

Optimum Technology Matching*

<p>GaAs HBT 25 GHz F_T, 2 Micron, High Efficiency, High Dynamic Range, Low Noise, High Linearity, Single Supply</p> <p>Silicon BiCMOS 25 GHz F_T, 0.5 Micron, Low-Cost Process</p> <p>Silicon Germanium 47 GHz F_T, Bipolar RF Technology, Excellent for High Levels of RF Integration and High-Performance Rx</p> <p>GaAs MESFET 20 GHz F_T, 0.6 Micron, Low Noise, Excellent for Control Components (Switches and Attenuators)</p> <p>Silicon CMOS 0.13 Micron, Low-Cost, Efficient Digital Circuitry</p> <p>InGaP HBT 30 GHz F_T, 2 Micron, High Efficiency, High Dynamic Range, Low Noise, High-Linearity, Single Supply</p> <p>InGaAs pHEMT 30 GHz F_T, 0.5 Micron High-Power MMIC Process</p> <p>GaN HEMT 25 GHz F_T, 0.5 Micron High-Power, High-Linearity Process</p>	}	<p>Power Amplifiers</p> <p>Transceivers</p> <p>Chipsets</p> <p>Front Ends</p> <p>Gain Blocks</p> <p>Low Noise Amplifiers</p> <p>Demodulators</p> <p>Modulators/Upconverters</p> <p>Mixers/Downconverters</p> <p>General Purpose Amplifiers</p> <p>Linear CATV Amplifiers</p> <p>Pre-Driver Amplifiers</p>
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[POLARIS™ 2 TOTAL RADIO™ Module]



Optimum Technology Matching* 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* (OTM) strategy. Through OTM, RFMD* engineers match the appropriate process technology and device technology to each product according to the best possible combination of price and performance.

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POLARIS™ 2 TOTAL RADIO™ Module

Highly Integrated Radio with Transceiver and Transmitter Modules for GSM/GPRS/EDGE Applications

Based on the POLARIS™ 2 TOTAL RADIO™ solution, the POLARIS™ 2 TOTAL RADIO™ Module is a highly integrated complete radio consisting of transceiver and transmitter modules designed to support up to four frequency bands while operating under the GSM, GPRS and EDGE air interface standards. This solution consists of the RF6026 radio transceiver module and the RF3178 transmitter module with integrated power control, antenna switch and harmonic filters. The solution is Class 12 capable, includes enhanced receiver sensitivity and the ability to receive and transmit 8-PSK modulated signals for the EDGE air interface standard. The POLARIS 2 TOTAL RADIO Module provides handset manufacturers the benefits of minimal size, reduced component count and flexible baseband interfaces, reducing time to market while still achieving exceptional RF performance, particularly in sensitivity and low power consumption.

The POLARIS 2 TOTAL RADIO Module implements both very low IF (VLI) and direct conversion receive (DCR) architectures, eliminating all intermediate frequency filters. All VCOs, associated loop filters and SAW filters are integrated into the transceiver module, minimizing the external component count and total board area.

The receive section uses digital channel filtering to provide the highest performance over temperature, voltage and processing variations while offering flexibility through eight selectable channel bandwidths. The receiver outputs a fully filtered DC signal in either analog I/Q or digital formats.

The transmit section includes fractional-N based digital modulators, providing outstanding spectral performance while using a fraction of the power consumption required in translational-loop or direct launch transmitters. 8-PSK signals are modulated via the polar modulator, providing minimum power consumption by enabling the use of a saturated power amplifier for both constant and non-constant envelope signals. The radio also includes integrated power amplifier control circuitry, eliminating the need for external power detectors, feedback circuits and auxiliary DACs.

By offering both programmable analog I/Q and digital baseband interfaces in transmit and receive paths, the POLARIS 2 TOTAL RADIO Module solution is capable of seamlessly interfacing with all major baseband devices.

Features:

- Transceiver and transmitter modules for a highly integrated complete radio solution
- Quad-band operation: 850, 900, 1800, 1900 MHz
- Supports GSM, GPRS and EDGE air interface standards
- Minimal external components reduce cost and total board space ~ 275mm²
- **PowerStar**™ transmitter module with integrated power control, antenna switch and harmonic filters
- Analog I/Q and digital baseband interfaces
- Class 12 capable

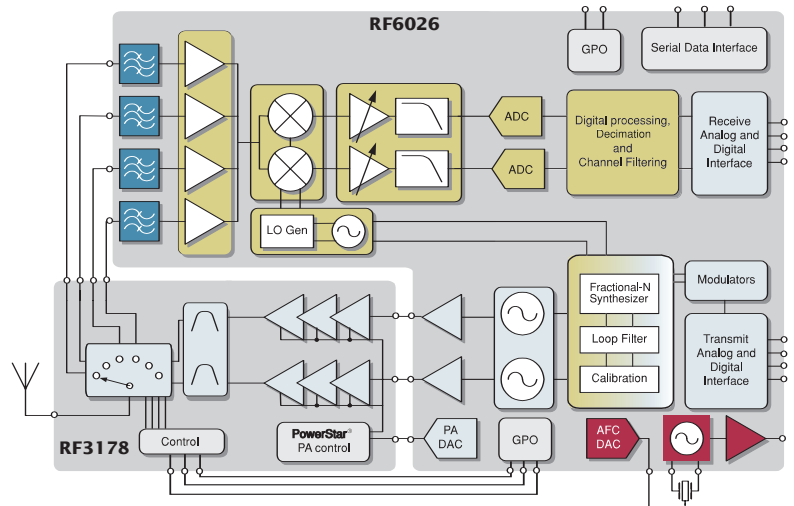
System Benefits:

- Reduced power consumption through unique digital polar and GMSK modulators
 - Extended talk time
 - Minimal heat dissipation
 - Long battery life
- Reduced engineering complexity
 - Easy implementation
 - Faster time to market
- Minimal size solution

RF6026

Quad-Band Transceiver Module

- Very low IF and direct conversion receive architectures
- EDGE transmit capability with digital polar modulator and use of saturated PA for maximum PAE
- Highly integrated: includes all VCOs, loop filters, SAW filters, PA ramp DAC, AFC DAC and most passives
- Digital GMSK modulator
- Selectable digital channel filters 80 kHz to 135 kHz
- Analog I/Q and digital baseband interfaces
- Exceptional receive sensitivity: ≤ -109 dBm in all bands
- SiGe and CMOS process technologies
- 10x10mm² module package



RF3178

Quad-Band Transmitter Module

- **PowerStar**™ power amplifier with integrated power control
- Integrated antenna switch
- Internally matched to 50 ohms
- +34 dBm cellular/GSM output power
- +31 dBm DCS/PCS output power
- 55% power added efficiency at PA output
- 41% power added efficiency at antenna
- GaAs HBT process technology
- 7x8mm² module package