifiers (Interstage)

Table C

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption Current (mA)	Power Consumption Voltage (V)	Pout (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	CIN Typ. (dB)	Technology
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
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
QPA3359	Hybrid	45-1218	28	270	24	44	-70	-76	-70	64	GaAs
QPB8858	5x7 QFN	47-1218	34	290	24	47	-75	-70	–	65	GaAs
QPA3358	Hybrid	47-1218	34	290	24	47	-75	-70	–	65	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

1 GHz Power Doubler Amplifiers

Table D

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Pout (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	CIN Typ. (dB)	Release Status	Technology
				Current (mA)	Voltage (V)							
QPA3223	Hybrid	40-1000	23	410	24	50	-70	-71	-65	62	In production	GaAs/GaN
QPA3340	Hybrid	40-1000	23	470	24	61	-73	-76	-65	60	In production	GaAs/GaN
QPA3350	Hybrid	40-1000	25	470	24	61	-73	-76	-65	60	In production	GaAs/GaN
QPB8957	5x7 QFN	50-1003	28	350	24	56	-78	-79	–	64	In production	GaAs

1 GHz Push Pull Amplifiers (Interstage)

Table E

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		Pout (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	Release Status	Technology
				Current (mA)	Voltage (V)						
QPA3320	Hybrid	40-1003	34	280	24	44	-66	-65	-60	In production	GaAs
QPB8958	5x7 QFN	50-1003	34	260	24	47	-75	-70	–	In production	GaAs

Return Path Amplifiers

Table F

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption		CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)
				Current (mA)	Voltage (V)			
R1005250L	Hybrid	5-100	25	133	24	-69	-70	-59
R1005300L	Hybrid	5-100	30	130	24	-64	-68	-55
RFRP2241	Hybrid	5-100	30	130	24	-66	-70	-57
R2005300L	Hybrid	5-210	30	138	24	-72	-72	-65
R2005350L	Hybrid	5-210	35	158	24	-72	-72	-64
R3005250L	Hybrid	5-300	25	138	24	-71	-75	-63
QPA5368	MCM	5-300	35.3	195	12	-72	-75	-63

Medium and Low Power MMICs

Return Amplifiers MMIC Differential

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)
QPB8896	SOIC 8	5-700	Upstream Amp	25	22.6	38	1.8	5	275
QPL8830	SOIC 8	5-835	Upstream Tune	21	24	43	3	5 to 8	275
QPL8831	SOIC 8	5-835	Upstream Tune	17	24	42	3	5 to 8	275
QPL8832	SOIC 8	5-835	Upstream Tune	19	24	40	3	5 to 8	275
QPL8833	SOIC 8	5-835	Upstream Tune	15	24	40	3.5	5 to 8	275
QPL8834	SOIC 8	5-835	Upstream Tune	12	24	40	4	5 to 8	275
QPL1163	SOIC 8	5-835	Upstream Tune	19	25	45	2.4	5 to 8	290
QPL1240	SOIC 8	5-835	Upstream Tune	17	25	45	2.4	5 to 8	290
QPL1820	12 Pin 5x5	5-835	Upstream Tune	20	26	45	3.5	5 to 8	260/350
QPL1821	12 Pin 5x5	5-835	Upstream Tune	18	24.5	40	3.8	5 to 8	260/350
QPL1822	12 Pin 5x5	5-835	Upstream Tune	15	24.2	39	4	5 to 8	260/350
QPL1823	12 Pin 5x5	5-835	Upstream Tune	23.5	24.2	39	3.5	5 to 8	260/350
QPL1842	12 Pin 5x5	5-835	Upstream Amp	25	26.5/30	41.5/44.5	1.8	5 to 8	260/375

1 GHz MMIC Differential Amplifiers

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)
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 Amplifiers

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)
RFCA8828	SOIC 8	50-1218	High Linearity RF Amplifier	16.4	25	44	2.75	5	293
RFCA8830	SOIC 8	45-1218	High Linearity RF Amplifier	19	24	40	2.5	5	280
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
QPL8830	SOIC 8	5-1218	High Gain High Linearity	21	24	43	3	5-8	275
QPL8831	SOIC 8	5-1218	High Linearity RF Amplifier	17	24	42	3	5-8	275
QPL8832	SOIC 8	5-1218	High Linearity RF Amplifier	19	24	40	3	5-8	275
QPL8833	SOIC 8	5-1218	High Linearity RF Amplifier	15	24	40	3.5	5-8	275
QPL8834	SOIC 8	5-1218	High Linearity RF Amplifier	12	24	40	4	5-8	275
QPL1163	SOIC 8	5-1218	MAAM011163 Replacement	19	25	45	2.4	5-8	275
QPL1240	SOIC 8	5-1218	MAAM011240 Replacement	17	25	45	2.4	5-8	275

1.8 GHz Differential MMIC Amplifiers

Table G-4

Part Number	Package	Freq Range (MHz)	CCN or MER (dB)	TCP (dBmV)	Gain (dB)	Noise Figure (dB)	Vcc (V)	Icc (mA)	DC Power (W)
QPL1811	SOIC 8	45-1800	44 MER	62	16	3.5	7	290	2.03
QPL1815	SOIC 8	45-1800	42 MER	62	12	4	7	210	1.47
QPA8840	6x6 MCM	45-1800	45 MER	68.6	22	4	12	425	5.1
QPL1820	12 Pin 5x5 MCM	45-1800	51 CCN 51 CCN	63 67	22	3.5	5 8	260 350	1.3 2.8
QPL1821	12 Pin 5x5 MCM	45-1800	55 CCN 53 CCN	63 67	19	3.8	5 8	260 350	1.3 2.8
QPL1822	12 Pin 5x5 MCM	45-1800	62 CCN 53 CCN	63 67	15	4	5 8	260 350	1.3 2.8
QPL1823	12 Pin 5x5 MCM	45-1800	51 CCN 50 CCN	63 66.5	26	3.6	5 8	260 350	1.3 2.8
QPL1827	12 Pin 5x5 MCM	50-1800	51 CCN	63 67.5	30	4	5/5 5/8	100/260 165/350	1.8 3.6

Return Amplifiers MMIC Single Ended

Table H-1

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPL7425	3x3 QFN	5-700	Return Path RF Amplifier	25	24.7	39	1.1	5-8	60/120
QPL7420	3x3 QFN	5-700	Low Noise Amplifier	20	20	35.5	1.2	5-8	50/120
QPL1840	3x3 QFN	5-850	CCN 51 dB @ 58 dBmV TCP (5V)	17	22	36	1.8	5 to 8	135
QPL1841	3x3 QFN	5-850	CCN 51 dB @ 57 dBmV TCP (5V)	12	19	41	2.5	5 to 8	135

1.2 GHz Single Ended MMIC

Table H-2

Part Number	Package	Freq Range (MHz)	Product Description	Gain (dB)	P1dB (dBm)	Output IP3 (dBm)	Noise Figure (dB)	Vcc (V)	Icc (mA)
QPL7420	3x3 QFN	47-1218	Low Noise Amplifier	20	20	35.5	1.2	3-8	50
QPL7425	3x3 QFN	47-1218	Low Noise Amplifier	25	24.7	39	1.1	3-8	105

1.8 GHz Single Ended MMIC

Table H-3

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)
QPL7420	3x3 QFN	47-1800	Low Noise Amplifier	20	20	55	35.5	1.2	5 to 8	90
QPL1843	3x3 QFN	50-1800	RF Amplifier	9	16	50	32	3.5	6	130
QPL1818	3x3 QFN	50-1800	Low Noise Amplifier	15	19	50	37	2	5	100
QPL1840	3x3 QFN	50-1800	RF Amplifier	17	22	57	33	2.4	5 to 8	130
QPL1819	3x3 QFN	50-1800	Low Noise Amplifier	19.5	19	52	34	1.6	5	120
QPL7433	2x2 DFN 8	44-3300	Low Noise Amplifier	17	20	42	33	1.5	5	90
QPL7442	2x2 DFN 8	44-4000	Low Noise Amplifier	20	20.5	35	32	1.5	5	90

Control Products

Switches

Table I

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

Voltage Controlled Attenuators (VCAs)

Table J

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 K

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
QPC4614	4x4 LGA	6-Bit Digital Step Attenuator	50-2000	75	1.2	0.5	31.5	65	5

Qorvo Variable Equalizer Family

Table L

Part Number	Package	Product Description	Freq Range (MHz)	Impedance (Ω)	Insertion Loss (dB)	Return Loss (dB)	Tilt Range (dB)	IP3 (dBm)	Vcc (V)
Upstream Options									
QPC7339	6x6 MCM	Var. Cable Compensation EQ	5-396	75	2	16	0.5-20	50	5
QPC7334	6x6 MCM	Var. Linear EQ	5-684	75	2.2	16	0.4-16	50	5
QPC7333	6x6 MCM	Var. Cable Compensation EQ	5-684	75	2.75	17	0.5-18	50	5
QPC7331	6x6 MCM	Var. Cable Compensation EQ	5-834	75	2	17	0.5-18	50	5
Downstream Options									
QPC7336	6x6 MCM	Var. Linear EQ	45-1218	75	2.75	16	0.6-22	50	5
QPC7332	6x6 MCM	Var. Cable Compensation EQ	45-1200	75	2.75	16	0.5-20	50	5
QPC7337	6x6 MCM	Var. Linear EQ	108-1800	75	2.75	16	0.5-17	50	5
QPC7338	6x6 MCM	Var. Cable Compensation EQ	108-1800	75	2.75	17	0.5-18	50	5
QPC7330	10x14 MCM	I2C Cable Simulator	108-1800	75	0.5	18	2-25	63	5

Transformers and Protection

Transformers & Baluns

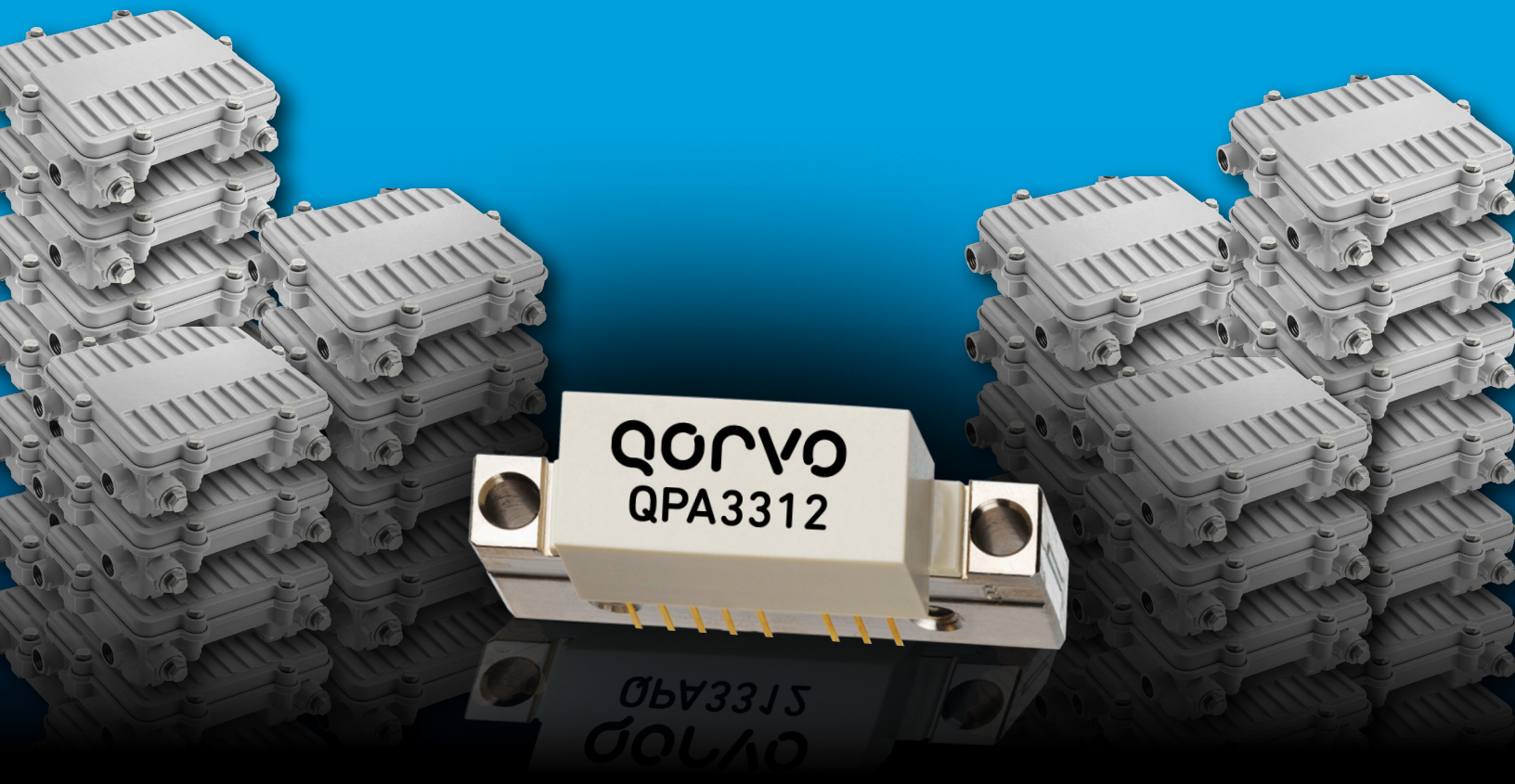
Table M

Part Number	Package	Freq Range (MHz)	Product Description	Insertion Loss @50 MHz (dB)	Impedance Ratio	Input Return Loss (dB)	Type-Transmission Line
RFXF0006H	SP5	45-1218	1:1 SMT Balun, 75 Ω	1.3	1:1	15	Unbalanced to Balanced
RFXF0008H	SP6	45-1218	1:2.78 SMT Transformer, 75 Ω	1.6	1:2.78	14	Balanced to Balanced
RFXF0009H	SP5	45-1218	1:1 SMT Balun, 75 Ω	0.4	1:1	25	Unbalanced to Balanced
RFXF0010	SP5	45-1218	1:1 SMT Balun, 75 Ω	1.1	1:1	16	Unbalanced to Balanced
RFXF0007	SP5	45-1218	1:1 SMT Balun, 75 Ω	0.4	1:1	13	Unbalanced to Balanced
QPP0020	SP6	45-1794	3.06:1 SMT Transformer, 75 Ω	<1.5	3.06:1	15	Balanced to Balanced
QPP0021	SP5	45-1794	1:1 SMT Balun, 75 Ω	<1	1:1	12	Unbalanced to Balanced
QPP0022	SP5	45-1794	1:1 SMT Balun, 75 Ω	<1	1:1	12	Unbalanced to Balanced
QPP0023	SP6	45-1794	3.06:1 SMT Transformer, 75 Ω	<1.5	3.06:1	15	Balanced to Balanced
QPP0024	SP5	45-1794	1:1 SMT Balun, 75 Ω	<1	1:1	12	Unbalanced to Balanced
QPP0025	SP7	5-1218	1:1 SMT Balun, 75 Ω (Minntronix 4813040R Replacement)				1:1

Notes for All Tables

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

Solving 1.8 GHz with More Booster Amps?



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