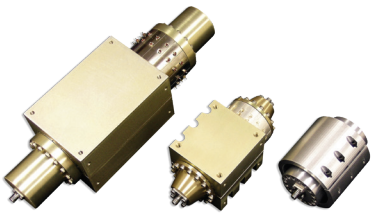
High-Performance SSPA Technology

Delivering a Higher Standard of Efficiency, Reliability & Bandwidth



qorvo®

all around you

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

Patented Spatium® RF power-combining technology from Qorvo® provides a highly reliable, efficient alternative to traveling wave tube amplifiers (TWTAs) for commercial and defense communications, radar, electronic warfare (EW) and other defense applications. Spatium solutions are readily customizable and dramatically improve broadband RF power and efficiency through patented coaxial spatial combining techniques. Qorvo's solid-state gallium nitride (GaN) MMIC amplifiers deliver longer service lifetimes than comparable TWTAs or conventional planar power combining products. Spatium provides clear advantages in size, weight, power and cost (SWaP-C). RF system designers can use Spatium to achieve unprecedented combining efficiency with output power from hundreds to thousands of watts.

Spatium Amplifiers

Frequency (GHz)	Psat (W)	Small Signal Gain (dB)	Power Gain (dB)	PAE (%)	V_D (V)	ECCN	Part Number
2-18	100-200	17-20	11-14	15-35	20	3A001.B.4.B.4	QPB0218
2-18	100-200	17-20	11-14	15-35	20	3A001.B.4.B.4	QPB0218N
2-18	130-316	17-20	8-12	13-28	18	3A001.B.4.B.4	QPB0220
2-18	220	17	12.8	22.6	18	3A001.B.4.B.4	QPB0220N
6-18	162-288	15-19	9.1-11.6	15-24	18	3A001.B.4.B.4	QPB0618N
8-11	590-740	27-30	19.7-20.7	31-39	28	3A001.B.4.B.2	QPB1024
13.4-15.5	590-645	23.7-241	19.7-20.7	25-28	28	3A001.B.4.B.3	QPB1316
18-40	80-126	13-17	10-12	8-14	18	3A001.B.4.C	QPB2040N
27.5-31	182-224	23-27	13.6-14.5	25-28	22	3A001.B.4.B.4	QPB2731
27.5-31	150-200	21-24	13-14	22-26	22	3A001.B.4.B.4	QPB2731N
32-38	126-155	17-26	7.7-8.5	15-18	24	3A001.B.4.D	QPB3238
32-38	117-141	18-25	8-9	16-20	24	3A001.B.4.C	QPB3238N
34-36	316-347	21-25	16-16.4	15-17	28	3A001.B.4.C	QPB1111

The suffix N denotes an integrated bias card, with the exception of QPB1111 which includes an integrated bias card despite the absence of the suffix N.
Reference the respective data sheet on Qorvo.com for the current specifications. Demonstration units are available for several of the above products.
All test conditions are at CW except for QPB1111 (at 5µs, 50%)

Benefits of Spatium Technology

- Ultra-broadband operation: up to decade BW
- Efficiently combines 10, 16, 20 or 32 amplifiers
- 93% combining efficiency/high-operating frequency
- Smaller than comparable TWTAs
- High reliability: 7+ years compared to TWTAs
- No limiting microstrip or other legacy architectures
- Advanced product architecture provides graceful degradation
- Lower supply voltage: 5-50V
- Provides instantaneous bandwidth without warm-up time

Applications

- Electronic warfare
- Satellite & terrestrial communications
- Radar systems
- Test & measurement

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