



Qorvo® Broadband Access, CATV & FTTH Product Selection Guide

Upgrade Your Network



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			TCP (dBmV)	MER/CCN (dB)	Technology
				Current (mA)	Voltage (V)	Watts (W)			
QPA3310	Hybrid	45-1794	23	470*	24	11.3	71	50	GaAs/GaN
QPA3315	Hybrid	45-1794	23	530*	34	18	73	51	GaAs/GaN
QPA3314	Hybrid	45-1794	23	520*	24	12.4	73	51	GaAs/GaN
QPA3390	MCM	45-1794	23	480	24	11.5	73	51	GaAs/GaN
QPA3316	Hybrid	45-1794	23	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			Max Output Capability (dBmV)	Max Composite Output Capability (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	CIN Typ. (dB)	Technology
				Current (mA)	Voltage (V)	Watts (W)							
RFPD3540	Hybrid	45-1218	28	420	24	68.8	-	-80	-80	-76	55	GaAs/GaN	
QPA3333	MCM	45-1218	28	320-450	24	68.8	-	-80	-74	-75	60	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	
QPA3245*	Hybrid	45-1218	25	470	24	75	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	
QPA3250	Hybrid	45-1218	23	430-530	34	76.8	40	-73	-74	-68	55	GaAs/GaN	
QPA3260*	Hybrid	45-1218	23	430-530	34	76.8	45	-82	-82	-74	58	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			Pout (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)	CIN Typ. (dB)	Technology
				Current (mA)	Voltage (V)	Watts (W)						
QPA8801	5x7 QFN	47-1218	11	395	12	47	-70	-72	-	68.5	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	
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	
QPA4428	5x7 QFN	45-1218	28	290	24	47	-75	-70	-	65	GaAs	
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	
RFPP3180	Hybrid	45-1218	34	240	24	45	-66	-72	-62	64	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)	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 E

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption			Pout (dBmV)	CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (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 F

Part Number	Package	Freq Range (MHz)	Gain (dB)	Power Consumption			CTB Typ. (dBc)	CSO Typ. (dBc)	XMOD Typ. (dBc)
				Current (mA)	Voltage (V)				
R0605250L	Hybrid	5-65	25	133	24	-69	-70	-59	
R0605300L	Hybrid	5-65	30	133	24	-64	-68	-55	
R1005250L	Hybrid	5-100	25	133	24	-69	-70	-59	
RFRP2920	Hybrid	5-100	28	158	24	-72	-70	-64	
R1005300L	Hybrid	5-100	30	130	24	-64	-68	-55	
RFRP2241	Hybrid	5-100	30	130	24	-66	-70	-57	
R2005280L	Hybrid	5-210	28	135	24	-69	-70	-65	
R2005300L	Hybrid	5-210	30	138	24	-72	-72	-65	
R2005350L	Hybrid	5-210	35	158	24	-72	-72	-64	
RFCM5304	MCM	5-220	39 (Var)	205	12	-70	-70	-60	
R3005250L	Hybrid	5-300	25	138	24	-71	-75	-63	
R3005300L	Hybrid	5-300	30	148	24	-70	-72	-63	
RFRP3120	Hybrid	5-300	35	158	24	-70	-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 Tune	25	22.6	38	1.8	5	275
QPL8830	SOIC 8	5-700	Upstream Tune	21	24	43	3	5-8	275
QPL8831	SOIC 8	5-700	Upstream Tune	17	24	42	3	5-8	275
QPL8832	SOIC 8	5-700	Upstream Tune	19	24	40	3	5-8	275
QPL8833	SOIC 8	5-700	Upstream Tune	15	24	40	3.5	5-8	275
QPL8834	SOIC 8	5-700	Upstream Tune	12	24	40	4	5-8	275
QPL1163	SOIC 8	5-700	Drop in Macom MAAM011163	19	25	45	2.4	5-8	290
QPL1240	SOIC 8	5-700	Drop in Macom MAAM011240	17	25	45	2.4	5-8	290
QPL1820	12 Pin 5x5	5-700	Upstream Tune	20	26	45	3.5	5-8	260/350
QPL1821	12 Pin 5x5	5-700	Upstream Tune	18	24.5	40	3.8	5-8	260/350
QPL1822	12 Pin 5x5	5-700	Upstream Tune	15	24.2	39	4	5-8	260/350
QPL1823	12 Pin 5x5	5-700	Upstream Tune	23.5	24.2	39	3.5	5-8	260/350

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)
TAT7472A1F	SOIC 8	50-1218	Dual RF Amplifier	15.4	24.5	44	2.5	5	320
RFC8828	SOIC 8	50-1218	High Linearity RF Amplifier	16.4	25	44	2.75	5	293
TAT7467E1F	SOIC 8	50-1218	Dual RF Amplifier	18	25	43	4.7	5	380
RFC8830	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

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

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	5-8	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
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)
RFS3043	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

Voltage Controlled Equalizer

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)
QPC7336	6x6 MCM	Var. Linear EQ	45-1218	75	2.75	16	0.6-22	50	5
QPC7334	6x6 MCM	Var. Linear EQ	5-684	75	2.2	16	0.4-16	50	5
QPC7335	6x6 MCM	Var. Linear EQ	45-1000	75	2.75	16	0.7-20	50	5
QPC7337	6x6 MCM	Var. Linear EQ	108-1800	75	2.75	16	0.5-17	50	5
QPC7332	6x6 MCM	Var. Cable Compensation EQ	45-1200	75	2.75	16	0.5-20	50	5
QPC7338	6x6 MCM	Var. Cable Compensation EQ	108-1800	75	2.75	17	0.5-18	50	5
QPC7333	6x6 MCM	Var. Cable Compensation EQ	5-684	75	2.75	17	0.5-18	50	5
QPC7339	6x6 MCM	Var. Cable Compensation EQ	5-396	75	2	16	0.5-20	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

Protection

Table N

Part Number	Package	Freq Range (MHz)	Product Description	Insertion Loss (dB)	Trigger Voltage (V)	CTB (dBc)	CSO (dBc)	Leakage Current (nA)	Capacitance (fF)
TQP200002	3 Pin TSLP	50-1200	ESD Protection Diode	0.3	41	-52	-63	15 @ 1V 300 @ 15V	220 @ 1V, 10 MHz

Notes for All Tables

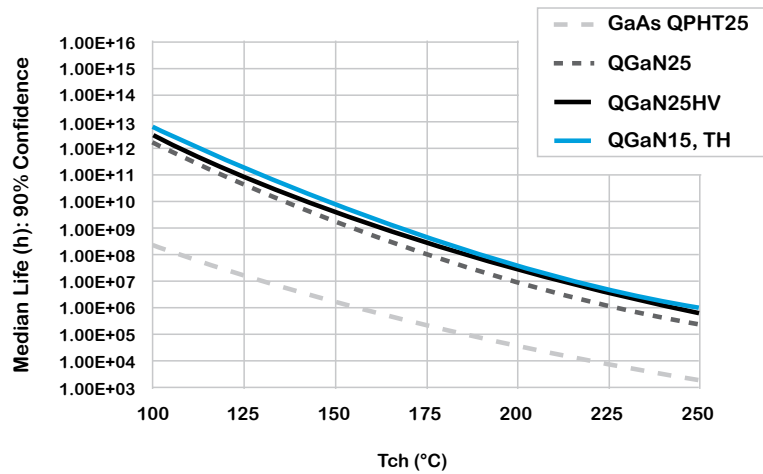
- 1) All values are typical except where otherwise indicated.
- 2) Refer to individual product data sheets for test conditions.

Gallium Nitride Innovation

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 10⁷ (10 million) to 10⁹ (1 billion) hours at 200 degrees (C) and greater than 10⁶ (1 million) to 10⁸ (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)
 3x3 QFN	 SOIC 16W	 SOIC 8	 SOT 89

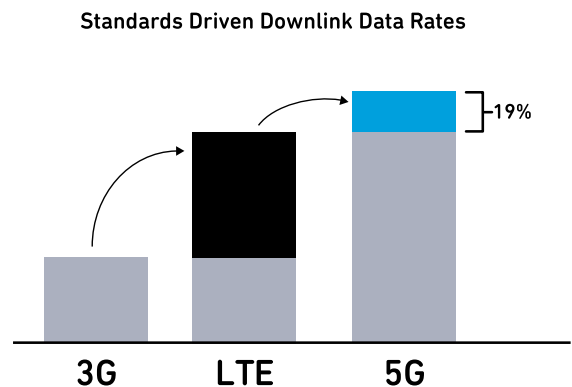
5 Points to 5G

- Initial transition to 5G will only provide a modest data rate improvement
- Fragmentation in ultra-high bands will produce regional handsets
- First approaches to 5G implementation will differ and drive RF complexity
- 5G requires large increase in RF content
- Additional RF content will drive larger form factors

The Reality of 5G

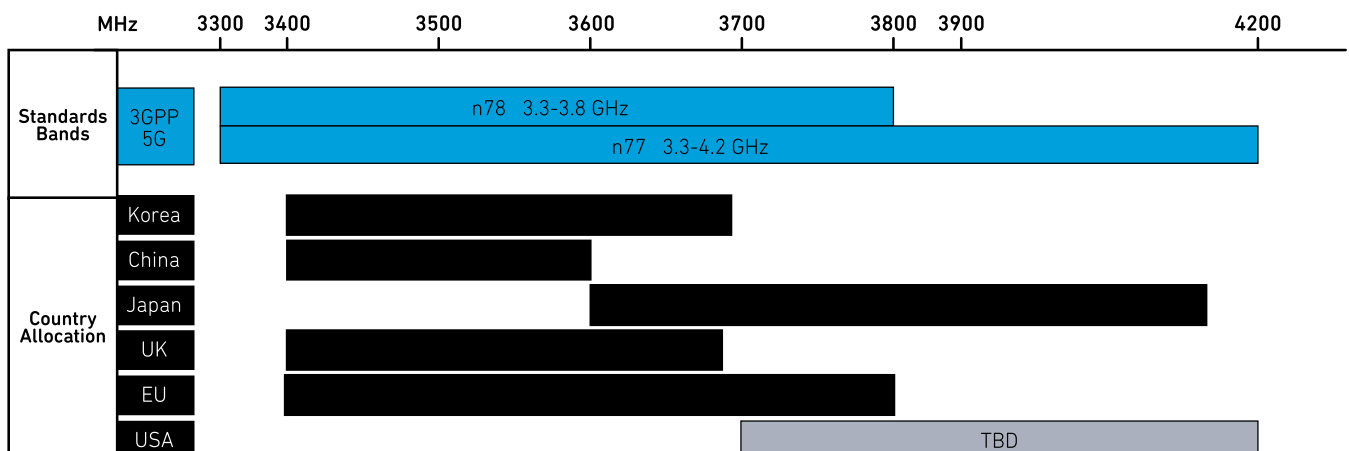
We are currently witnessing a global rush to 5G. Nations, mobile operators and handset manufacturers are all vying to be first in delivering the next generation of cellular connectivity - or at least get in the game early.

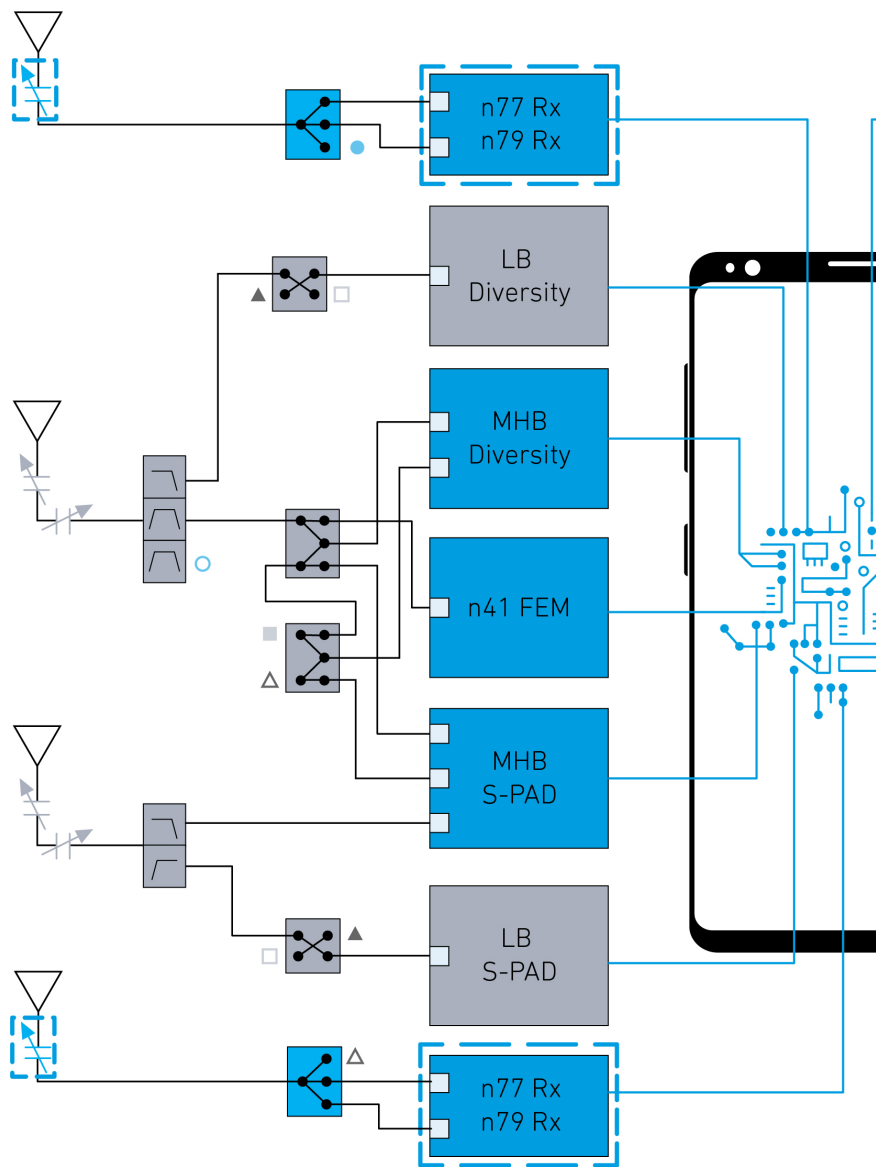
Worldwide, there are robust plans for rapid 5G deployment, especially in regions where wide bandwidth provided by new 5G bands are able to produce significantly higher data rates for consumers. Indeed, it is this access to new radio (NR) bands, along with the re-farming of existing LTE bands, that creates the greatest impact on data rates. Unlike the transition from 3G to LTE, the change in underlying 5G specifications provides only a modest data rate improvement. This may help to explain why, to facilitate fruitful 5G deployment, countries are rapidly allocating new spectrum in both of the new designated ranges: sub-6 GHz frequencies (FR1) and millimeter wave (mmW) frequencies above 24 GHz (FR2). South Korea, Britain, Italy and Spain, among others, have raised billions of dollars in spectrum auctions during 2018, and the U.S., China, Japan and Australia are expected to hold auctions and allocations in 2019. Operators in many countries, including the U.S., plan to start rolling out 5G services in 2019. Several major handset makers have already said they will produce 5G phones that support those services. Overall, these initiatives are driving toward widespread 5G coverage in developed countries by 2021.



But the global drive to 5G doesn't mean that we will see the emergence of global 5G handsets. In contrast to the situation with LTE, it may not be feasible or cost-effective to build global 5G handsets that support roaming across 5G networks worldwide. Instead, 5G will likely drive the handset market in the opposite direction - toward greater regionalization.

New 5G Bands





The RF Challenges of 5G

5G Drives Large Increases in RF Content

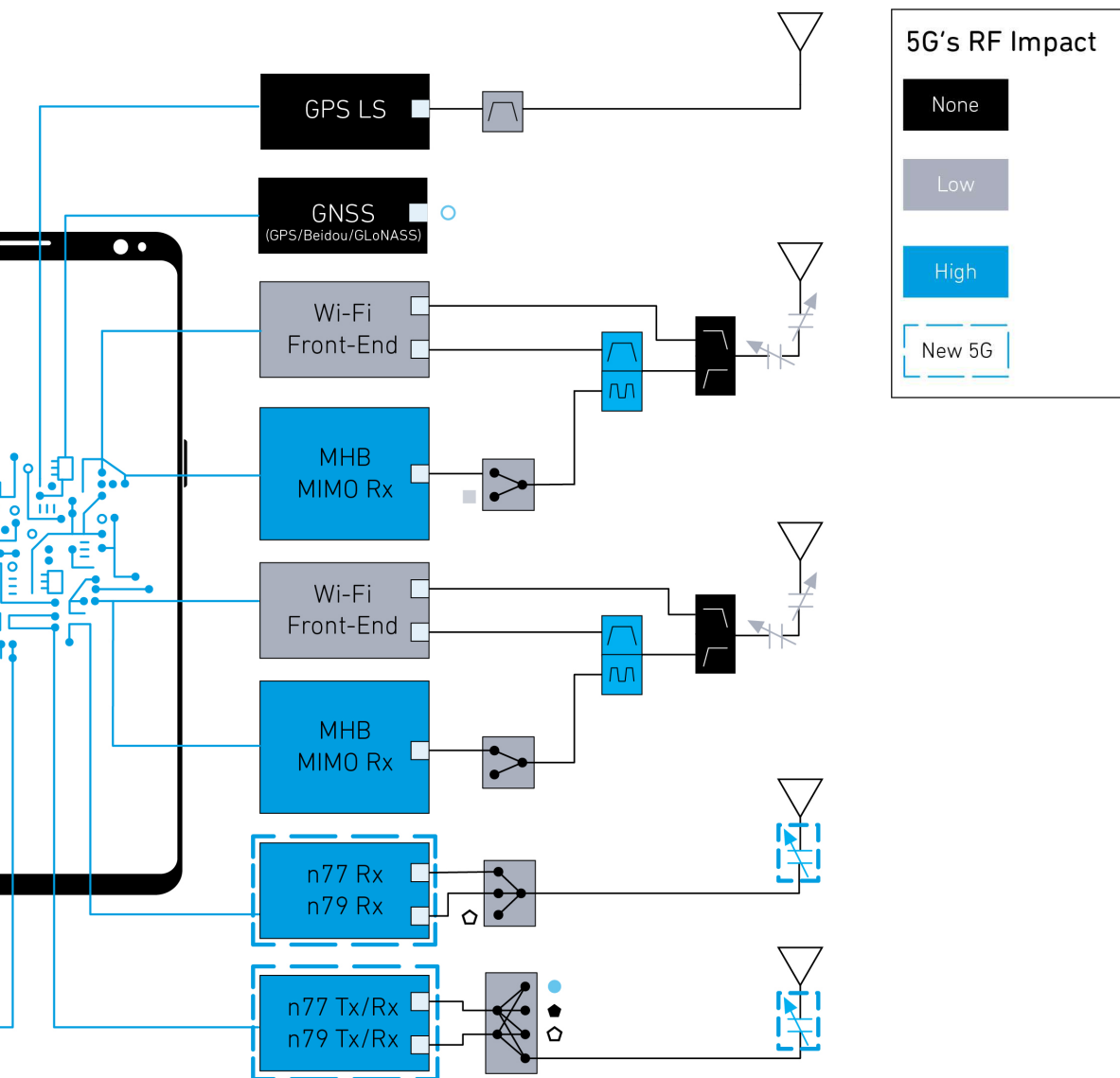
Will consumers be prepared to pay for a global 5G phone?

Global 5G roaming will come with higher costs and other tradeoffs. In order to provide coverage, especially when taking into account ultra-high band fragmentation across regions, there will be an increase in RF content. Even the addition of a single 5G band will result in a modest increase.

5G: Not As Global As It Seems

Fragmentation is occurring in new "global" ultra-high bands: n77, n78 and n79.

The differences in regional allocations will have a large impact on handset manufacturers, who must figure out how to support multiple potentially conflicting desires. Operators generally want handsets that are optimized for the subset of a band used in their region, however, handset manufacturers wanting to sell global devices, or at least regional, want to support the different bandwidths and carrier aggregation (CA) combinations used in their target markets. So, what happens when an operator, or even a group of operators among whom roaming will occur, has decided to deploy a narrower subset of the allocated band?



Initial 5G Implementation Will Be Varied

Non-standalone (NSA) vs. Standalone (SA).

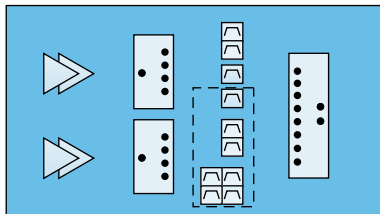
Initial approaches to 5G will vary by region, which increases the likelihood for challenging interactions. Although NSA helps operators deliver 5G speeds more quickly, it also introduces considerable RF complexity because it requires dual 4G LTE and 5G connectivity. For some 5G bands, the global picture is even more complex due to the need to support SA as well as NSA operation. Of course, if and when all regions move to SA, many of these problems will become much simpler. That's not likely to happen soon, however; 5G will be around for a decade or more before SA becomes the predominant implementation across the globe. In the race to global 5G deployment we have accepted that there will a long period of NSA-driven complexity, especially in RF implementations

New 5G Content: Where Will It Go?

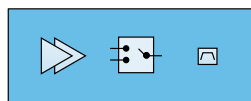
Additional RF content needs more space, which would be difficult to fit in today's standard-sized form factors. To accommodate, 5G phones may have to be plus-sized.

Qorvo's 5G Portfolio

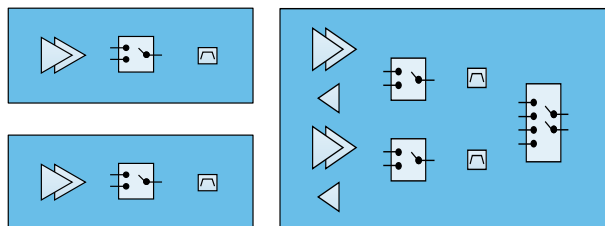
The coming 5G connected world is sure to bring on some of the toughest RF challenges the industry has faced. Qorvo is prepared to take on these complexities and is crafting a product portfolio that brings 5G mobile devices to life.



MHB P/N	CA 25/66/30	CA 1+3	CA 39+41	CA 3+41	CA 3+40	CA 3+7	CA 1+3+7	CA 1+3+32	NR
QM78052	✓	✓	✓	✓	✓	✓	✓	✓	n41, n3
QM77138	A	✓	✓	✓	✓	✓	✓	✓	n41, n3
QM77038	A	✓	✓	✓ (120 MHz)	✓	✓	✓	✓	n41, n3
QM77040	A	✓	✓	S	X	S	S	A	n41, n3

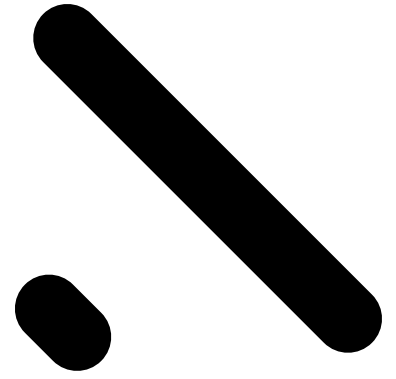


n41 FEM P/N	n41	B42	B43	B48	HPUE	LNA	SRS	BiDIR CPLR	APT	ET
QM75041	✓	✓	✓	✓	✓	X	X	✓	✓	✓



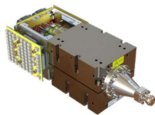
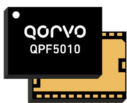
n77/n79 P/N	n77	n78	n79	HPUE	LNA	SRS	BiDIR CPLR	APT	ET
QM75077	✓	✓	X	✓	X	A	✓	✓	✓
QM75079	X	X	✓	✓	X	A	✓	✓	✓
QM78202	✓	✓	✓	✓	X	A	✓	✓	✓
QM78203	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = Optimized for Best Performance
 S = Supported
 A = Requires External Components
 X = Not Supported



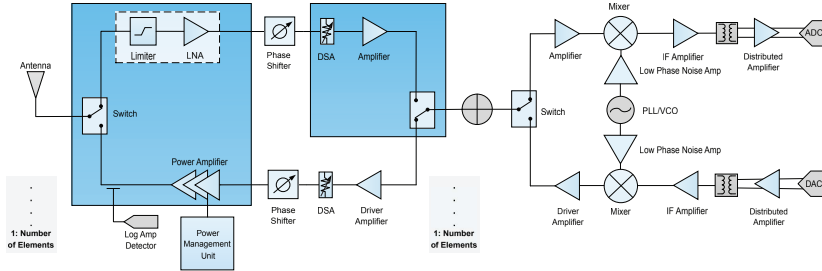
High-Performance Defense and Aerospace Solutions

Industry's largest portfolio of MMICs,
beamformer ICs, discrete products, modules
GaN | GaAs | Si | SAW | BAW



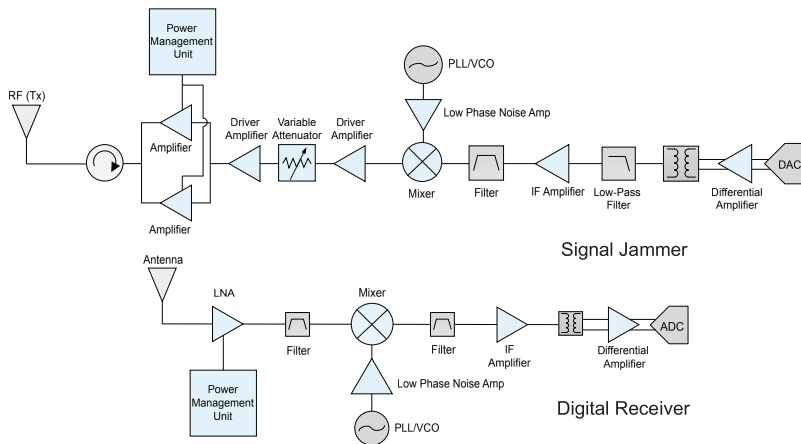
QORVO
all around you

Mission Critical Defense Applications (Signal Chains)



Radar (L, S, C, X, Ku-Band)

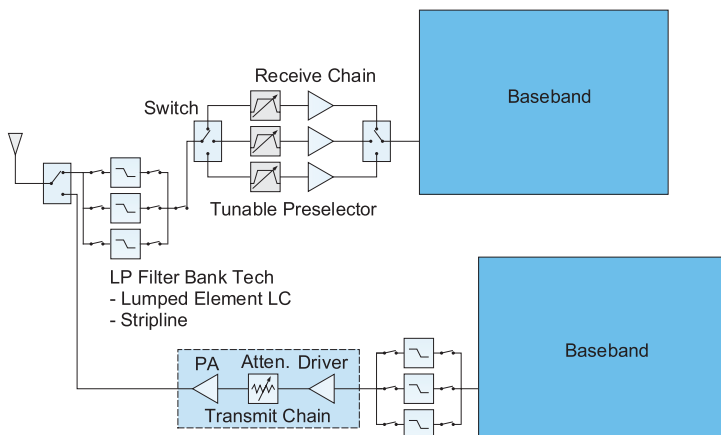
Today's advanced radar systems need to be more powerful and have greater functionality to detect a variety of growing global threats. Qorvo® has the largest portfolio of high-performance beamformer ICs, MMICs and discrete components designed for these applications. We can deliver the products and signal chain expertise you need to maintain the leading edge no matter in which frequency band you want to operate. With the recent acquisition of Anokiwave, Qorvo is in the unique position to provide our customers with unique features and differentiation over alternatives. By using silicon beamformer ICs that integrate all core beam steering and control functions coupled with our advanced GaAs/GaN T/R FEMs, customers can fit the RF front end within the radiating element lattice for tile X-band low-profile antennas that reduce SWaP-C and observability.



Electronic Warfare (EW)

Over the past decade there has been a greater emphasis given to EW technologies by other countries. EW supremacy is vital to maintaining the battlefield advantage.

Qorvo offers a full array of best-in-class RF solutions that are designed for broadband applications like EW that offer the industry's lowest noise figures. We can offer system designers a single function block or the entire signal chain depending on your needs. Our products are designed to operate at peak performance with each other making your job easier.



Communications

Secure and reliable communications are priority one in any potential conflict. Qorvo is a leader in wireless communications both on and off the battlefield. We understand what it takes to maintain a reliable and secure wireless connection all the way from the antenna to the receiver. You can trust Qorvo products to keep the lines of communications open and working at maximum efficiency under any circumstances. Our acquisition of Anokiwave adds innovative beamforming and IF transceiver silicon ICs that provide new options for higher levels of integration and high-performance phased array antennas.

X-Band Solutions

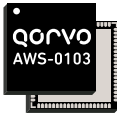
Higher Performance, Greater Choices, Lower Cost and Assured Availability

With the acquisition of Anokiwave, Qorvo provides the industry's most capable components for high performing X-band radars. Using Anokiwave's silicon beamformer ICs that integrate all core beam steering and control functions coupled with Qorvo's advanced GaN T/R FEMs, customers can fit the RF front end within the radiating element lattice for planar X-band low-profile antennas that reduce SWaP-C and observability.

AWS-0103

High Linearity Beamformer IC

Silicon quad core beamforming IC with selectable dual Rx beams to support monopulse or dual polarization operation.



AWS-0101

Low Noise Figure Beamformer IC

Silicon quad core beamforming IC with selectable dual Rx beams to support monopulse or dual polarization operation.

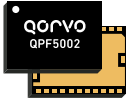


QPF5002

2W T/R Module

Multi-die FEM with T/R switch, limiter, LNA and PA.

Tx power = 2W, Rx NF = 2.1 dB.



QPM1002

3W T/R Module

GaN MMIC integrated FEM with T/R switch, limiter, LNA and PA.

Tx power = 3W, Rx NF = 2.2 dB.

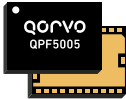


QPF5005

5W T/R Module

Multi-die FEM with T/R switch, limiter, LNA and PA.

Tx power = 5W, Rx NF = 2.2 dB.

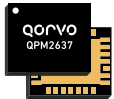


QPM2637

4W T/R Module

GaN MMIC integrated FEM with T/R switch, limiter, LNA and PA with dual Rx outputs.

Tx power = 4W, Rx NF = 2.7 dB.

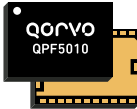


QPF5010

10W T/R Module

Multi-die FEM with T/R switch, limiter, LNA and PA.

Tx power = 10W, Rx NF = 2.2 dB.

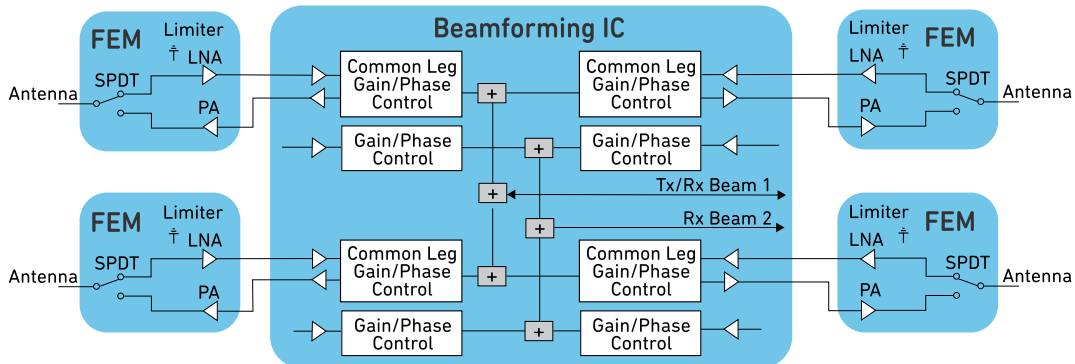
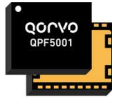


QPF5001

12W T/R Module

Multi-die FEM with limiter, LNA and PA. Interfaces to circulator.

Tx power = 12W, RF NF = 1.4 dB.



Gallium Nitride (GaN) Innovation

With high-performance GaN technology, Qorvo continues to build on a strong gallium arsenide (GaAs) legacy by offering new products and strategic foundry services that strive to meet our partners' demanding requirements. With Qorvo, our partners also benefit from a 'trusted' supplier with industry leading GaN reliability. Qorvo's GaN is at MRL10.

The GaN Advantage

Qorvo GaN powers improvements in SWaP-C analyses. With superior power, efficiency and gain, system designers now have the flexibility to make design trades that were previously not possible. Higher power densities lead to higher power capability in a smaller area. Reduced combining leads to improved efficiencies. Higher voltage operation results in lower system losses. Improved power handling supports high power switches and high dynamic range LNAs. Qorvo's leading GaN reliability at higher junction temperatures gives the user higher confidence during long-term operation. Whether the motivation is to increase power, reduce board area or improve efficiency, Qorvo GaN makes this possible while reducing overall system costs.

Key Qorvo GaN attributes:

- >65 million device hours on 16,900 devices in the field, with less than 0.013% failures per million hours
- 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)
- Production technologies supporting DC through Ka-band
- Excellent noise figure – comparable to pHEMT
- Highly robust to ESD and RF input signals
- SiC substrates for superior thermal management
- High power density (Improved SWaP)
- High power-added efficiency (Improved SWaP)

GaN Foundry Processes

As a DoD-accredited 'Microelectronics Trusted Source', Qorvo offers a variety of GaN technologies for optimized solutions. Accreditation encompasses foundry, post-processing, packaging/assembly and test services. Support provided by our foundry services division complements Qorvo's high-frequency standard product portfolio.

QGaN25:

- Technology: 0.25 μ m GaN on SiC
- Drain bias (Vd): up to 40V
- Operating frequencies: DC-18 GHz
- PAE: >60% at 10 GHz
- Power density: 6W/mm at 10 GHz
- Reliability: >10M hours at 200 degrees (C) and 40V (3-temp DC MTTF with failure defined as 10% degradation in Idmax)

QGaN15:

- Technology: 0.15 μ m GaN on SiC
- Drain bias (Vd): up to 28V
- Operating frequencies: DC-40 GHz
- PAE: >50% at 30 GHz
- Power density: 4.2W/mm at 30 GHz
- Reliability: >10M hours at 200 degrees (C) and 28V (DC MTTF with failure defined as 10% degradation in Idmax)

QGaN25HV:

- Technology: 0.25 μ m GaN on SiC
- Drain bias (Vd): up to 48V
- Operating frequencies: DC-12 GHz
- PAE: >78% at 3.5 GHz
- Power density: 6.5W/mm at 3.5 GHz
- Reliability: >10M hours at 200 degrees (C) and 48V (3-temp DC MTTF with failure defined as 10% degradation in Idmax)

QGaN50:

- Technology: 0.50 μ m GaN on SiC
- Drain bias (Vd): up to 65V
- Operating frequencies: DC-8 GHz
- PAE: >78% at 3.5 GHz
- Power density: 9W/mm at 3.5 GHz
- Reliability: >10M hours at 200 degrees (C) and 65V (DC MTTF with failure defined as 10% degradation in Idmax)

GaN Packaging Solutions

Qorvo packaging solutions focus on maximizing performance while managing thermal behavior and cost. Our high-performance GaN products can be found in a variety of Cu-based packages for superior heat transfer. Depending on the functionality and operating conditions, Qorvo offers bolt down packages down to small surface mount packages in either air-cavity or overmold formats.

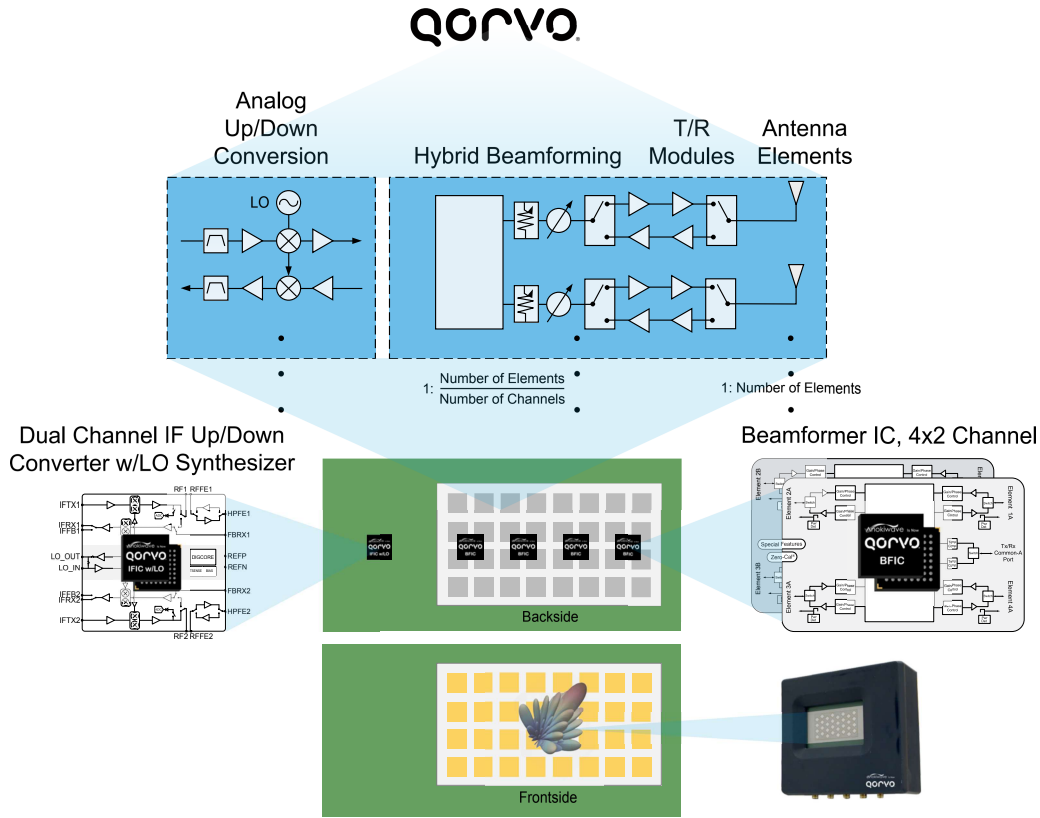
GaN Standard Product Portfolio

Qorvo's leadership in high-performance GaAs has been extended to GaN. With GaN proving to be an evolutionary technology in support of next-generation military and commercial applications, Qorvo is leading the way with world-class products across frequency and functionality. With a growing portfolio of GaN-based amplifiers and switches, along with high-performance transistors, Qorvo is the premiere solution provider for your GaN needs.

Qorvo conducts extensive testing and analysis of both processes and products to provide exceptional performance, reliability and high-volume manufacturing capability. When measuring and predicting thermal behaviors, Qorvo simulates FET channel temperature using finite element analysis, then verifies those models against micro-Raman measurements of the FET to provide accurate, lifetime reliability data.

Highly Integrated mmWave RF-to-Digital Solutions for Phased Array Active Antennas

In 2024, Anokiwave was acquired by Qorvo. Anokiwave's innovative portfolio of active antenna ICs, combined with Qorvo's complementary products, global scale and significant market reach, provide new options for high integration and high performance that will democratize phased array active antennas. The two companies' technologies enable a unique combination of innovation + commercial scale + reputation to deliver with proven commercial success across mmWave 5G, SATCOM and D&A markets.



Benefits of mmWave Si Technology:

- Lowest \$/dBm commercially available today
- Multi-band performance
- Advanced digital core simplifying design
- Smart integration
- Complete signal chain solutions (IQ, IF, RF, mmW, antennas, algorithms)
- Scalable quad architecture
- Zero-Cal[®] reduces calibration
- System level support for optimized solutions
- 300 mm CMOS for lowest cost
- Proven in volume in fielded radios

Applications:

- Military/commercial radar
- SATCOM LEO/MEO, mobile GEO
- mmWave 5G
- Future FR3

Featured Products

Market	IC Type	Frequency (GHz)	Feature	Part Number
RADAR	Tx/Rx Beamformer IC	8.5 to 10.55	Single Tx, Dual Rx	AWS-0103
RADAR	Tx/Rx Beamformer IC	8.5 to 10.55	Single Tx, Dual Rx	AWS-0101
SATCOM	Rx Beamformer IC	10.7 to 12.75	4x2 Dual Pol	AWMF-0146
SATCOM	Tx Beamformer IC	13.75 to 14.5	4x2 Dual Pol	AWMF-0147
SATCOM	Rx Beamformer IC	17.7 to 21.2	4x2 Dual Pol	AWMF-0197
mmW 5G	Tx/Rx Beamformer IC	24 to 30	4x2 Dual Pol	AWMF-0221
mmW 5G	IF Up/Down Converter IC	24 to 30	Single Channel; Wideband	AWMF-0210
mmW 5G	IF Transceiver IC	24 to 30	Dual Channel; Wideband	AWMF-0224
All Markets	32-Element mmW-IF Antenna	24 to 30	4x2 Dual Pol	AWA-0213
SATCOM	Tx Beamformer IC	27.5 to 31	4x2 Dual Pol	AWMF-0198
mmW 5G	Tx/Rx Beamformer IC	37 to 43.5	4x2 Dual Pol	AWMF-0236
mmW 5G	IF Up/Down Converter IC	37 to 43.5	Single Channel; Wideband	AWMF-0218
mmW 5G	IF Transceiver IC	37 to 48.2	Dual Channel; Wideband	AWMF-0196

GaN Power Transistors and Pallets

Description	Frequency (GHz)	LS Compression Gain (dB)	PAE (%)	Psat (dBm)	Bias (V)	Package (mm)	Part Number
500W Discrete	DC-1.7	15	67	57.3	50	NI-780	QPD1016L
150W Discrete	DC-2.7	15	65	52.5	65	7.2x6.6 DFN	QPD1013
125W Discrete	DC-3.2	16	73	52.1	50	NI-360	QPD1008/L
200W Discrete	DC-3.4	12	60	51	50	NI-360	TGF2819-FL
55W Discrete	DC-3.5	13	50	47.2	28	NI-360	T2G4005528-FS
100W Discrete	DC-3.5	14	72	50	28	NI-360	TGF2929-FL
2x200W Discrete	DC-3.5	14	68	54	50	NI-650	T1G4020036-FL/-FS
75W Discrete	DC-3.6	20	80	48.7	48	7.2x6.6 DFN	QPD0050
90W Discrete	DC-3.6	16	73	49.5	48	7.2x6.6 DFN	QPD0060
75W Discrete	DC-3.7	15	80	48.5	48	NI-360	QPD1015/L
10W Discrete	DC-4	17	70	41	50	3x3 QFN	QPD1010
15W Discrete	DC-4	17	72	42	50	3x3 QFN	QPD1009
45W Discrete	DC-4	17	72	46.9	48	4x3 QFN	QPD0030
10W Discrete	DC-6	14	56	40	28	NI-200	T2G6000528-Q3
15W Discrete	DC-6	13	65	42.3	28	NI-200	T2G6001528-Q3
30W Discrete	DC-6	11	54	43.5	28	NI-200	T2G6003028-FL
35W Discrete	DC-6	17	78	45.4	48	4x3 QFN	QPD0020
40W Discrete	DC-6	12	52	47	50	NI-200	QPD1035/L
5W Discrete	DC-12	8	50	37	32	3x3 QFN	TGF2977-SM
10W Discrete	DC-12	14	55	40.4	32	3x3 QFN	QPD1022
20W Discrete	DC-12	15	65	43	32	4x3 QFN	TGF2978-SM
27W Die	DC-12	14	54	44.3	32	Die	TGF2954
12W Die	DC-18	18	73	40.1	28	Die	TGF2023-2-02
25W Die	DC-18	15	78	43	28	Die	TGF2023-2-05
50W Die	DC-18	17	70	47.3	28	Die	TGF2023-2-10
90W Die	DC-18	16	71	50.5	28	Die	TGF2023-2-20
7W Discrete	0.03-1.2	16	60	39.4	50	6x5 DFN	QPD1011
15W Discrete	0.03-1.2	18	70	41	50	6x5 DFN	QPD1014
25W Discrete	0.03-1.2	18	73	46	50	6x5 DFN	QPD1004
15W Discrete	0.03-1.215	17	78	42	28	6x5 DFN	QPD1000
5W Discrete	0.03-3	14	63	37	32	3x3 QFN	TGF2965-SM
10W Discrete	0.03-3	14	63	39.7	32	3x3 QFN	TGF3015-SM
30W Discrete	0.03-4	17	73	44	32	4x3 QFN	TGF3021-SM
1300W Discrete	0.42-0.45	21	81	61.2	65	NI-1230	QPD1026L
1800W Discrete	0.96-1.215	18	77	62.7	65	NI-1230	QPD1025/L
1700W Pallet	0.96-1.215	17	65	62.3	65	108x57 Pallet	QPD1034
100W PAM	1.2-1.4	32	60	50	50	25x12.5 SMD	QPA2511
450W IMFET	1.2-1.4	15	62	54.9	45	NI50-CW	QPD1006
500W IMFET	1.2-1.4	17	67	57.3	50	17x24	QPD1003
750W Discrete	1.2-1.4	17	65	58.8	65	NI-780	QPD1028/L
1500W Discrete	1.2-1.4	17	70	61.8	65	NI-1230	QPD1029L

RF Filters, Dual Filters and Dplxers

Description	Frequency (MHz)	Bands	Technology	IL (dB)	Package (mm)	Part Number
978 MHz Bandpass Filter	977.2-978.8	ADS-B	BAW	3.5	6.43x4.64	QPQ0978
1030 MHz Bandpass Filter	1023-1037	SSR/IFF	BAW	3	3.71x2.57	880367
1090 MHz Bandpass Filter	1082-1098	SSR/IFF	BAW	3	3.71x2.57	880374
L5 GPS Bandpass Filter	1,160.95-1,191.95	L5	TC-SAW	1.2	1.4x1.2	QPQ1062
L2 GPS Bandpass Filter	1,212.1-1,243.1	L2	TC-SAW	1.2	1.4x1.2	QPQ1061
L1 GPS Bandpass Filter	1,559.92-1,590.92	L1	TC-SAW	1.3	1.4x1.2	QPQ1060
L1/L2 GPS Diplexer	1,559.92-1,590.92, 1,212.1-1,243.1	L1, L2	TC-SAW	1.6, 1.3	5x5	QPQ1063
L1/L2 GPS Dual Filter	1,563.42-1,587.42, 1,215.6-1,239.6	L1, L2	TC-SAW	2.6, 3.0	5x5	QPQ1028
L-Band Switched Filter Bank	1200-1250, 1250-1300, 1300-1350, 1350-1400, 1300-1325, 1325-1350, 1350-1375, 1375-1400, By Bass	L	TC-SAW	3	10x10	QPB1029
Iridium Bandpass Filter	1,616.0-1,626.5	Iridium	TC-SAW	1.7	1.4x1.2	QPQ1065

GaN Switches

Description	Frequency (GHz)	IL (dB)	ISO (dB)	P1dB (dBm)	Voltage (V)	Package (mm)	Part Number
50W SPDT	0.15-2.8	<0.7	>30	47	0/-40	4x4 QFN	QPC1005
50W SP3T	0.15-2.8	<1	>30	47	0/-40	4x4 QFN	QPC1006
100W SPDT	0.5-6	<1.1	>40	50	0/-40	5x5 QFN	TGS2355-SM
20W SPDT	0.5-12	<1	>30	43	0/-40	4x4 QFN	TGS2352-2-SM
10W SPDT	0.5-18	<1.5	>25	40	0/-40	4x4 QFN	TGS2353-2-SM
30W SP3T	2-11	1.5	20	-	0/-30	4x4 Laminate	QPC2511
10W SPDT	8-12	<1.2	30	41.7	0/-28	4x4 QFN	QPC2040
20W SPST	2-18	0.5	25	-	-	Die	QPC1030D/QPC1031D

GaN Power Amplifiers

Description	Frequency (GHz)	P _{sat} (dBm)	LS Gain (dB)	PAE (%)	Bias (Vdc)	Package (mm)	Part Number
10W Wideband PA	0.03-2.5	40	13	55	32	4x4 QFN	QPA2237
10W Wideband PA	0.1-3	41	13	40	40	4x4 AC-SMT	TGA2976-SM
18W Wideband PA	1-6	42.7	24	40	22	5x6 AC-SMT	QPA0106
35W Wideband PA	1-6	45.4	22.4	41	24	15x15 Flange	QPM0106
10W Wideband PA	1-8	40	15	30	28	5x6 AC-QFN	QPA1003P
30W Wideband PA	2-6	45	22	30	28	15x15 Flange	TGA2578-CP
2.5W Wideband PA	2-20	34	16	23	18	4.5x4.5 AC-SMT	QPA2213
10W Wideband PA	2-20	40	13	22	22	5x5 AC-SMT	QPA2962
20W Wideband PA	2-20	44	16	23	22	15x15 Flange	QPA2966
45W Wideband PA	2.5-6	46.5	20	36	30	Flange	TGA2576-2-FL
2W S-Band PA	2.7-3.5	33	17	52	25	4x4 QFN	QPA2935
12W S-Band PA	2.7-3.5	41	25	52	28	5x5 QFN	TGA2975-SM
100W S-Band PA	2.7-3.5	50	25	53	30	7x7 QFN	QPA3069
50W S-Band PA	2.8-3.2	47	22	58	25	7x7 QFN	QPA1000
60W/50V S-Band PA	2.8-3.5	48	22	55	50	6x6 QFN	QPA1027
150W/50V S-Band PA	2.9-3.5	52	28	58	50	7x7 QFN	QPA3070
10W C-Band PA	4.5-7	40	19	40	22	5x5 QFN	QPA1019
4W S-Band PA	5-6	36.5	18	53	25	4x4 QFN	QPA0506
50W/50V C-Band PA	5-6	48	23	49	50	7x7 QFN	QPA2310
100W/50V C-Band PA	5-6	50	22	47	50	7x7 QFN	QPA2309
100W C-Band PA	5.7-7	50	20	38	26	19x19 Flange	QPM1017
2.5W Wideband PA	6-12	34	16	30	22	4x4 QFN	QPA2598
30W C/X-Band PA	6-12	45	22	30	20	15x15 Flange	TGA2590-CP
10W Wideband PA	6-18	40	20	20	20	Die	QPA1013D
20W Wideband PA	6-18	43	18	20	20	15x15 Flange	TGA2963-CP
100W X-Band PA	7.9-11	50	22	35	28	19x19 Flange	TGM2635-CP
5W X-Band PA	8-12	38	26	42	24	5x5 QFN	QPA2611
12W X-Band PA	8-12	41	23	40	24	5x5 QFN	QPA2612
2W X-Band PA	8.5-10.5	33	23	47	20	5x5 QFN	QPA2610
2W X-Band PA	8.5-10.5	33	27	50	16	4x3 QFN	QPA0001
4W X-Band PA	8.5-11	36.5	24	45	22	4x4 QFN	QPA1022
30W X-Band PA	8.5-10.5	45	30	45	22	6x6 QFN	QPA1111
60W X-Band PA	8.5-10.5	48.9	28	48.5	24	7x7 QFN	QPA2811
100W X-Band PA	10-12	50	22	26	28	19x19 Flange	QPM1021
16W X-Band PA	10.7-12.7	43	16	33	20	6x5 AC-SMT	QPA1009
35W X-Band PA	10.7-12.7	46	17	40	20	Die	QPA1006D
8W Ku-Band	12.75-15.35	39	29	32	24	7x4.5 AC-SMT	QPA0015
15W Ku-Band	12.75-15.35	42	28	32	24	7.5x5 AC-SMT	QPA0016
25W Ku-Band	12.75-15.35	44	31	35	24	7.5x6 AC-SMT	QPA0017
55W Ku-Band PA	12.75-15.35	47.5	22.5	37	24	Die	QPA1314D
50W Ku-Band PA	12.75-15.35	47	22	35	24	15x15 Flange	QPA1314
80W Ku-Band PA	13-15.5	49	24	25	28	19x19 Flange	QPM2239
35W Ku-Band PA	15.4-17.7	45.5	21	20	26	15x15 Flange	QPA1315
20W K-Band PA	17.3-21.2	43	16	27	20	7.5x6 AC-SMT	QPA1724
20W K-Band PA	17.3-21.2	43	23	25	20	8.5x5.5 AC-SMT	QPA1725
2W Ka-Band	20-40	33	13	14	18	Die	QPA2040D
8W Ka-Band	20-40	39	12	12	18	Die	QPA2640D
5W Ka-Band	24.25-26.5	37	17	23	20	5x5.5 AC-SMT	QPA0524
5W Ka-Band	26.5-29.5	37	22	32	20	5x5 AC-SMT	QPA4003
10W Ka-Band PA	27.5-31	41	24	26	22	15x15 Flange	QPA2211
14W Ka-Band PA	27.5-31	42	24	26	22	Die	QPA2215D
20W Ka-Band PA	27.5-31	43	22	22	22	15x15 Flange	QPA2212
0.4W Ka-Band PA	28-38	26	12	14	20	4x3 AC-SMT	QPA2225
3W Ka-Band PA	32-38	35	12	16	6	7x8 AC-SMT	QPA2575
10W Ka-Band PA	32-38	40	16	22	24	Die	TGA2222
4W Q-Band PA	37.5-42.5	36	14	25	24	Die	QPA4446D
6W Q-Band PA	37.5-42.5	38	12	20	24	Die	QPA4346D
10W Q-Band PA	37.5-42.5	40	11	17	24	Die	QPA4246D

GaN Low Noise Amplifiers

Description	Frequency (GHz)	Max Pin (dBm)	P1dB/OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage/Current (V/mA)	Package (mm)	Part Number
Wideband LNA	2-22	40	23	15	2	8/125	4x4 QFN	TGA2227-SM
Low Noise Amplifier	8-11	36	9/-	27	1.7	10/20	4x4 QFN	QPL1000

GaAs Performance

Qorvo has always been recognized as the industry leader in GaAs design and manufacturing. With the acquisition of Custom MMIC, we have bolstered our existing GaAs product portfolio to include virtually every RF function block in a complete signal chain making Qorvo the leader in GaN and GaAs MMIC solutions.

Explore our GaAs product selection tables to find the perfect product(s) for your next RF design or go to www.qorvo.com and use our easy-to-use parametric search tool to help speed your search and selection.

Integrated Front-End Modules (GaN and GaAs Combined)

Description	Freq. Min (MHz)	Freq. Max (GHz)	Tx Gain (dB)	Tx Voltage (V)	Rx Gain (dB)	Rx NF (dB)	Rx Voltage (V)	Package (mm)	Part Number
2-18 GHz 10W	2	18	13	22	14	4	5	8x8	QPF0219
8-12 GHz 12W	8	12	23	24	26	1.5	1.8	6x5	QPF5001
8-12 GHz 10W	8	12	22	24	25	2.2	1.8	7x5	QPF5010
8-12 GHz 5W	8	12	24	24	25	2.2	1.8	7x5	QPF5005
8.5-10.5 GHz 2W	8.5	10.5	20.5	20	24	2.1	1.8	7x5	QPF5002
8.5-10.5 GHz 3.2W GaN	8.5	10.5	33	25	25	2.2	10	5x5	QPM1002
9-10.5 GHz 4W GaN	9	10.5	23	28	21	2.7	10	6x5	QPM2637
8-14 GHz LNA with Limiter	8	14	-	-	23	1.6	2	8.5x6	QPM6000
2-20 GHz LNA with Limiter	2	20	-	-	17	1.7-4	5	6.5x5	QPM1000
8-12 GHz 0.5W	8.5	10.5	30	6	26	2	6	6x6	QPM5811
2-4 GHz Rx Core	2.5	4	-1.2	3.3	30	1.2	3.3	7x7	QPM2101
26 GHz FEM	26	30	27	20	17	3.5	20	5x4	QPF4001
37 GHz FEM (Dual Channels)	37	40.5	23	20	18	4.2	20	4.5x6	QPF4005
37 GHz FEM (Single Channel)	37	40.5	23	20	18	4.2	20	4.5x4	QPF4006

GaAs Switches

Freq. Min (MHz)	Freq. Max (GHz)	Switch Type	Abs/ Refl	IL (dB)	ISO (dB)	Speed (ns)	IP1dB (dBm)	Voltage (V)	Package (mm)	Part Number
DC	20	SPST	Non-R	1.3/1	48/50	1.8	25	0/-5	3x3/Die	CMD204C3/CMD204
DC	20	SPDT	Non-R	2	37/41	1.8	25	0/-5	3x3/Die	CMD195C3/CMD195
DC	18	SPDT	Non-R	1.75/1.5	46	1.8	23	0/-5	3x3/Die	CMD196C3/CMD196
DC	40	SPDT	R	2.3	36	4	19	0/-5	Die	CMD215
DC	20	SP4T	Non-R	2.4	39	66	21	0/-5	4x4/Die	CMD203C4/CMD203
DC	26	SPDT	R	1.4	40	3.4	21	0/-5	Die	CMD230
DC	15	SP3T	Non-R	2	42	66	21	0/-5	4x4	CMD234C4
DC	18	SP5T	Non-R	2.5	44	66	21	0/-5	4x4	CMD235C4/CMD235
DC	18	SP6T	Non-R	2.5	42	60	18	0/-5	4x4	CMD236C4/CMD236
0.100	6	SP3T	R	0.6	34	110	34	3.3	3x3	TQP4M0011

GaAs Limiters

Description	Frequency (GHz)	Insertion Loss (dB)	Flat Leakage (dBm)	Package (mm)	Part Number
0.05-6 GHz, 100W VPIN Limiter	0.05-6	<0.7	<17	4x4	TGL2210-SM
0.1-20 GHz, 10W VPIN Limiter	0.1-20	<0.7	<18.5	1.5x1 Die	TGL2217
0.1-20 GHz, 10W VPIN Limiter	0.1-20	<0.9	<18.5	3.5x3.5	TGL2217-SM
1-6 GHz, 100W S-Band & C-Band VPIN Limiter	1-6	<0.5	<16	2x2 Die	TGL2205
2-4 GHz, 200W VPIN Limiter	2-4	<0.6	<18	4x4	TGL2927-SM
2-4.5 GHz, 100W S-Band VPIN Limiter	2-4.5	<0.5	15	2.5x2.5 Die	TGL2206
2-5.5 GHz, 100W VPIN Limiter	2-5.5	<1.0	<15.5	5x5	TGL2206-SM
2-6 GHz, 100W VPIN Limiter	2-6	<0.6	<16.5	4x4	TGL2205-SM
2-12 GHz Wideband Dual Stage	2-12	<0.5	<18	3x3 Die	TGL2201-SM
2-20 GHz, 5W VPIN Limiter	2-20	<1.0	<18	3x3	TGL2208-SM
2-25 GHz Wideband Dual Stage VPIN Limiter	2-25	<1	<18	1.1x1.1 Die	TGL2201
8-12 GHz, 50W VPIN Limiter	8-12	<0.5	<18	2x2 Die	TGL2209
8-12 GHz, 50W VPIN Limiter	8-12	<0.5	<18.5	4x4	TGL2209-SM
X-Band 40W Limiter in Plastic OVM QFN	8-12	<0.5	<19	4x4	QPP2209

GaAs Low Noise Amplifiers

Frequency (GHz)	Gain (dB)	NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package (mm)	Part Number
2-6	31	1.6	12	23	3-5	45	4x4/Die	CMD308P4/CMD308
2-6	27	0.6	16	26	2-5/1.5	42	3x3/Die	CMD283C3/CMD283
2-18	17	2	17	29	5	75	Die	TGA2525
2-20	17	2	19	29	5	100	4x4	TGA2567-SM
4-8	15.5	1.8	17	30	3-5	60	3x3/Die	CMD270P3/CMD270
5-11	27	1.5	13	23	3-5	45	4x4/Die	CMD309P4/CMD309
5-11	23	1.4	11	23	2-4.5	35	3x3/Die	CMD263P3/CMD263
6-11	20	1.8/2	16.5	27	3-5	66	3x3/Die	CMD271P3/CMD271
6-18	26	1.7/1.6	11	24/27	2-4.5	63	3x3/Die	CMD264P3/CMD264
6-18	27	1.4	12	24	3	52	3x3/Die	CMD328K3/CMD328
6-20	21	2.0	15	25	3-5.0	100	3x3/Die	CMD316C3/CMD316
7-14	26/27	1.1	18	-	3.5	120	4x4/Die	QPA2609/QPA2609D
8-12	20	0.92	16	22	3	30	3x3	CMD319C3
8-16	17	2.0	12	25	2-4	55	3x3/Die	CMD307P3/CMD307
10/10.5-13/12.7	16/17	1.2/1.1	-1.2/1	8	2	11	3x3/Die	QPL2210/QPL2210D
10.7-12.7	18	1.07	16	23	3	32	3x3	CMD320C3
13-20	26	1.1/1.2	18	-	3.5	105	4x4/Die	QPA2735/QPA2735D
17-22	25	1.3	20	28	3.5	90	4x4	QPA2626
17-25	27	1.4	8	17	3/1.5	27	4x4/Die	CMD298C4/CMD298
18-40	17	3.5	8	17	3/3	33	4x4/Die	CMD299K4/CMD299
22/25-32/31	23/22	1.6/1.7	19	27	3.5	90	4x4/Die	QPA2628/QPA2628D

GaAs Driver Amplifiers

Frequency (GHz)	Gain (dB)	OP1dB (Psat)	OIP3 (dBm)	NF (dB)	Voltage (V)	Current (mA)	Package (mm)	Part Number
2-9	15	17	23	4.5	5-6	90	Die	CMD232
2-20	27	16	29	3	2-4	145	4x4	CMD295C4/CMD295
2.7-3.8	28	31	30	-	6	400	5x5	QPA1008
4-10	19.5	21	33	5.5	5	143	4x4	CMD315C4
5-7	19	28.4	37	6.5	7	375	4x4	CMD169P4
6-14	19	-	20	4	5	74	3x3	QPL3050
8.5-10.5	34	30.8	-	-	6	156	4x3	QPA0812
20-45	20	26	31.5	6	5	480	Die	CMD293
26-35	15	19.5	24.5	3.5	5	72	Die	CMD199
26-35	15.5	21	24	4.4	5	90	Die	CMD243

GaAs Distributed Amplifiers

Frequency (GHz)	Gain (dB)	OP1dB/Psat (dBm)	OP1dB (dBm)	NF (dB)	Voltage (V)	Current (mA)	Package (mm)	Part Number
DC-20	11/12	30/29	38	3.4	10/-0.55/5	400	5x5/Die	CMD201P5/CMD201
DC-20	12	11/13.5	22	2.5	3-8/3-8	40	3x4	CMD311P34
DC-20	13	31/30	38	3.4	10/-0.95	400	5x5/Die	CMD249P5/CMD249
DC-20	19.5	26/25	31	1.9	5-8/-1	200	5x5/Die	CMD192C5/CMD192
DC-20/24	17.5/18	25	31/32	2.5	5-8/-0.65	185	5x5/Die	CMD244K5/CMD244
DC-22	15	22/19	28	2.2	5-8/-0.65	80	4x4/Die	CMD240P4(C4)/CMD240
DC-22	17	20.5/19.5	28	2.5	5-8	108	4x4/Die	CMD284P4/CMD284
DC-30	13	27/28.5	33	3	10/3.5/-0.6	250	Die	CMD292
DC-40	11	21/18	27	4.4	5-8/-0/32	100	4x4/Die	CMD242K4/CMD242
DC-55	12.5	17.5	15	3	5/-0.5	110	Die	QPA009D
DC-67	10	11/14	11	3.5	3/-0.4	40	Die	CMD304
1-24	16	24.5/24	33	3	5-8	225	4x4/Die	CMD317C4/CMD317
2-20	26.5	17/16	24	3	2-4/2	145	4x4/Die	CMD295C4/CMD295
2-20	9	22/20.5	24	4.5	3-6	120	4x4/Die	CMD233C4/CMD233
2-22	13.5	23/21	28	2.3	5-8/-0.65	74	4x4/Die	CMD241P4/CMD241
2-22	11	18	26	3	6	60	Die	QPA0012D

GaAs pHEMTs

Description	Frequency (GHz)	Gain (dB)	Psat (dBm)	NF (dB)	Bias (V)	Current (mA)	Dimensions (mm)	Part Number
0.16W Die	DC-20 (data at 12 GHz)	14	22	1	8	29	0.41x0.34x0.10	QPD2018D
0.25W Die	DC-20 (data at 12 GHz)	14	24	0.9	8	65	0.41x0.34x0.10	QPD2025D
0.40W Die	DC-20 (data at 12 GHz)	13	26	1.1	8	65	0.41x0.34x0.10	QPD2040D
0.63W Die	DC-20 (data at 12 GHz)	12	28	1.4	8	97	0.41x0.34x0.10	QPD2060D
0.89W Die	DC-20 (data at 12 GHz)	11.5	29.5	1	8	130	0.41x0.54x0.10	QPD2080D
1.26W Die	DC-20 (data at 12 GHz)	11	31	1	8	194	0.41x0.54x0.10	QPD2120D
1.78W Die	DC-20 (data at 12 GHz)	10.4	32.5	1	8	258	0.41x0.54x0.10	QPD2160D

GaAs Low Phase Noise Amplifiers

Frequency (GHz)	Phase Noise	Gain (dB)	OP1dB/Psat (dBm)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package (mm)	Part Number
DC-18	-165	14.4	0/24	34	5/3	180	Die	CMD326
DC-26.5	-165	16	18-20.5	29	+3-5/+3	74	4x4/Die	CMD275P4/CMD275
DC-40	-165	11.1	0/21.4	31	5/3	100	Die	CMD327
2-20	-165	15	19-22	30.5	+3-5/+3	82	4x4	CMD274P4
6-18	-165	18	18-22	29	+3-5/+3	76	4x4/Die	CMD245C4/CMD245
8-22	-165	17	18-18	25	+3-5/+3	48	4x4/Die	CMD246C4/CMD246
30-40	-160	13	13.5/15	21	+2-4/+3	28	Die	CMD247

GaAs Mixers

Description	Frequency RF (GHz)	Frequency IF (GHz)	LO Drive (dBm)	Conver. Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	IIP3 (dBm)	Package (mm)	Part Number
Fundamental Mixer	4-8.5	DC-2.2	+17	7	45	36	21	3x3	CMD251C3
Fundamental Mixer	4-28	DC-3	+17	8	43	50	20	Die	CMD312
Double Balanced	6-14	DC-5	+19	6	43	39	23	3x3	CMD253C3
Fundamental Mixer	6-45	DC-3	+17	9	41	42	20	Die	CMD313
Double Balanced	11-21	DC-6	+19	6	48	44	22	3x3	CMD254C3
Sub-harmonic x2	13-21	DC-4/3	+2	-10/-8.5	22/28	34/48	13/12	3x3/Die	CMD303C3/CMD303
Double Balanced	16-26	DC-9	+19	6.5	40	33	24	3x3	CMD255C3
Fundamental Mixer	20-32	DC-10	+13	7	36	36	18	3x3/Die	CMD180C3/CMD180
Sub-harmonic x2	20-32	DC-7	-2/-4	-8.5/-9.5	36	53	11/10	3x3/Die	CMD310C3/CMD310
Fund./Double Bal.	26-45	DC-12	+17	6.5	37	29	22	Die	CMD181/CMD181K3
Hi IF Mixer	30-46	5-20	+19	8	30	20	21	Die	CMD261

GaAs I/Q Mixers

Frequency RF (GHz)	Frequency IF (GHz)	LO Drive (dBm)	Conver. Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	IMR (dB)	IIP3 (dBm)	Package (mm)	Part Number
2.5-15	DC-1	17	-8	45	25	23	22	4x4	QPX0002
4-8	DC-2.4	+20	-6.5	52	27	30	25	4x4	CMD252C4
6-10	DC-3.5	+15	-6	46	20	30	18	4x4	CMD182C4
6-10	DC-3.5	+21	-5.5	40	18	31	25	4x4	CMD257C4
6-26	DC-3	17	-8	40	27	25	21	3.9x3.9	QPX0001
7.5-13	DC-4.5	+15	-5.5	43	23	26	18	4x4	CMD183C4
7.5-13	DC-3.5	+21	-5.5	38	20	29	25	4x4/Die	CMD258C4/CMD258
16-26	DC-9	+19	6.5	40	33	-	24	3x3	CMD255C3
20-32	DC-10	+13	-7	36	36	-	18	3x3	CMD180C3/CMD180
24-34	DC-7	15	-9	30	24	15	19	Die	QPX0004D
30-40	DC-5	15	-7	35	25	25	18	Die	QPX0003D

GaAs Multipliers

Description	Frequency	LO Drive (dBm)	Conver. Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	IMR (dB)	IIP3 (dBm)	Package (mm)	Part Number
Passive Multiplier	4-8	8-16	-12	15	48	-	-	3x3/Die	CMD225C3/CMD225
Passive Multiplier	7-11	14-22	-10.5	15	44	-	-	3x3/Die	CMD226C3/CMD226
Passive Multiplier	8-15	16-30	-11	15	32/40	-	-	3x3/Die	CMD227C3/CMD227

GaAs Digital Step Attenuators

Frequency (GHz)	Insertion Loss (dB)	Attenuator Range (dB)	Bits	RMS Step Err. (dB)	Switching Speed	Voltage (V)	Package (mm)	Part Number
DC-20	5	32	5	1	–	-2.5/-5.5	3.9x3.9	QPC1008
DC-22/40	1.5/1.2	6	2	0.1	25	0/-5	3x3/Die	CMD281C3/CMD281
DC-22/40	1.9/1.5	12	2	0.2/0.1	25	0/-5	3x3/Die	CMD282C3/CMD282
DC-30	2.9	30	2	+/-2	28	0/-5	Die	CMD324
DC-30	4	31.5	6	+/-0.2	25	0/-5	Die	CMD325
0.1-15	<4.0	31.5	6	–	<30	-3.0 to -5.0	3x3	TGL2226-SM
1-31	<4.2	15.5	5	<0.5	<30	-3.3 to -5.0	3x3	TGL2223-SM

GaAs Variable Attenuators

Frequency (GHz)	Insertion Loss (dB)	Attenuator Range (dB)	Voltage (V)	Package (mm)	Part Number
DC-20	3.2	33	+0.3 to -8	3x3	CMD285C3
18-40	1.6	37	0/-3	Die	CMD172

GaAs Analog Attenuators

Frequency (GHz)	Insertion Loss (dB)	Attenuator Range (dB)	Voltage (V)	Package (mm)	Part Number
DC-30	1.5	16	-1 to 0	3x3	TGL4203-SM
DC-50	2	17	-1 to 0	Die	TGL4203
2-31	< 2	20	0 to 1.5	3x3/Die	TGL2767-SM/TGL2767

GaAs Fixed Attenuators

Frequency (MHz)	Attenuation (dB)	Package (mm)	Part Number
DC->40,000	0	0.5x0.5/Die	TGL4201-00
DC->40,000	2	0.5x0.5/Die	TGL4201-02
DC->40,000	3	0.5x0.5/Die	TGL4201-03
DC->40,000	6	0.5x0.5/Die	TGL4201-06
DC->40,000	10	0.5x0.5/Die	TGL4201-10

GaAs Digital Phase

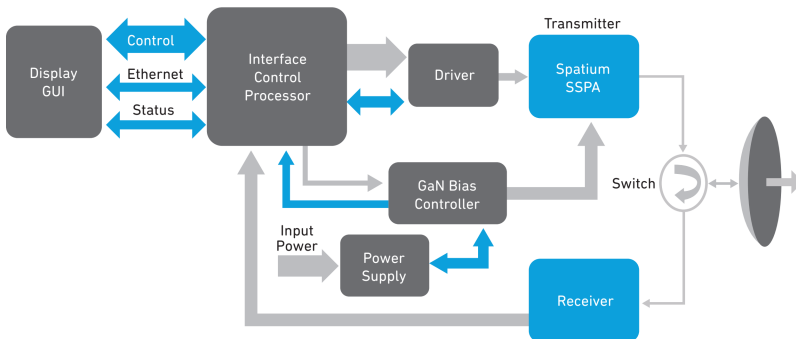
Frequency (MHz)	Number Bits (dB)	Insertion Loss (dB)	Amp. Err. (dB)	Phase Err. (deg)	Package (mm)	Part Number
2.5-4	6	5	<0.4	<2.8	6x6	QPC2108
2.5-4	6	5	<0.4	<5	5x5	TGP2108-SM
5-18	Analog	3.2/3	–	200/400	4x4	CMD297P34/CMD297
6-18	6	<10	0.45	4	5x5/3.15x3.15 Die	TGP2105-SM/TGP2105
8-12	6	6	0.5	4	4x4/2.2x2.2 Die	TGP2109-SM/TGP2109
13-17	4	8	–	5	4x4	CMD176P4
15-19	6	7	0.85	4	4x4/2.11x1.41 Die	TGP2615-SM/TGP2615
28-32	5	6	0.5	5	1.88x0.75 Die	TGP2100
32-37	5	7	0.4	3.5	1.88x0.75 Die	TGP2102

GaAs Upconverters/Downconverters

Description	RF Min (GHz)	RF Max (GHz)	IF Min (GHz)	IF Max (GHz)	LO Min (GHz)	LO Max (GHz)	Conversion Gain (dB)	Package (mm)	Part Number
17.7-26.5 GHz K-Band Upconverter	6	26.5	DC	4	6.85	15.25	13	5x5	TGC4510-SM
17-27 GHz K-Band Image Reject Downconverter	17	27	DC	4	6.5	15.5	15	5x5	TGC4610-SM

High-Power, Ultra-Broadband Performance & Solid State Reliability Using Spatium® Technology

Patented Spatium RF power combining technology from Qorvo provides a low loss, broadband, highly reliable, efficient alternative to traveling wave tube amplifiers (TWTAs) for commercial and defense communications, radar, EW and many other RF applications. The Spatium SSPAs dramatically improve broadband RF power and efficiency through patented coaxial spatial combining techniques. These SSPA solutions are offered as standard products with several platforms available across the 2 to 40 GHz spectrum. For those applications that require customer specific SSPAs, Spatium solutions are readily customizable. Qorvo uses its world class GaN MMIC amplifiers to deliver longer service lifetimes than comparable TWTAs or conventional planar power combining products. Spatium SSPAs provide clear advantages in size, weight, power, and cost (SWaP-C). RF system designers can use Spatium technology to achieve unprecedented combining efficiency with output power from hundreds to thousands of watts. Spatium technology combined with GaN MMICs can allow solid state technology to reach power levels, bandwidths, and efficiencies never achieved before.



Benefits of Spatium Technology

- Ultra-broadband operation: up to decade bandwidth
- Efficiently combines 16 GaN MMIC HPAs
- Up to 93% combining efficiency with high-operating frequencies
- Predictable performance, continuous operation
- SSPA provides graceful degradation vs TWTA single point of failure
- High reliability: 7+ years compared to TWTAs
- Technology readiness level (TRL 9)
- Much lower supply voltage: 5-50V
- Provides instantaneous bandwidth without warm-up time
- Compact design: smaller than TWTAs

Applications

- EW
- Radar/SAR systems/jammers
- Satellite communications
- Terrestrial ground stations
- Test Instrumentation

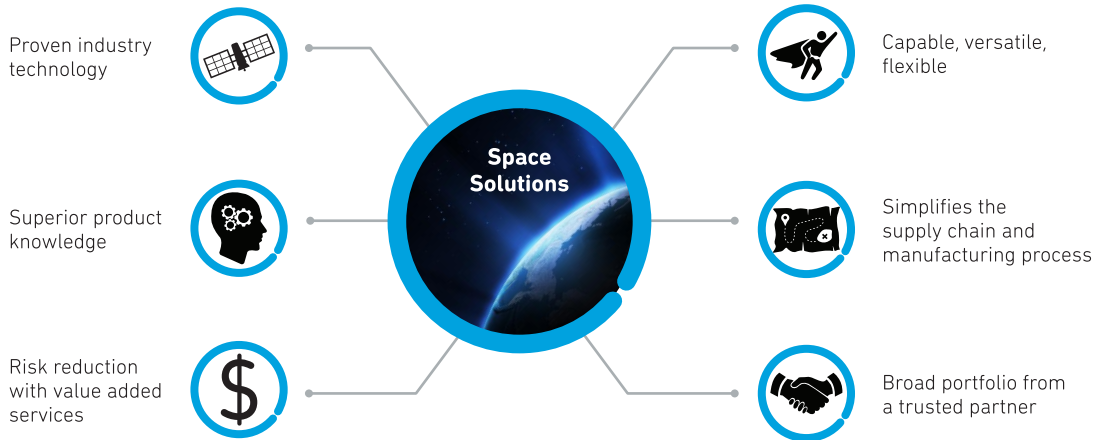
Spatium SSPA Amplifiers

Frequency (GHz)	Psat (W)	Small Signal Gain (dB)	Power Gain (dB)	PAE (%)	Voltage (V)	Part Number
2-6	350	32	18	32-36	24	QPB0206N
2-18	100-200	17-20	11-14	15-35	20	QPB0218N
2-18	220	17	12.8	22.6	18	QPB0220N
2-18	150	56.6	37.7	18	18	QPR0220
6-18	162-288	15-19	9.1-11.6	15-24	18	QPB0618N
8-11	590-740	27-30	19.7-20.7	31-39	28	QPB1024
13.4-15.5	590-645	23.7-24.1	19.7-20.7	25-28	28	QPB1316
18-40	80-126	13-17	10-12	8-14	18	QPB2040N
27.5-31	150-200	21-24	13-14	22-26	22	QPB2731N
32-38	117-141	18-25	8-9	16-20	24	QPB3238N
34-36	316-347	21-25	16-16.4	15-17	28	QPB1111

Space Services

For more than 35 years, Qorvo has been an industry leader and supplier of highly reliable GaAs and GaN devices for space applications, ranging from low earth orbit (LEO) missions to deep space exploration. Finding qualifiable parts or companies interested in supporting the rigorous requirements for space can be a challenge. With our heritage and experience, we help customers select space qualifiable parts and provide qualification services to our standard products and devices produced within our foundry wafer processes.

Qorvo is Your Trusted Space Partner



Screening and Qualification Offerings:

Die:

- MIL-PRF-38534 Class K & Individual Services
- Standard Products & Foundry

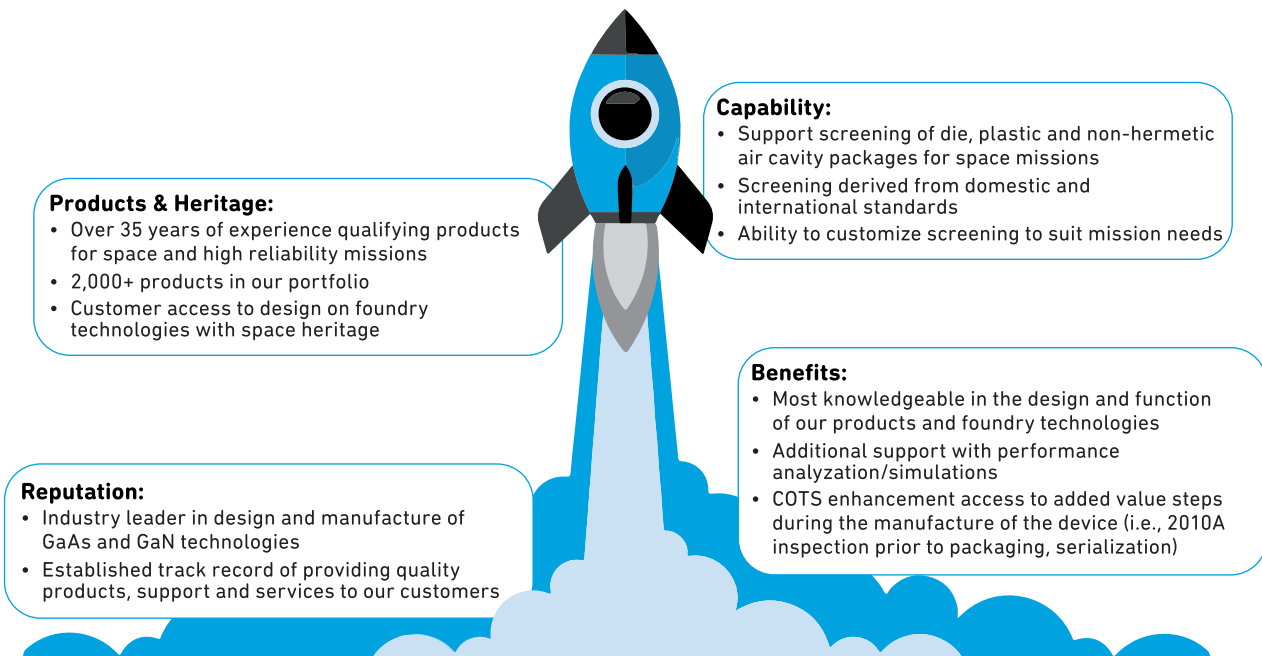
Non-Hermetic Packages:

- Ceramic Air Cavity
 - Derived from MIL-PRF-38535, NASA EEE-INST-002
- Plastic Over-mold
 - Derived from NASA PEM-INST-001, MIL-PRF-38535

Custom:

- Opportunity Driven
- Customer Specific Requirements
- SCD Controlled

Visit qorvo.com/go/space to find out more.



Compact, Powerful, Dependable: Advanced Packaging

Qorvo's advanced packaging services goal is to establish domestic, secure, SOTA, cost effective heterogeneously integrated packaging solutions. The advanced packaging model includes open foundry services for flip chip packaging, a complete design center for all phases of product development from initial simulation to life cycle management, an advanced domestic assembly and test center and advanced roadmaps to drive innovation. We provide die-to-package assembly under one roof that supports Trusted Model & Microelectronics Quantifiable Assurance.

Open Foundry Services for Flip-Chip Packaging

Wafer/Die Prep Services:

- Augments core wafer foundry services
- Wafer fab and packaging under one roof
- Provides proven design environment tools to DIB

Heterogeneous Integration:

- Mature: 2D MCM, QFN
- Emerging Flip-Chip: 2D RF SiP, DSMBGA
- Advanced: 2D/3DR RF SiP, 2.5D Si

Flexible Design Ownership:

- Customer design
- Qorvo design
- Customer/Qorvo co-design

Die Sourcing:

- Industry-leading GaN, GaAs, RFIC, SAW/BAW
- III-V + silicon technologies
- 3rd party die options
- Passives

Design Center Offers Complete Services

Access:

- Design simulation
- Layout and verification PDK/ADK

Collaborate:

- Qorvo design/co-design options

Architect:

- Next-gen SiP platforms
- Packaging IP block libraries

Design and Verify:

- Circuit and layout
- Integrated mixed signal EDA platform

Validate:

- Test SiP prototype test/characterization
- Multichannel and mixed-signal capability

Manage:

- Advanced life cycle management tools

Visit qorvo.com/innovation/technology/advanced-packaging to find out more.

Once the initial designs are complete, Qorvo offers an advanced, domestic, secure and cost-effective assembly and test center, co-located with the wafer fab for a complete design to certification on-shore solution.

Wafer/Die Preparation Services

Qorvo offers a fully-integrated, domestic DMEA Cat 1A foundry, a trusted RF foundry service.

Features & Benefits



Reduce Cost, Time, Logistics

- Vertically integrated, turnkey operation
- Single supplier, single PO



Trusted Supplier

- 30 years of RF: defense, aerospace, mobile, etc.
- DMEA: category 1A "Trusted Source"
- All on-shore operations



Cutting Edge Technology

- World leader in RFIC/MMIC solutions
- RF-testing capability up to 50 GHz
- Advanced Microwave Module Assembly/SHIP
- Ability to process Pb-bumped wafers

Services for 8" Si Wafers

Phase 1 CY 22/23



Post Processing

- Bump (outsourced)
- Probe
- Grind
- Dice
- Visual Inspect
- Pick & Pack

Phase 2 CY 24



Assembly

- Packaging
- Packaging Test

Phase 3 CY 25



Turn-Key

- External Foundry Management & Interface

Qorvo's goal is to connect, protect and power the planet by boosting mission performance for defense and aerospace applications. Our 30+ years of RF experience gives our customer confidence in their choice of foundry and packaging partners.

Visit qorvo.com/foundry to find out more.

Check Out Our Design Hub

Qorvo connects the world. From the IoT and smartphones to defense and everything in between. Explore our resources to find out how.

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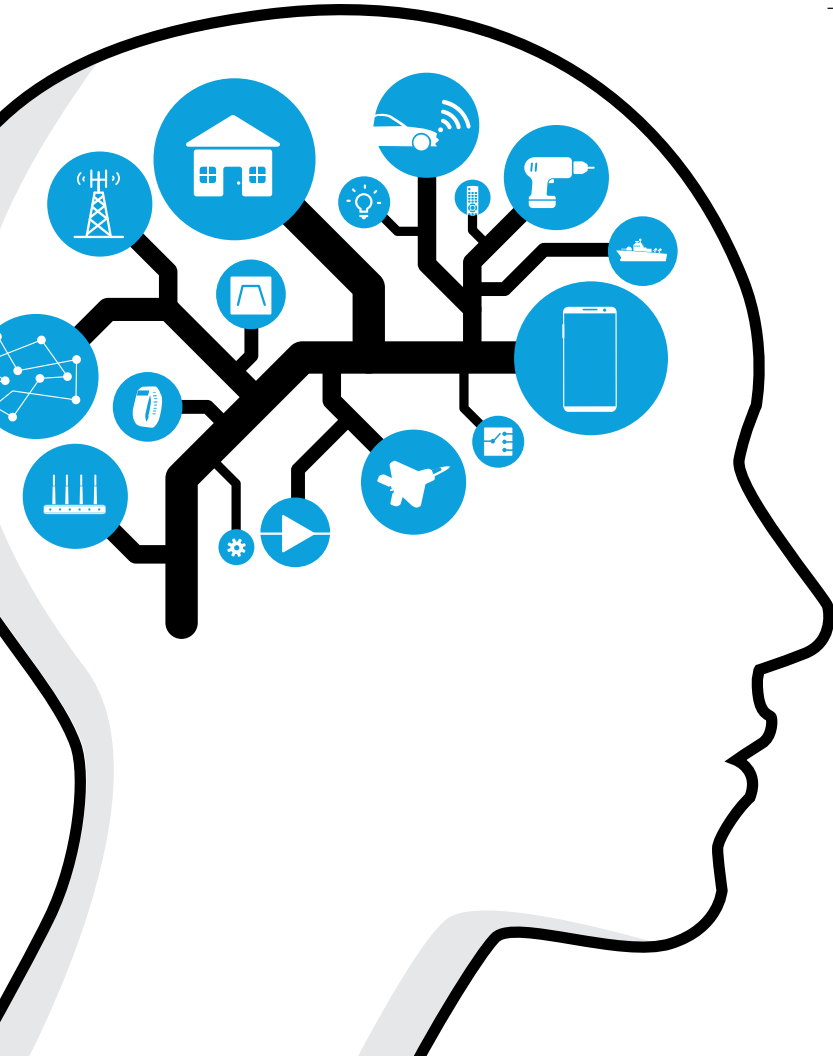
Videos



Technical Articles



Infographics



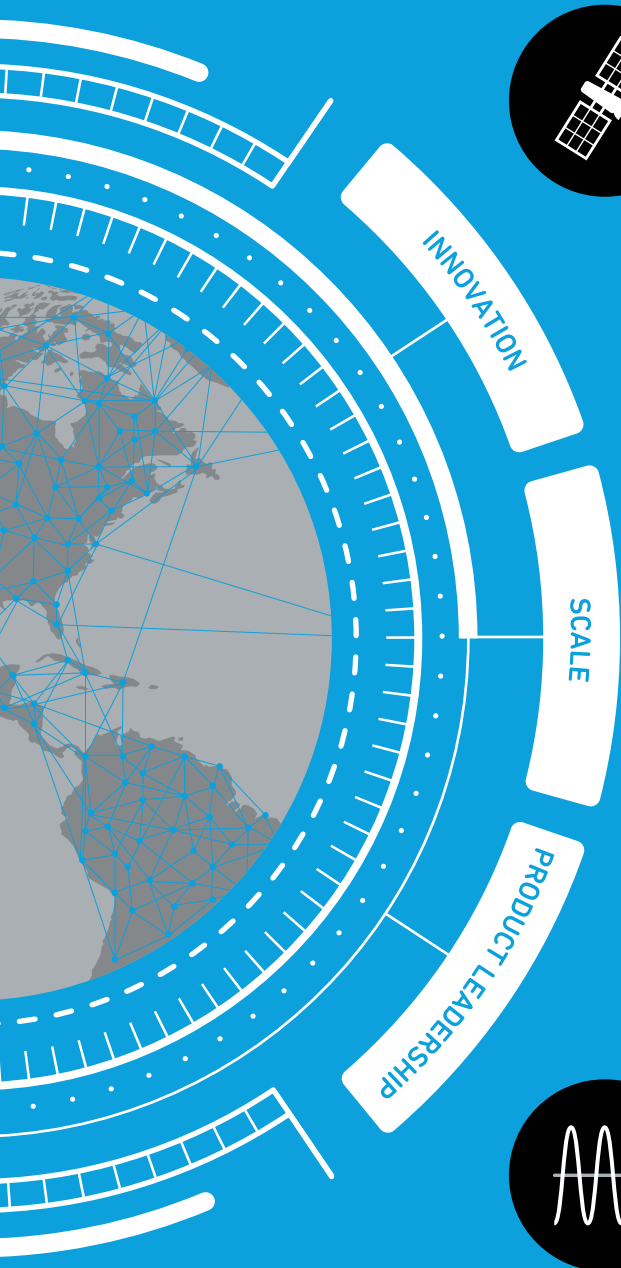
Here to Inspire and Help

Qorvo has a long and proud history of providing RF designers and engineers, from around the world, with the inspiration and technical support they need to make their designs a reality. In addition to designing and manufacturing the industry's best in class RF and mmWave products, Qorvo provides the system level technical know-how that enables true design collaboration. Qorvo stands ready to support our valued customers so they can overcome their toughest design challenges together.

www.qorvo.com/design-hub

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Qorvo Connects, Protects and Powers Near and Far



Space qualified,
highest level of reliability



Demonstrated GaN MTTF reliability
with **200°C/10⁷ hrs**



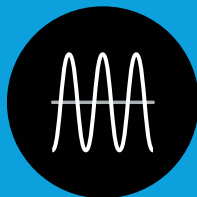
Over 10 million
GaN products shipped to date



#1 GaN-on-SiC supplier
in defense since 1998



4 GaN process nodes at **MRL 10**
using USAF MRA tool



Broadest portfolio range
20 MHz~100 GHz

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Blogs | Videos | e-Books | Design tools | Tech docs

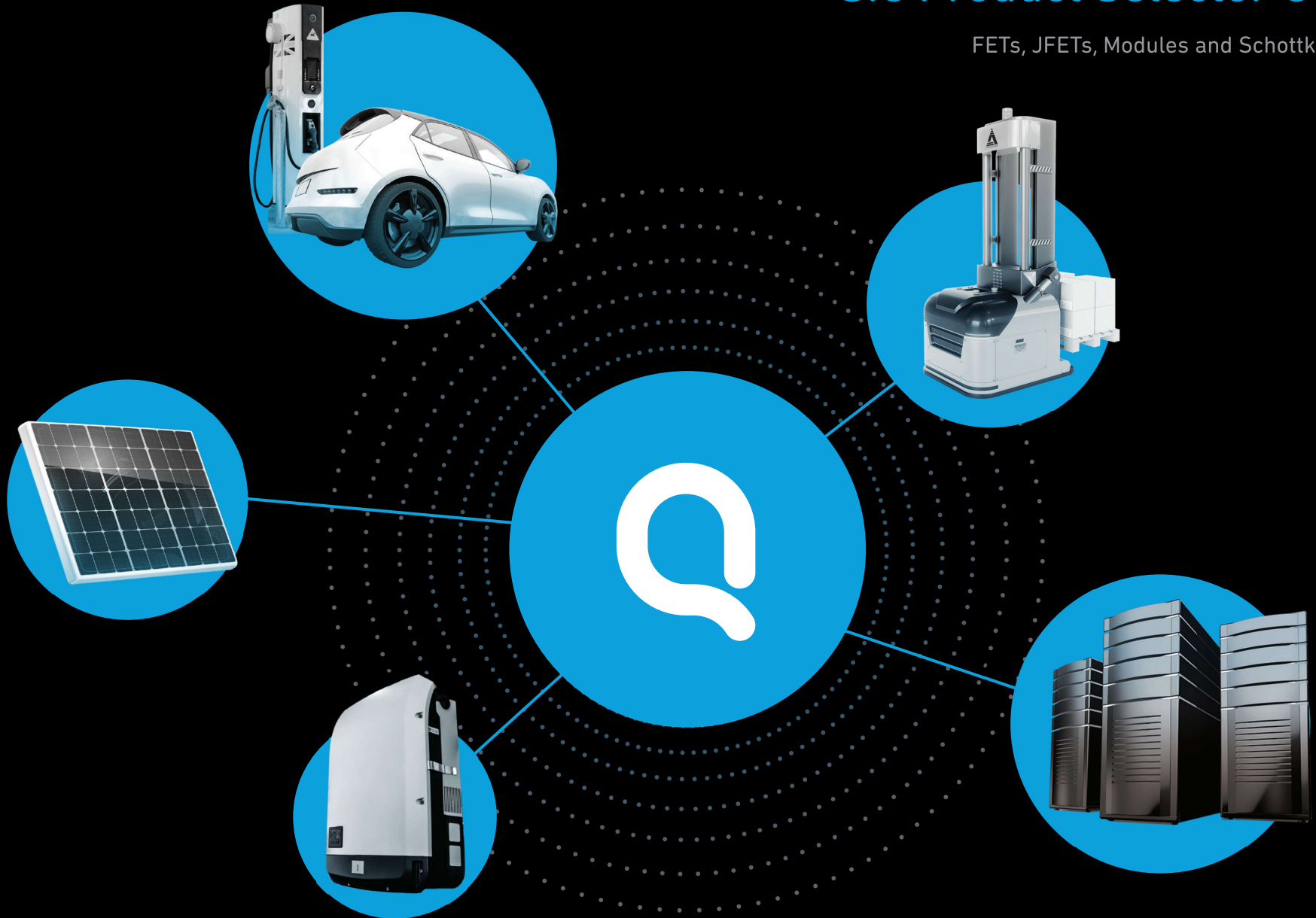
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SiC Product Selector Guide

FETs, JFETs, Modules and Schottky Diodes



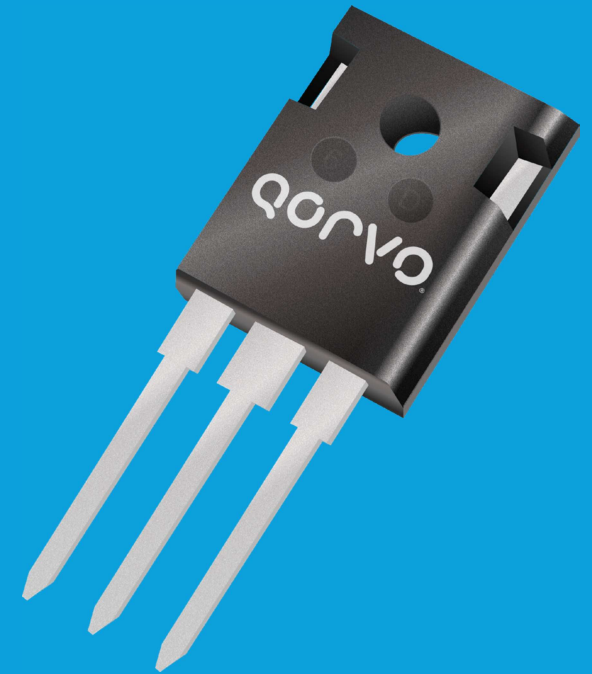
High-Performance SiC FETs, JFETs, Modules and Schottky Diodes

Key Features

- Multiple V_{DS} options: 650/750/900/1200/1700V
- Lowest $R_{DS(on)}$
 - 5.4m Ω @ 750V
 - 7m Ω @ 650V
 - 9m Ω @ 1200V
- Gen 4 SiC FETs
 - 750V, 5.4m Ω to 60m Ω options (UJ4C/SC Series)
 - 1200V, 23m Ω to 70m Ω options (UF4C/SC Series)
- Best-in-class Figures of Merit (FoM)
 - $R_{DS(on)} \times \text{Area}$
 - $C_{oss(er)}/E_{oss} \times R_{DS(on)}$
 - $C_{oss(tr)} \times R_{DS(on)}$
 - $R_{DS(on)} \times Q_g$
- 5 μ s short-circuit withstand time @ 6m Ω , 750V
- High-performance cascode configuration
- Excellent body diode ($V_f < 2V$)
- Drive with any Si and/or SiC gate drive voltage
- Superior thermal performance
- Integrated ESD and gate protection
- Industry standard packages, including Kelvin source
- Majority of devices are AEC-Q101 qualified

End Applications

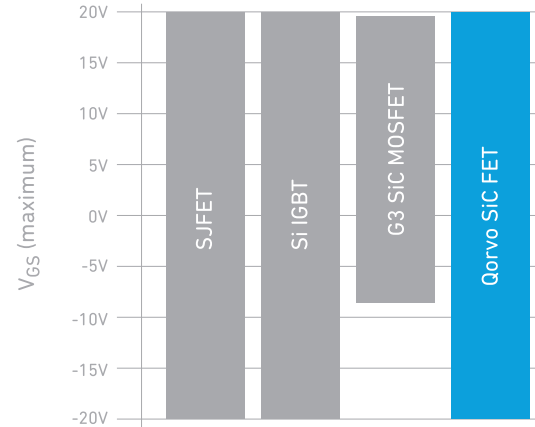
- Electric Vehicles
- Motor Drives
- On-board Chargers
- Battery Chargers
- Wireless Chargers
- DC/DC Conversion
- Telecom and Server PSU
- Circuit Protection
- Solar Inverters
- Energy Storage



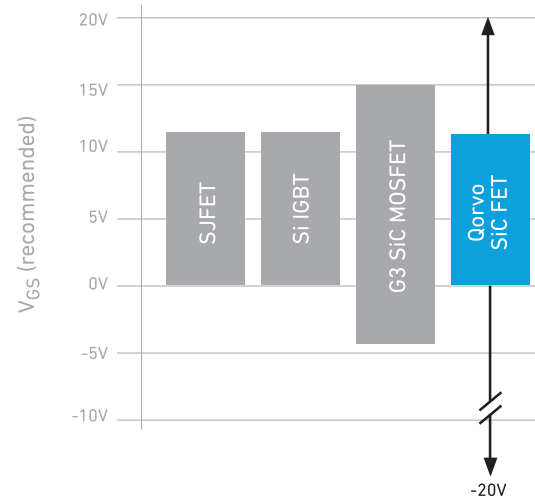
Flexible Design Without Changing Gate Drive Voltage

- Replaces Si IGBTs, Si FETs, SiC MOSFETs or Si Superjunction devices
 - SiC FET design guidelines available to support successful upgrade
- Innovative cascode configuration enables Si and SiC gate voltage compatibility
- Integrated clamping diode protects gates from $|20V|$ with built-in ESD protection

Superior Gate and ESD Protection



12V/0V Operation Simplifies Upgrading





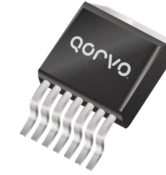
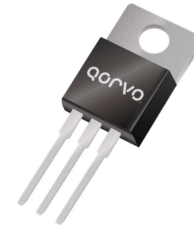
SiC FETs

650V to 750V

UF3C/UF3SC/UJ3C

UJ4C/UJ4SC

Series Selector Guide



Voltage	RDS(on) (mΩ) at 25°C	RDS(on) (mΩ) at 125°C	Generation	TO-247-3L	TO-247-4L	D2PAK-3L	TO-220-3L	D2PAK-7L	TOLL	
650V	6.7	8.8	Gen 3 FAST		UF3SC065007K4S*					
	27	35	Gen 3 FAST	UF3C065030K3S (1)*	UF3C065030K4S*	UF3C065030B3 (1)*	UF3C065030T3S (1)*	UF3SC065030B7S		
			Gen 3	UJ3C065030K3S*		UJ3C065030B3*	UJ3C065030T3S*			
	42	59	Gen 3 FAST	UF3C065040K3S*	UF3C065040K4S*	UF3C065040B3*	UF3C065040T3S*	UF3SC065040B7S		
	80	111	Gen 3 FAST	UF3C065080K3S (1)*	UF3C065080K4S*	UF3C065080B3 (1)*	UF3C065080T3S (1)*	UF3C065080B7S		
			Gen 3	UJ3C065080K3S*		UJ3C065080B3*	UJ3C065080T3S*			
	750V	5.4	9.3	Gen 4						UJ4SC075005L8S
		5.9	9.8	Gen 4		UJ4SC075006K4S				
8.6		14.4	Gen 4						UJ4SC075008L8S	
9		14.8	Gen 4					UJ4SC075009B7S*		
11		18.4	Gen 4			UJ4SC075011K4S			UJ4SC075011B7S*	UJ4SC075010L8S
			Gen 4					UJ4SC075018B7S*		
18		29	Gen 4						UJ4SC075018L8S	
		31	Gen 4	UJ4C075018K3S*	UJ4C075018K4S*					
23		39	Gen 4	UJ4C075023K3S*	UJ4C075023K4S*			UJ4C075023B7S*	UJ4C075023L8S	
33		57	Gen 4	UJ4C075033K3S*	UJ4C075033K4S*			UJ4C075033B7S*	UJ4C075033L8S	
44		75	Gen 4	UJ4C075044K3S*	UJ4C075044K4S*			UJ4C075044B7S*	UJ4C075044L8S	
58		106	Gen 4	UJ4C075060K3S*	UJ4C075060K4S*			UJ4C075060B7S*	UJ4C075060L8S	

Notes:

(1) Q(rr) for UF3C FAST device lower than equivalent UJ3C device

All data represents current information as of December 2023. Please contact Qorvo sales for recommended device support at www.qorvo.com/sales.

* AEC-Q101 grade available

SiC FETs

1200V to 1700V

UF3C/UF3SC/UJ3C

UF4C/SC

Series Selector Guide

Voltage	R _{DS(on)} (mΩ) at 25°C	R _{DS(on)} (mΩ) at 125°C	Generation	 TO-247-3L	 TO-247-4L	 D2PAK-7L
1200V	8.6	13.5	Gen 3 FAST		UF3SC120009K4S*	
	16	25	Gen 3 FAST	UF3SC120016K3S*	UF3SC120016K4S*	
	23	42	Gen 4		UF4SC120023K4S	UF4SC120023B7S
	30	56	Gen 4		UF4SC120030K4S	UF4SC120030B7S
	35	56	Gen 3 FAST	UF3C120040K3S*	UF3C120040K4S*	UF3SC120040B7S
			Gen 3	UJ3C120040K3S*		
	53	112	Gen 4	UF4C120053K3S	UF4C120053K4S	UF4C120053B7S*
	70	111	Gen 3	UJ3C120070K3S*	UJ3C120070K4S*	UF4C120070B7S*
	72	140	Gen 4	UF4C120070K3S	UF4C120070K4S	
	80	132	Gen 3 FAST	UF3C120080K3S*	UF3C120080K4S*	UF3C120080B7S
			Gen 3	UJ3C120080K3S*		
	150	254	Gen 3 FAST		UF3C120150K4S*	UF3C120150B7S
			Gen 3	UJ3C120150K3S*		
410	775	Gen 3 FAST	UF3C120400K3S*			
		Gen 3			UF3C120400B7S*	
		Gen 3				
1700V	410	775	Gen 3 FAST	UF3C170400K3S*		UF3C170400B7S*

Notes:

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* AEC-Q101 grade available



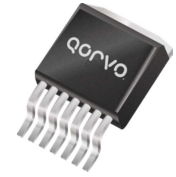
SiC JFETs

UJ3N/UF3N Series Selector Guide

Voltage	$R_{DS(on)}$ (m Ω)	I_D Max (A) at 25°C	Generation		
1700V	1100	3.4	Gen 3		
	400	6.8	Gen 3 FAST		UF3N170400B7S*
	400	8 (1)	Gen 3 FAST		
1200V	140	20 (1)	Gen 3 FAST		
	70	33.5	Gen 3	UJ3N120070K3S*	
	66	34	Gen 3	UJ3N120065K3S*	
	35	63	Gen 3	UJ3N120035K3S*	
900V	735	4 (1)	Gen 3 FAST		
	330	8 (1)	Gen 3 FAST		
650V	580	4 (1)	Gen 3 FAST		
	265	8 (1)	Gen 3 FAST		
	80	32	Gen 3	UJ3N065080K3S*	
	25	85	Gen 3	UJ3N065025K3S*	



TO-247-3L



D2PAK-7L

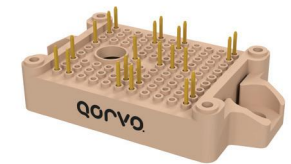
SiC Modules

1200V UHB/UFB Series Selector Guide

Voltage	I_D Max (A) at $T_c = 85^\circ\text{C}$	$R_{DS(on)}$ (m Ω) at 25°C	Topology		
1200V	50	19	Half- Bridge	UHB50SC12E1BC3N	
	100	9.3		UHB100SC12E1BC3N	
	17	70	Full- Bridge		UFB15C12E1BC3N
	26	35			UFB25SC12E1BC3N



E1B



E1B

Notes:

(1) Limited by bondwire.

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* AEC-Q101 grade available

SiC Schottky Diodes

UJ3D Series Selector Guide



TO-220-2L



TO-247-3L



TO-247-2L

Voltage	Current Rating	Generation	TO-220-2L	TO-247-3L	TO-247-2L
1700V	25A	Gen 3			UJ3D1725K2*
1200V	2A	Gen 3	UJ3D1202TS*		
	5A	Gen 3	UJ3D1205TS*		
	2 x 5A	Gen 3		UJ3D1210KSD*	
	10A	Gen 3	UJ3D1210TS*	UJ3D1210KS*	UJ3D1210K2*
	2 x 10A	Gen 3		UJ3D1220KSD*	
	20A	Gen 3			UJ3D1220K2*
	50A	Gen 3			UJ3D1250K*
650V	4A	Gen 3	UJ3D06504TS*		
	6A	Gen 3	UJ3D06506TS*		
	8A	Gen 3	UJ3D06508TS*		
	10A	Gen 3	UJ3D06510TS*		
	12A	Gen 3	UJ3D06512TS*		
	16A	Gen 3	UJ3D06516TS*		
	2 x 10A	Gen 3		UJ3D06520KSD*	
	20A	Gen 3	UJ3D06520TS*		
	30A	Gen 3	UJ3D06530TS*		
	2 x 30A	Gen 3		UJ3D06560KSD*	

Notes:

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* AEC-Q101 grade available

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PMIC Solutions



Connecting, protecting and powering the world.

Qorvo's PMICs are efficient and highly integrated solutions that perform power distribution functions in complex systems with multiple power rails. Multiple time programmable (MTP) non-volatile memory (NVM) enables configurability to adjust functions and parameters that can be preprogrammed and optimized on-the-fly using an I2C interface.

Multi-time programmable PMICs, same PMIC different configurations

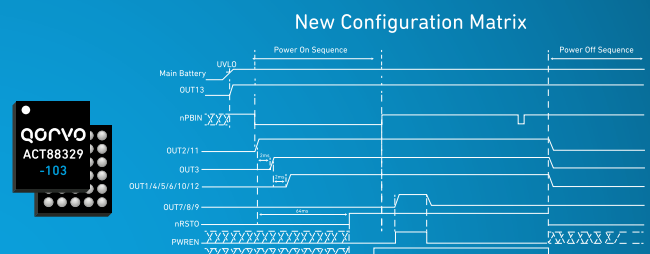
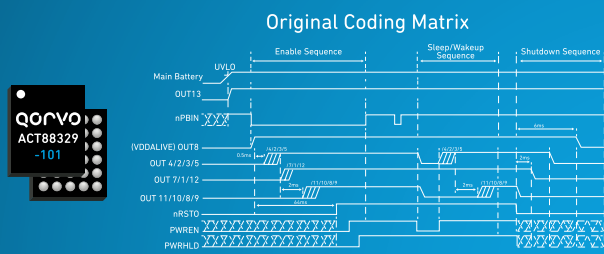


Why Qorvo Power ICs?

- ActiveCiPS™ – Qorvo’s proprietary multi-time programmable technology (Configurable Intelligent Power Solutions)
- ActiveCiPS reduces your design risk with on-board design changes on the spot, in your lab
- A single device delivers multiple configurations for different designs
- ActiveCiPS accelerates your time to market
- Fully integrated cost-effective solution

Tools

- ActiveCiPS programming dongle
- Easy to use GUI
- Allows you to reconfigure ICs on your PCB



OPTIMIZED FOR EVERY PROJECT



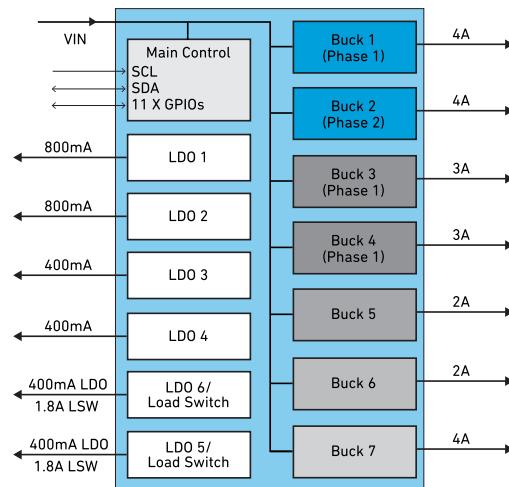
ACT88760

The ACT88760 is a 5V integrated PMIC. It delivers advanced levels of programmability, power efficiency and capability in a simple, compact design.

Key Features

- Wide 2.7-5.5V input voltage range
- 13 integrated rails, a sequencer and 10 general purpose IOs (GPIOs) provide industry-leading flexibility
- Dual phase outputs for high current
- High PSRR LDOs
- High configurability via I2C interface
- Debug designs and change settings in real-time without changing external components
- 3.85x3.85 mm 81 ball WLCSP package

End markets: AI processors, mobile, solid-state drives (SSDs), virtual reality headsets, security and action cameras, image processing, laptops, AR/VR headsets.



FIND OUT MORE
www.qorvo.com/go/ACT88760



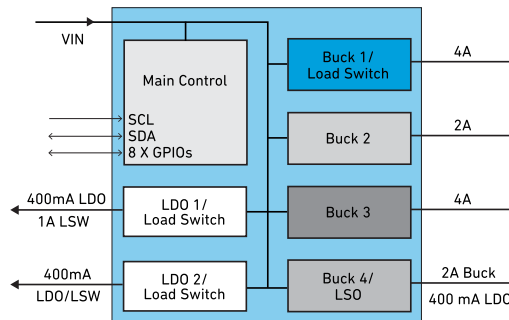
ACT88420

The ACT88420 is a 5V integrated PMIC. It includes constant-on-time (COT) control topology for improved transient response, and three-state GPIOs for enhanced configurability. This highly compact device is ideal for space-constrained designs.

Key Features

- Wide 2.7-5.5V input voltage range
- Six integrated rails, sequencer
- 8 configurable GPIOs
- Optimized quiescent current and light load efficiency
- Multiple sleep modes
- 2.7x2.7 mm 36 ball WLCSP package

End markets: IoT, SSD, HH terminals, controller boards, communication cards, point of sale terminals and networked cameras.



FIND OUT MORE
www.qorvo.com/go/ACT88420



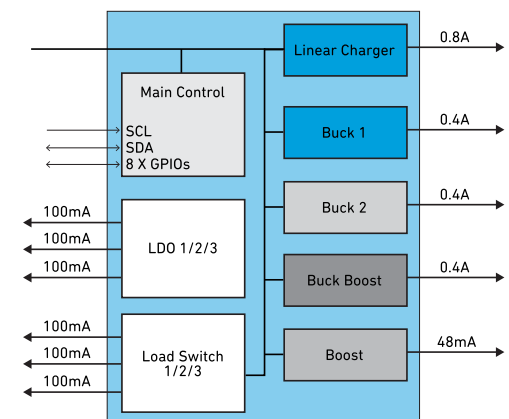
ACT81460

The ACT81460 is a fully integrated, low-power multi-rail PMIC with an integrated 1S battery charger. It features very low standby current that prolongs battery life and is specially designed for the wearable market.

Key Features

- Wide 4-5.5V input voltage range with 20V protection
- 10 output rails
- 6uA quiescent current
- High integration and configurability give greater design flexibility
- I2C serial interface for easy programming
- Multiple low power modes
- 3.3x3.3 mm 49 pin WLCSP package

End markets: Wearables, medical devices, electronic tags, IoT modules, security cameras.



FIND OUT MORE
www.qorvo.com/go/ACT81460



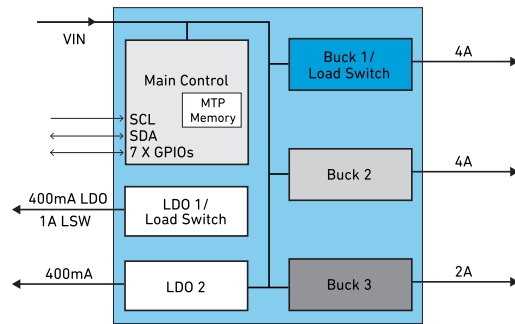
ACT88329

The ACT88329 is a 5V integrated PMIC delivering high power, high density and support for advanced low-power modes.

Key Features

- Wide 2.7-5.5V input voltage range
- 5 integrated rails, a sequencer and 7 general purpose IOs
- GPIOs provide industry-leading flexibility
- I2C serial interface for monitoring and control
- Small WLCSP package 2.18x2.58 mm
- Multiple sleep modes
- ACT88321 package alternative to support TH vias for PTH boards

End Markets: AI processors, mobile, solid-state drives (SSDs), virtual reality headsets, security and action cameras, image processing, laptops, AR/VR headsets, servers.



FIND OUT MORE
www.qorvo.com/go/ACT88329



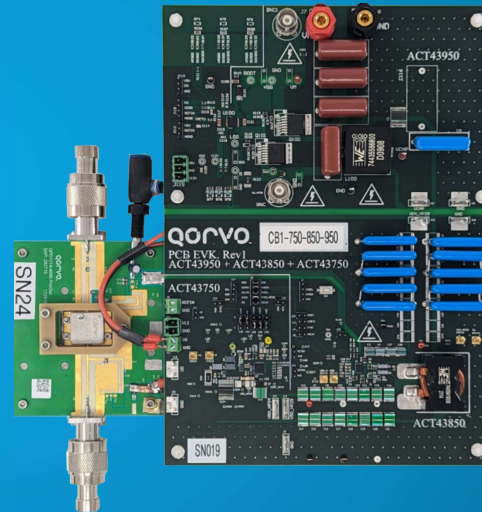
ACT43x50

The ACT43x50 series are a configurable GaN bias point autocalibration power solution. Qorvo's compact, three-stage power solution for phased array system designs provides configurable GaN bias point autocalibration and flexibility to optimize system performance for different GaN power amplifiers (PAs) without changing the board design. The ACT43750 combines the drain switch and negative gate regulator to create a highly configurable chipset that supports bias sequencing and autocalibration of the GaN PA for aging and temperature compensation.

Key Features

- Bias sequencing
- Autocalibration for temperature and aging compensation
- Reduced capacitance: only 100uF needed for 1KW pulse
- Configurable Vdrain: 20V-55V up to 20A
- Drain switching below 100ns
- Minimized noise and EMI

End Markets: Phased array, radar



FIND OUT MORE
www.qorvo.com/go/phased-array-power



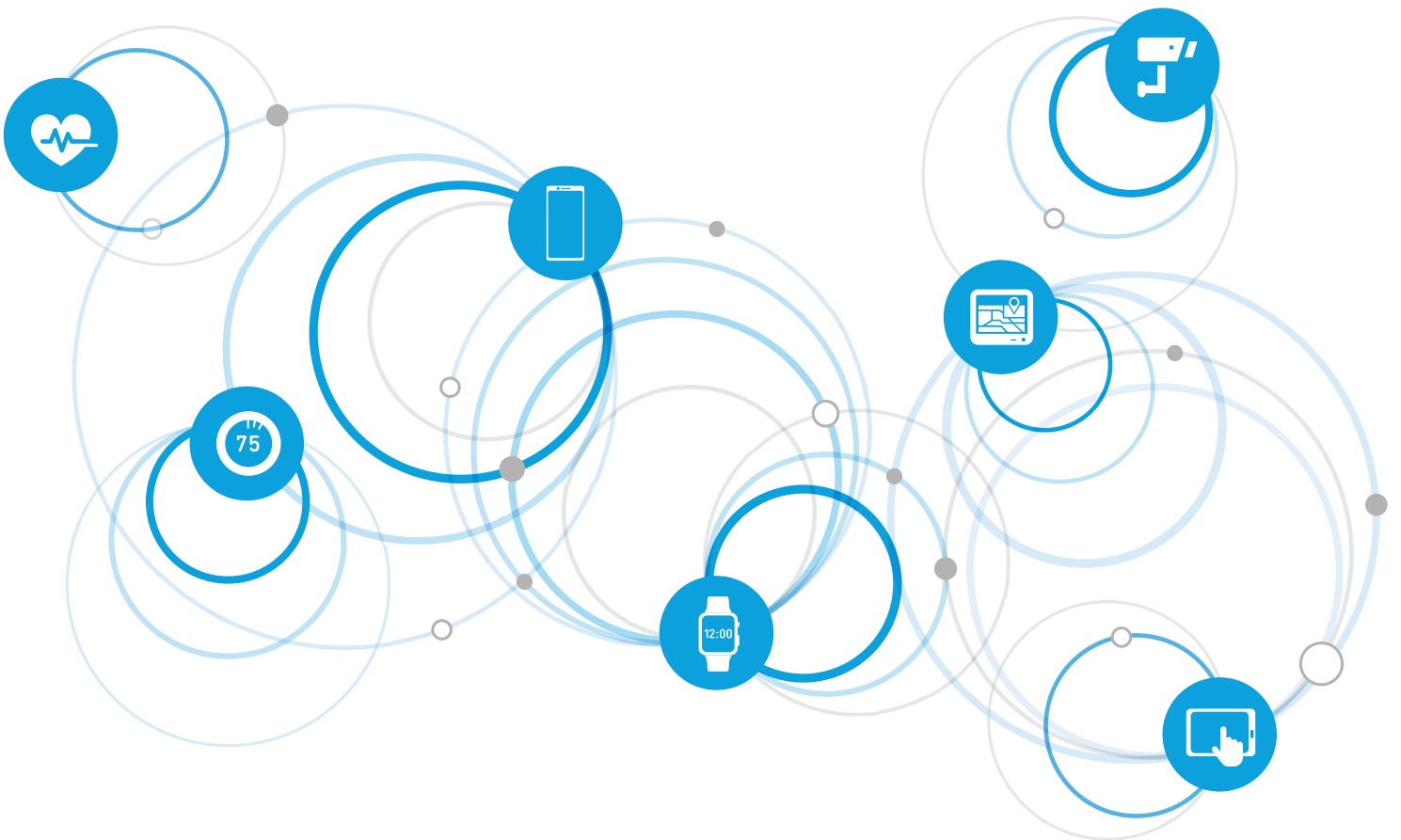
FOR MORE INFORMATION

www.qorvo.com/go/pmics

qorvo

Power Management ACTIVECiPS™ Modular Power PMICs

Industry-leading, configurable, intelligent power management solutions



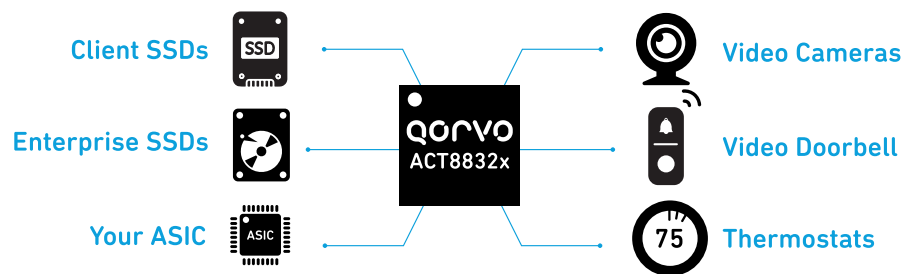
QORVO
all around you

Smaller, Smarter, More Reliable Power Management

Power efficiency is a critical element in the design of electronic devices for applications ranging from 5G base stations and phased arrays to data centers, cars and the Internet of Things. It is also an essential consideration in the design of personal household electronics and connected devices consumers rely on such as tablets and smartphones, cameras and video doorbells, and smartwatches.

Qorvo's highly integrated configurable innovative power supply (CiPS) solutions implement a built-in intelligence SoC which greatly simplifies the design process by eliminating the need for external components, delivering compelling simplicity, efficiency and flexibility. Designers can achieve significantly smaller footprints with lower bill of material (BOM) costs and improved system reliability – all while shortening time to market.

Qorvo Example: One PMIC Configured for Many Applications and Platforms



The ActivePMIC™ Family

The company's portfolio of analog and mixed-signal SoCs includes the ActivePMIC family of scalable power management integrated circuits designed for charging and powering embedded digital control systems for industrial, commercial and consumer applications.

ActivePMIC solutions integrate best-in-class power conversion with intelligent system management. Further, the unique architecture of these products enables battery charging as an integral function within the product family. Some of the applications powered by these ActivePMIC solutions include:

- Application processors, memory and peripherals in advanced portable devices such as smart watches, wearables, POS terminals, e-Books, portable media players and tablet PCs
- Other consumer/industrial electronics such as human-machine interfaces (HMI), control panels, smart grid infrastructures, network gateways, M2M systems, 2D barcode scanners, barcode printers and machine vision equipment
- Home and commercial building automation
- Fitness and health devices



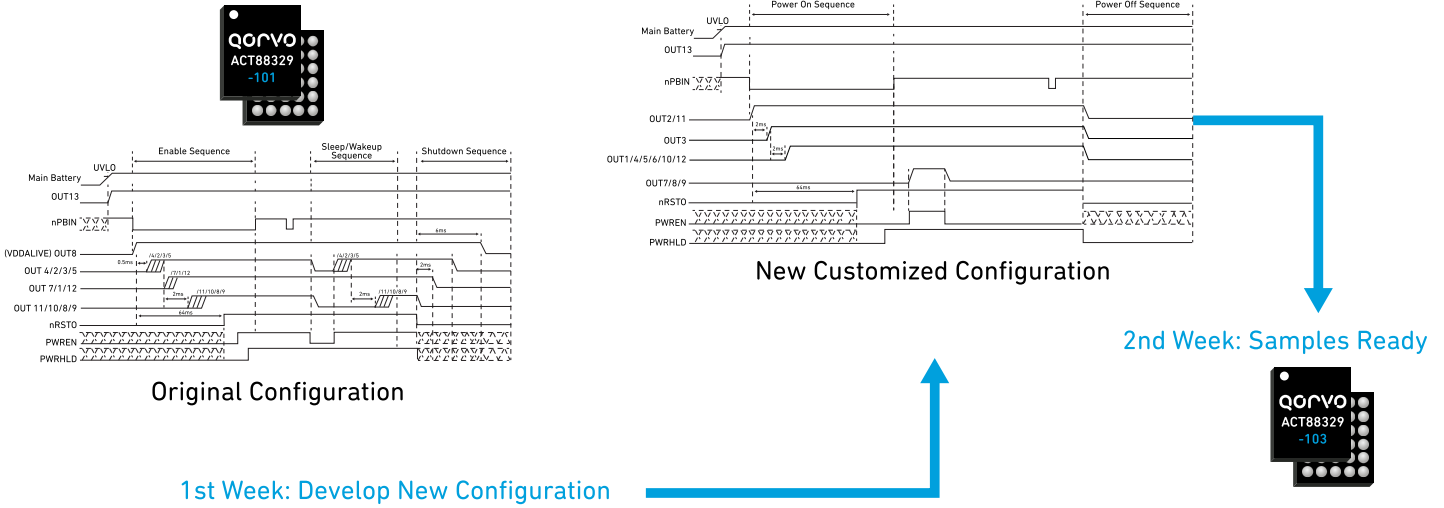
Industry's Highest Degree of User-Configurable Customization

Each product is configurable through I2C communications or non-volatile configuration matrix. The following represents an example of the individual parameters that can be customized to meet the needs of your application:

- Buck/LDO output voltage - 0.6V to 4V in 12.5mV steps
- Buck 1: DC-DC converter mode or bypass mode
- Multiple sleep modes
- Power on/off sequencing
- Turn on/off delay: 0mS to 2mS in 0.5mS steps
- GPIO configuration: soft/hard reset, interrupt, configurable sequencing/control for external supply rails, LED sinks
- Operation frequency: 1.125 MHz or 2.25 MHz
- Optimized control loop for different output cap values
- PFM/PWM mode
- Clock phase - 0 or 180 degrees
- Low EMI or high efficiency switching rate
- Internal output pull-down resistor
- Flexible ON/Off control signaling – choose between various power state signals available to make power up sequencing highly configurable
- Enable or disable power good signaling to control ON/OFF operation for other tiles
- Dynamic voltage scaling slew rate
- Current limits, VIN OV

ActiveCiPS: Quick Customization

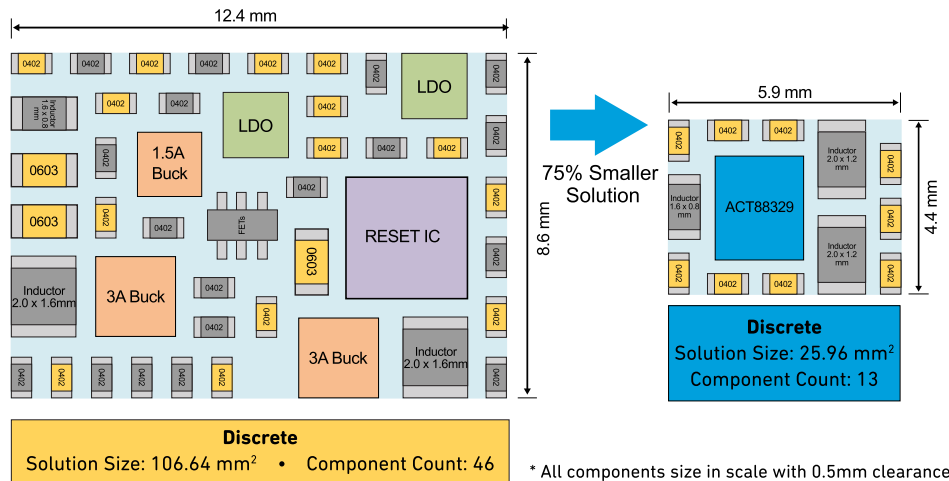
The ability to easily, rapidly and cost-effectively customize your design means you can get to market faster than ever before with a compact solution that is highly integrated and configured exactly how your customers want. Additionally, the ActiveCiPS program board allows for changes to the default configuration in the lab to further reduce development time.



ACT88329

ActiveCiPS is not just reduction of external components but also:

- Configurable via I2C current limits
- Adjust GPIO functionality
- Adjust current limits and other protection features during system development
- Multi-time programmable
- Customer developed startup and shutdown configurations



The diagram above illustrates a typical size reduction achieved through the use of Qorvo's innovative, configurable power supply solutions.

Modular Power ActivePMICs

Part Number	Description	Application Processors	Battery Charger	Buck Converters	Bucks Configurable as Load Switch	Boost Converters	Buck-Boost Converters	LDO Regulators	LDOs Configurable as Load Switch	Interface	Package Type	Package (mm)
ACT81460	Low power PMIC with integrated linear charger	General purpose/wearable & IoT processors	ActivePath™	2	0	1	1	3	3	I2C	CSP, 49-pin	3.3x3.3
ACT85610	Hybrid PLP+PMIC for enterprise storage and computing	General purpose	No	5	0	1	0	1	0	I2C	QFN, 52-pin	6.0x6.0
ACT86600	Hybrid PMIC for enterprise storage and computing	General purpose	No	5	1	0	1	0	0	I2C	QFN, 48-pin	6.0x6.0
ACT88320	Advanced PMIC with 20 V OVP, Inrush control, bypass switch & eFuse	Silicon Motion, Ambarella, Atmel, Micro Semi, Socionext, Omnivision	No	3	1	0	0	2	0	I2C	QFN, 32-pin	4.0x4.0
ACT88325/6	Advanced PMIC with bypass switch & pushbutton function	Silicon Motion, Ambarella, Atmel, Micro Semi, Socionext, Omnivision	No	3	1	0	0	2	1	I2C	WLCSP, 36-pin	2.7x3.3
ACT88329/1	Advanced PMIC with 3 Bucks, 2 LDOs, and Load Bypass Switches	General Purpose	No	3	1	0	0	2	1	I2C	WLCSP, 30-pin	2.18x2.581
ACT88430	Advanced PMIC for microcontrollers & SSDs	HiSilicon Silicon Motion, Ambarella, Atmel, Micro Semi, Socionext, Omnivision	No	4	1	0	0	3	1	I2C	QFN, 40-pin	5.0x5.0
ACT8846	Advanced PMIC for multi-core application processors	Rockchip RK3066, RK3188	No	4	0	0	0	9	0	I2C	TQFN, 48-pin	6.0x6.0
ACT8847	Advanced PMIC for multi-core application processors	Freescall i.MX51, i.MX53, i.MX6, Samsung S5PC210, S5PV310	No	4	0	0	0	9	0	I2C	TQFN, 48-pin	6.0x6.0
ACT8849	Advanced PMIC for multi-core application processors	Freescall i.MX51, i.MX53, Samsung S5PC210, S5PV310	No	4	0	0	0	9	0	I2C	TQFN, 48-pin	6.0x6.0
ACT8865	Advanced PMIC for Atmel SAMA5Dx series & SAM9 series processors	Atmel SAMA5D (31/33/34/35/36), SAM9G (15/25/35/45/46), SAM9X (25/35), SAM9M (10,11), SAM9N (11/12)	No	4	0	0	0	3	0	I2C	TQFN, 32-pin	4.0x4.0
ACT8870	Advanced PMIC with bypass switch for microcontrollers & SSDs	Atmel SAMA5D2; Silicon Motion, Ambarella, Micro Semi, Socionext, Omnivision	No	4	1	0	0	3	0	I2C	CSP, 48-pin	5.0x5.0; 3.2x4.2x0.5
ACT88760	Advanced PMIC	General Purpose	No	7	0	0	0	6	2	I2C	WLCSP, 81-pin	3.85x3.85
ACT8945A	Advanced PMIC for Atmel SAMA5Dx series & SAM9 series processors	Atmel SAMA5D (31/33/34/35/36), SAM9G (15/25/35/45/46), SAM9X (25/35), SAM9M (10,11), SAM9N (11/12)	ActivePath	4	0	0	0	3	0	I2C	TQFN, 40-pin	5.0x5.0

Designed with a Purpose

Qorvo's turnkey solutions deliver energy-saving power conversion architectures that minimize energy usage and compress system development time to market by more than 50 percent. Our scalable core platforms are used for charging, powering and embedded digital control systems for end applications in the industrial, commercial and consumer equipment markets.

For more information about our modular power PMICs, visit:
www.qorvo.com/products/power-management/modular-power-pmics