



## PowerStar® Value Line of GSM Power Amplifiers

### Features:

- Lowest profile **PowerStar** power amplifier solution: 7x7x0.9mm
- Lead Frame Module™ (LFM™) package technology
- 53 - 61% system efficiency for GSM
- 51- 57% system efficiency for DCS
- Robust power control architecture, achieving < - 35 dBm transients @ ±400 kHz offset
- Single-point measurement calibration attainable
- 0 dBm drive level, >50 dB of dynamic range
- Superior forward isolation
- 34.5 - 35.4 dBm GSM output power at 3.5V
- 33 - 33.5 dBm DCS/PCS output power at 3.5V

### Applications:

- 3V dual-, triple- and quad-band GSM handsets
- GPRS Class 12 compatible

The **PowerStar**® Value Line of GSM power amplifiers is designed to give optimal sourcing options to our customers. The lineup—built upon a common footprint and pinout—allows for maximum flexibility in meeting performance requirements at the best available price point. The GSM Value Line is comprised of three different RFMD® solutions:

- **RF3146D** Dual-band GSM (900,1800) power amplifier
- **RF3146A** Dual-band GSM (850,1900) power amplifier
- **RF3146** Full quad-band (850, 900, 1800,1900) power amplifier

Each of the solutions features a common layout, so customers can meet various performance and frequency band levels simply by exchanging power amplifiers. Dual-, tri- and quad-band designs are possible in the same application board when using the RF3146 family of products. A common phone board can be customized depending upon the phone requirements, thereby maximizing design re-use and maximizing responsiveness to changes in market demand. This convenient feature is particularly highlighted in the RF3146D and RF3146A devices, enabling a single layout to accommodate both types of the value oriented, emerging market handsets.

The Value Line of products feature RFMD's patented **PowerStar** integrated power control technology, which is designed to maximize transmitter yields and minimize design time. The integration of the power control function eliminates the need for directional couplers, detector diodes, power control ASICs and other power control circuitry, enabling the module to be driven directly from the DAC output.

Each of these solutions measures a compact 7x7x0.9mm package and features Lead Frame Module™ technology for a smaller, more cost-effective package solution with increased shelf life and lead-free compatibility. These power amplifiers are designed for use as the final RF amplifier in handheld digital cellular equipment.

RFMD is continuously introducing new designs for our Value Line. Matching maximum flexibility with top performance, our RF3146 family of products are ideal for high-volume GSM PA needs.

	RF3146 <b>PowerStar</b> <sup>®</sup> Quad-Band	RF3146D <b>PowerStar</b> <sup>®</sup> Dual-Band GSM900,DCS	RF3146A <b>PowerStar</b> <sup>®</sup> Quad-Band GSM850,PCS
<b>Features</b>	Integrated V <sub>REG</sub>	Integrated V <sub>REG</sub>	Integrated V <sub>REG</sub>
<b>Benefits</b>	.9mm height Superior thermal performance Pin-for-pin compatibility throughout lineup		
V <sub>BATT</sub>	3.5	3.5	3.5
Max V <sub>RAMP</sub>	1.5	1.5	1.6
P <sub>IN</sub> Range	0 to +5dBm	0 to +5dBm	0 to +5dBm
<b>GSM850</b>			
P <sub>OUT</sub>	35	NA	35
Efficiency	57	NA	57
2nd Harmonic	-17	NA	-12
3rd Harmonic	-23	NA	-22
Forward Isolation 1	-50	NA	-54
Forward Isolation 2	-31	NA	-31
<b>GSM900</b>			
P <sub>OUT</sub>	35	35	NA
Efficiency	61	58	NA
2nd Harmonic	-18	-15	NA
3rd Harmonic	-21	-21	NA
Forward Isolation 1	-47	-50	NA
Forward Isolation 2	-28	-28	NA
<b>DCS</b>			
P <sub>OUT</sub>	33.5	33.5	NA
Efficiency	57	51	NA
2nd Harmonic	-17	-15	NA
3rd Harmonic	-20	-20	NA
Forward Isolation 1	-43	-43	NA
Forward Isolation 2	-23	-23	NA
<b>PCS</b>			
P <sub>OUT</sub>	33	NA	33
Efficiency	60	NA	60
2nd Harmonic	-16	NA	-16
3rd Harmonic	-21	NA	-21
Forward Isolation 1	-37	NA	-37
Forward Isolation 2	-23	NA	-23

### Optimum Technology Matching<sup>®</sup> Strategy

RFMD's success has been driven in part by our deep design expertise in multiple semiconductor process technologies—AlGaAs HBT, SiGe, BiCMOS, CMOS and GaAs MESFET, as well as our newest processes, GaN, InGaP HBT and GaAs pHEMT—and our Optimum Technology Matching<sup>®</sup> (OTM) strategy. Through OTM, RFMD<sup>®</sup> engineers match the appropriate process technology and device technology to each product according to the best possible combination of price and performance.

For sales or technical support, contact RFMD at **336-678-5570** or [sales-support@rfmd.com](mailto:sales-support@rfmd.com).

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