

# DC/DC Converters for RF & Microwave Power Amplifier applications

In its simplest form, a radio-frequency power amplifier (RFPA) converts a low-power radio frequency signal into a higher powered signal. These RFPAs drive transmitter antennas used in wireless and satellite communication systems for both commercial and defense industries, as well as radar and sonar equipment. With the increasing rollout of 5G applications worldwide, RFPAs need to evolve accordingly.

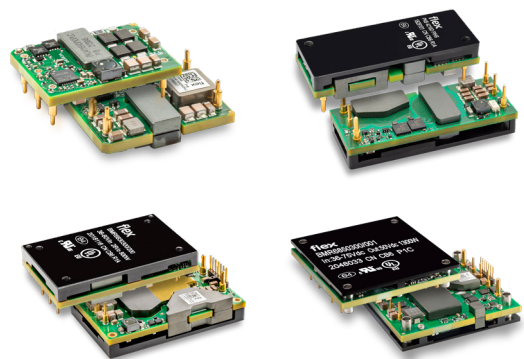


RFPAs for 5G applications require more power than 4G versions. However, it is important that efficiency is maintained, or even improved, to keep energy consumption manageable, affordable, and environmentally friendly. Any solution must also be compact to fit into base stations' available spaces and in other equipment, and light enough to be conveniently installed by the least number of engineers.

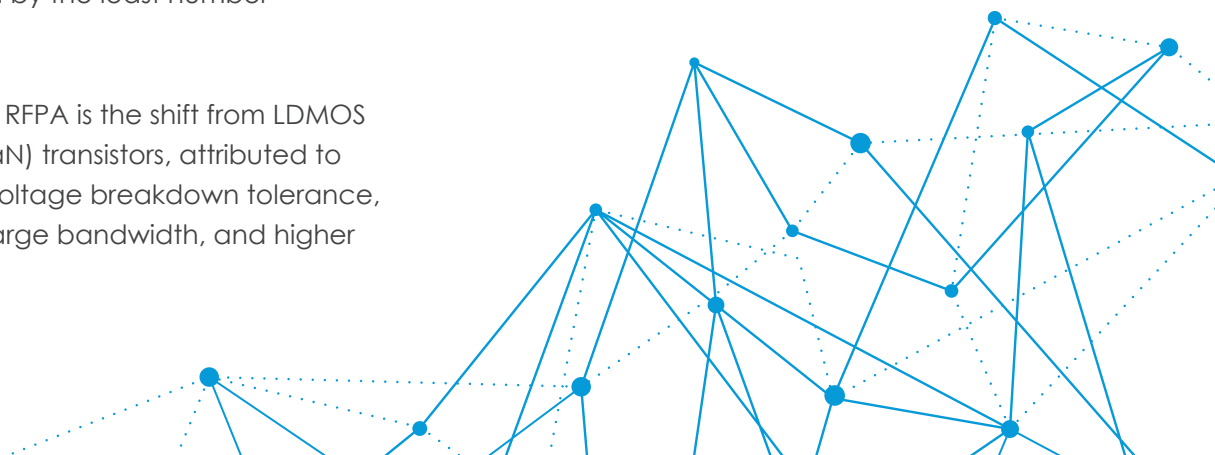
A noticeable trend in RFPA is the shift from LDMOS to Gallium Nitride (GaN) transistors, attributed to their inherently high voltage breakdown tolerance, high power density, large bandwidth, and higher efficiency.

As designers study power and efficiency in all relevant parts of their systems, one key area is the power supply subsystem, specifically the DC/DC conversion.

This is where we offer a wide portfolio of analog and digital DC/DC converters. Our RFPA products come in different form factors from sixteenth to half brick packages, delivering power levels from 100W to 1300W, at efficiency levels of up to 97%.



For Microwave applications, lower power solutions of 100W are available in sixteenth brick packages, delivering low power radio-specific output voltages of 5-7V and a wide range of 12V IBC solutions.



## Latest RFPA & Microwave Power Modules

### Sixteenth Brick



#### PKU-C – Wide output trim DC/DC (100W)

- 36-75V input and 10-33V output range
- Open frame for conducted cooling
- High efficiency of 93% at full load



#### PKU-D – Thermally optimized DC/DC (100-110W)

- 36-75V and 30-60V input and 12V output versions
- 36-60V input range and 55V output version
- Isolation 2250V
- Excellent thermal performance

### Quarter Brick



#### PKM-D – Isolated DC/DC converter (up to 504W)

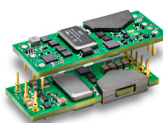
- 36-75V input range; output voltages 28V (14-35V) and 50V (25-55V)
- Fully regulated
- Single stage converter



#### BMR684 - Digital DC/DC (700W)

- 36-75V input range; output 28V (25-55V)
- Isolation 1500V
- Digital interface for PMBus & FPD

### Eighth Brick



#### PKB-C – Wide output trim DC/DC converter (200W)

- 36-75 input range; 15-33V variable output voltage
- Open frame for conducted cooling
- High efficiency of 95% at half load

### Half Brick



#### PKJ – Isolated converter (up to 700W)

- 36-75V input range; output voltages 28V (14-35V) and 50V (25-55V)
- High efficiency of 96.5% at full load
- Excellent thermal performance



#### BMR685 – Digital, isolated DC/DC (up to 1300W)

- 36-75V input range; output 50V (25-55V)
- Excellent thermal performance
- High efficiency of 96.8% at full load

## Focus Products

| PRODUCT NUMBER           | V <sub>in</sub> | V <sub>out</sub> | P <sub>out</sub> | EFFICIENCY | FORM FACTOR     |
|--------------------------|-----------------|------------------|------------------|------------|-----------------|
| PKU4116C                 | 36-75V          | 10-33V           | 100W             | 93%        | Sixteenth Brick |
| PKU4913D                 | 36-75V          | 12V              | 100W             | 94%        | Sixteenth Brick |
| PKU3913D                 | 30-60V          | 12V              | 100W             | 93%        | Sixteenth Brick |
| PKU4116HD                | 36-60V          | 55V              | 110W             | 92%        | Sixteenth Brick |
| PKU4917VD                | 36-60V          | 6V               | 100W             | 93%        | Sixteenth Brick |
| PKU4911D                 | 36-75V          | 5V               | 100W             | 93%        | Sixteenth Brick |
| PKB4216C                 | 36-75V          | 15-33V           | 200W             | 95%        | Eighth Brick    |
| PKB4216HD                | 36-60V          | 40-55V           | 250W             | 94%        | Eighth Brick    |
| PKM4516AD                | 36-75V          | 14-35V           | 500W             | 96%        | Quarter Brick   |
| PKM4516HD                | 36-75V          | 25-55V           | 500W             | 95%        | Quarter Brick   |
| PKJ4716A                 | 36-75V          | 14-35V           | 700W             | 96%        | Half Brick      |
| PKJ4716H                 | 36-75V          | 25-55V           | 700W             | 96%        | Half Brick      |
| <b>DIGITAL SOLUTIONS</b> |                 |                  |                  |            |                 |
| BMR684                   | 36-75V          | 25-55V           | 700W             | 96%        | Quarter Brick   |
| BMR685                   | 36-75V          | 25-55V           | 1300W            | 97%        | Half Brick      |

Visit [flexpowermodules.com](https://flexpowermodules.com) for more product variants and a wide range of non-isolated Point of Load converters.