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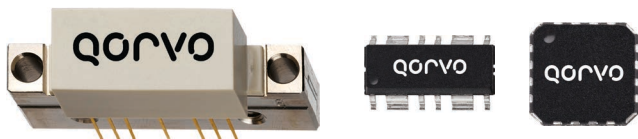
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# Broadband DOCSIS<sup>®</sup> 3.1 Solutions

Broadband Transmission • Optical Nodes • Line Amplifiers • SMATV  
Edge QAM • MDU • Head Ends • Digital Video Broadcast • FTTH • RFoG • CPE



**qorvo**  
all around you





# Broadband DOCSIS 3.1 Solutions

Qorvo offers a broad family of products tailored for the next-generation of cable networking, DOCSIS 3.1. Qorvo's DOCSIS 3.1 family includes 1.2GHz power amplifiers as both hybrids and multi-chip modules (MCMs) that use state-of-the-art GaN HEMT process technology and offer optimal linearity and output power while providing robust reliability.

Qorvo's forward path amplifiers operate from 45MHz to 1.218GHz with extremely low distortion levels and excellent input and output return loss (-20dB typical). The reverse path amplifiers work up to 300MHz with high gain and highly integrated functions. Qorvo's MMIC solutions operate from 5V to 24V and include various gain amplifiers, low EINC optical front end, xPON video receiver, a complete receiver reference design and controlled products such as VCA, DSA and high isolation switches.

## Hybrid and MCM Power Doubler Amplifiers (12-34v)

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	Pout at Max Freq (dBmV)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Part Number
45	1218	21	57	-79	-73	12	650	QFN 5x7	TAT8804D1H
45	1218	20.6	58	-79	-77	12	540	QFN 5x7	QPB8808
45	1218	23	60	-80	-80	24	430	SOT-115J	RFPD2580
45	1218	23	60	-80	-80	24	430	MCM 9x8	RFCM3316
45	1218	23	67	-80	-80	24-34	540	SOT-115J	RFPD3580
45	1218	23	63	-78	-80	24	480	SOT-115J	RFPD3210
45	1218	23	63	-78	-80	24	370-470	SOT-115J	QPA3230
45	1218	23	63	-78	-80	24	470	MCM 9x8	RFCM3327
45	1218	23	65	-80	-80	28	540	MCM 9x8	QPA3590
45	1218	24	60	-75	-69	24	445	QFN 5x7	TAT9988
45	1218	25	60	-80	-80	24	430	MCM 9x8	RFCM3326
45	1218	25	60	-80	-80	24	430	SOT-115J	RFPD3190
45	1218	25	63	-78	-80	24	370-470	SOT-115J	QPA3240
45	1218	25	63	-78	-80	24	470	MCM 9x8	RFCM3328
45	1218	25	63	-78	-80	24	480	SOT-115J	RFPD3220
45	1218	25	53	-73	-74	12-24	350	SOIC16W	TAT8857A1H
45	1218	28	55	-82	-80	24	420	SOT-115J	RFPD2540
45	1218	28	59	-80	-80	24	420	SOT-115J	RFPD3540

## Hybrid and MCM Push Pull Amplifiers (12-24v)

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	Pout at Max Freq (dBmV)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Part Number
45	1218	23.5	44	-64	-70	24	230	SOT-115J	RFPP2590
45	1218	28	46	-72	-78	24	260	SOT-115J	RFPP3870
45	1218	28-32	44	-63	-75	12-24	265	SOIC16W	TAT8858A1H
45	1218	28.5	46	-67	-70	12	410	MCM 11x11	RFAM3790
45	1218	28.5	46	-68	-75	24	250	MCM 11x8.5	RFCM4363
45	1218	34	46	-66	-72	24	240	SOT-115J	RFPP3180

Note: Refer to individual datasheet for test conditions.

## Hybrid and MCM Reverse Amplifiers

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	NF (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Part Number
5	100	38	3.8	-72	-70	24	158	SOT-115J	RFRP2920
5	100	25	3	-60	-80	12	130	SOIC8	CGR0118Z
5	200	20	2.2	-73	-70	12	355	SOT-115J	R2005200P12
5	200	24.2	1.8	-70	-70	12	355	SOT-115J	R200240P12
5	200	28.3	4.9	-69	-70	24	135	SOT-115J	R2005280L
5	200	30.3	4.7	-72	-72	24	138	SOT-115J	R2005300L
5	200	35.2	5	-72	-72	24	158	SOT-115J	R2005350L
5	200	17	4	-67	-80	5	217	SOIC8	CGR0218Z
5	220	39	3.2	-63	-60	12	205	MCM 11x11	RFCM5304
5	300	19	1.7	-70	-77	5	260	SOIC8	RFCA8830
5	300	17.5	4	-76	-80	5	215	SOIC8	RFCA1008
5	300	25	5.6	-59	-64	24	138	SOT-115J	R3005250L
5	300	30	5.3	-70	-72	24	145	SOT-115J	R3005300L
5	300	35	5.1	-70	-75	24	155	SOT-115J	RFRP3120
5	300	37	4.8	-	-	8	320	MCM 6x6	TAT3814

## MMIC Broadband Amplifiers – Push Pull (5-8v)

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	NF (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Part Number
45	1218	12	4.0	-67	-67	6	200	SOIC8	TAT7466
45	2600	12	4.0	-75	-83	5	240	SOIC8	QPB7464
45	1218	12	4.5	-67	-80	5	165	SOIC8	AG606
45	1218	15	3.0	-73	-77	5-6	325	SOIC8	TAT7472A1F
45	1218	16	2.5	-83	-83	6	340	SOIC8	RFCA8828
45	1218	17	4.5	-70	-70	5	380	SOIC8	TAT7467
45	1218	17.5	3.2	-69	-75	5	250	SOIC8	TAT7469
45	1218	19	1.7	-70	-77	5	260	SOIC8	RFCA8830
45	1500	17	2.0	-70	-72	7	220	SOIC8	RFCA8818

## MMIC Broadband Amplifiers – Single Ended (5-8v)

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	NF (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Part Number
45	1218	16	2.3	-88	-72	6	130	SOT-89	TAT7461
45	1218	16	2.3	-82	-62	5	115	SOT-89	TAT7461-X
45	1218	18.5	2.5	-88	-70	6	145	SOT-89	TAT7427B
45	1218	19	2.3	-80	-65	5	100	SOT-89	TAT7457
45	1218	10.5	3.5	-80	-70	5	110	SOT-89	QPB7400
45	1218	22	1.5	-82	-68	5	170	SOT-89	RFCA3828
45	1218	22	2.0	-81	-61	8	190	SOT-89	TAT7430B
45	2600	16.5	2.5	-73	-60	5	90	SOT-89	TAT7460B1A

## Optical Receivers – Hybrid and MMIC

Min Freq (MHz)	Max Range (MHz)	Power Gain at Max Freq (dB)	EINC pA $\sqrt{Hz}$	CTB (dBc)	CSO (dBc)	Vcc (V)	Current (mA)	Package (mm x mm)	Description	Part Number
45	1218	24-29	3.5	-65	-65	5	240	QFN 4x4	Optical Front End	RFCA8890
45	1218	31	4.2	-	-	24	245	SOT-115J	Optical Receiver	RFOS601x (x=2,3)
45	1218	33	3.9	-63	-63	5 or 12	200/120	QFN 4x4	xPON Video	TAT6254C
45	1218	33	3.8	-64	-64	5	220	QFN 6x6	xPON Video	TAT6281
45	1218	36	3.8	-70	-66	5	510	Reference Board (8890+2013+8830)		
45	1218	36	2.9	-62	-62	5 or 12	200/120	QFN 4x4	xPON Video	TAT6254B
45	1218	38.5	3.0	-64	-65	12	120	QFN 4x4	xPON Video Rcvr	RFRX8888

## Attenuators and Switches – MMIC

Min Freq (MHz)	Max Range (MHz)	Insertion Loss (dB)	CTB (dBc)	CSO (dBc)	Vcc (V)	Attenuation Range (dB)	Package (mm x mm)	Description	Part Number
5	2000	2.3	See DS for Linearity Data		5	31.5	QFN 4x4	DSA, 0.5dB Step, Serial	RFSA2654
5	3000	1.5	-75	-80	5	30	QFN 3x3	VCA	RFSA3043
5	6000	0.75	>100	>100	3	-	QFN 2x2	SPDT	RFSW1012
30	3000	2.7	-65	-70	5	30	QFN 3x3	VCA	RFSA3013
30	3000	2.7	-65	-70	3.3	30	QFN 3x3	VCA	RFSA3023

## Protector

Description	Application	Trigger Voltage (V)	Leakage Current (nA)	Capacitance (femto Farads)	Package Area (mm <sup>2</sup> )	Package Style	Part Number
Protection Device	ESD Protection	V <sub>TR</sub> = 41V	I = 15 @ 1V, 500 @ 15V	290fF @ 1V, 10MHz	1.8	T/SLP-3	TQP200002

## SAW Filters

Description	Center Frequency (MHz)	Bandwidth (MHz)	Insertion Loss (dB)	Modes of Operation	Package Size (mm x mm)	Part Number
Cable IF Filter	36.15	8	22.0 max	SE	DIP-0	855748
Cable IF Filter	44	6	22.0 max	SE	DIP-0	855079
Cable IF Filter	44	6	22.0 max	SE	24.6x9.0	856129
Cable IF Filter	110.59	1	7.8 max	SE	13.3x6.5	855659
Cable IF Filter	202.75	1.2	7.6 max	SE	13.3x6.5	855068
Cable IF Filter	499.25	1	9.0 max	SE	9.0x7.0	855104
LTE Notch	808	24	1.5	SE	1.7x1.3	857252
LTE B20 Notch	828	68	2.5 typ	SE/BAL	1.4x1.2	857253
Tuner IF Filter	1086	10	5.0 max	BAL	3.0x3.0	855964
Tuner IF Filter	1086	10	-	BAL	3.0x3.0	856330
Tuner IF Filter	1090	10	5.8 max	BAL	3.8x3.8	856096
Tuner IF Filter	1220	10	5.5 max	BAL	3.0x3.0	856298
Tuner IF Filter	1220	50	-	BAL	3.8x3.8	856598
Tuner IF Filter	1250	100	6.5 typ	BAL/BAL	3.0x3.0	856653

Note: Refer to individual datasheet for test conditions.