



APPLICATION SOLUTION BRIEF

LDMOS 28 Volt RF Power Amplifier Applications

Typical Power Requirement Specifications

- Power
 - » Macro BTS; Up to 800 W
 - » Micro BTS; 150 W to 350 W
 - » RRH; 200 W to 600 Watts
 - » Pico BTS; <150 Watts
 - » Femto cells; <20 Watts
- Output
 - » 28 V or 30 V nominal
 - » 14 V to 33 V trim required
- Environmental
 - » Wide temperature range of -40 to +100 °C baseplate
 - » IP sealed enclosure
- Compliance requirements
 - » Full Telecom standards
- Size, connectivity, form factor
 - » Industry standard baseplate brick-factor footprints

Today's RF power amplifier applications can be differentiated by the DC-DC power conversion that is required based on the application and by the power rating of the power amplifier that is needed to achieve:

- the transmission range of the RF antenna
- the expected speed of the transmission

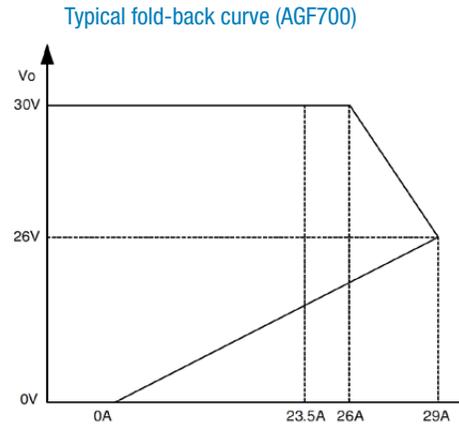
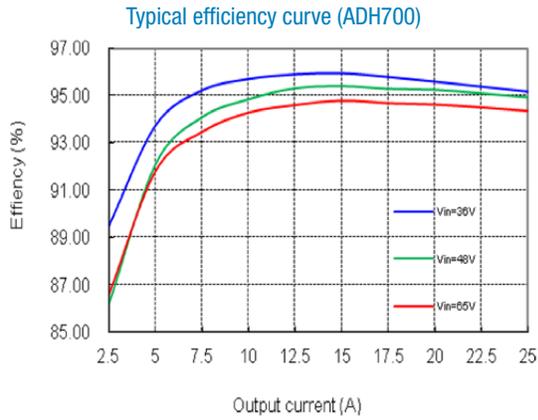
Typically, an LDMOS (laterally diffused MOSFET) power amplifier requires between 26 Vdc and 33 Vdc.

The RF power demand from the system defines the rating of the power conversion product required in each application. These power ratings

can vary between 100 watts and 800 watts depending on the system. For example, a micro base station (BTS) may need in the range of 5 to 40 W of RF power, which translates to between 150 W and 350 W of DC-DC power conversion. However, macro base stations may require up to 800 W of DC-DC power conversion.

The top priority when selecting the right DC-DC power conversion solution is based on the highest efficiency possible at the power rating optimized for the application. Wireless antennas can be deployed anywhere from the very hottest environments to the very coldest.





The Artesyn Connection

Artesyn's portfolio of DC-DC converters address these vast application demands. Our DC-DC converters possess high conversion efficiency in the region of 95% and their calculated reliability exceeds 1.5 million hours.

Additionally, the current limiting characteristic of Artesyn's DC-DC modules exhibits a fold-back characteristic which means that the output voltage will not switch off completely even if the unit gets overloaded or experiences the fast transient load conditions typically found in such applications.

Artesyn DC-DC converters have been specifically designed to be contact-cooled inside an IP-sealed enclosure. All the units have a baseplate that can be thermally bonded to the host enclosure. The full power rating of the unit will be available as long as the baseplate remains less than 100 °C.

The family of solutions has a wide output voltage adjustment range of any voltage between 50% and 118% of the nominal output voltage, allowing the solution to serve the power amplifier with whatever the optimum voltage is for the application without having to change the DC-DC converter type.

In summary, this family of 28 V units addresses the following requirements of the power levels required by LDMOS power amplifiers:

- high efficiencies
- wide range of environmental temperature conditions
- demands for contact cooled solutions
- functions of widely adjustable outputs, and output current limit characteristics

Artesyn DC-DC converters



350 W, 450 W and 700 W half brick



100 W and 250 W eighth brick



600 W, 700 W and 800 W full brick



BTS Type	Power Level and Solution Required	Module Solution
Multi-carry Macro/RRH	Up to 800 W DC-DC BMP used	AGF600, AGF700, AGF800, ADH700
Macro BTS	600 - 800 W DC-DC BMP used	AVE350, AVE450, ADH700, ADQ450
Micro BTS	150 W, 250 W, 350 W DC-DC BMP used	AVE350, AV0100, AV0250, ADQ450
RRH	250 W, 350 W, 450 W, 600 W DC-DC BMP used	AVE350, AVE450, AGF600, ADH700
Pico	75-150 W, DC usually POE remote supply or AC adapter	AV0100, AV0250
Femto	10-20 W, POE remote supply or AC adapter	Few BMP solution

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28V LDMOS Application Solution Brief - March 2017

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