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.

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

Spatium Amplifiers

<table>
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<th>Frequency (GHz)</th>
<th>P_{sat} (W)</th>
<th>Small Signal Gain (dB)</th>
<th>Power Gain (dB)</th>
<th>PAE (%)</th>
<th>V_D (V)</th>
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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%).

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