

Announcing High Performance Rugged Plastic for Mobile Radio

AFT05MS004N



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Mobile Radio Applications



Public Safety: P25, TETRA



Transportation



Construction



Marine



Dispatch



M2M

RF Mobile Radio Challenges



- Reliability, ruggedness, stability
 - Mission critical applications
 - Harsh, uncontrolled environment
- Reduce equipment size
 - Smaller vehicles
 - Reduce installation costs
- Increase features without increasing size
 - Reduce installation costs
 - Multi-band/multimode radios

4 W Product – In Production

AFT05MS004N

- ✓ 136 to 941 MHz
- ✓ 5 W P1dB
- ✓ Enhanced ruggedness
- ✓ High power and small size



Freescal Solutions: **Airfast** Mobile Radio Devices

Features include

- Best ruggedness in the industry:
 - LDMOS devices handle > 65:1 VSWR with 3 dB overdrive
- High gain
 - eliminates stages, reducing system cost
- High efficiency
 - allows use of smaller heatsinks and housings
 - less heat improves reliability
- Broadband capability
 - enables full performance across in each PMR band
 - slightly reduced performance across multiple bands.
- Available in cost effective plastic packages
- Freescale product longevity program

Freescal announces the **AFT05MS004N** 4 W Airfast device for handheld/portable applications. The new device offers high performance at a lower power level and lower price point than the 6 W device. It joins the previous announced devices in the Freescale mobile radio portfolio. These devices are designed for mobile applications operating at frequencies from 136 to 941 MHz.

This device provides significantly improved performance over previous generation devices.

High gain enables reduction in the number of stages. Efficiency improvements dramatically reduce heatsink size.

Ruggedness enables reliable operation in extreme environments.

Recently announced products

AFT05MS006N – in production

AFT09MS007N – in production

AFT09MS015N – in production

AFT05MS031N – in production

AFT09MS031N – in production

AFT09MP055N – in production

AFT05MP075N – in production

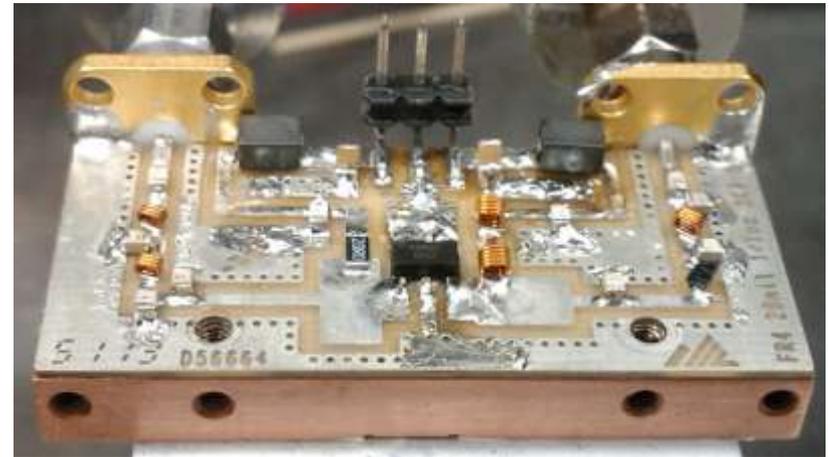
Product Features for Handheld Applications

Designed for 7.5 V and 3.6 V Operation at Frequencies between 136–941 MHz

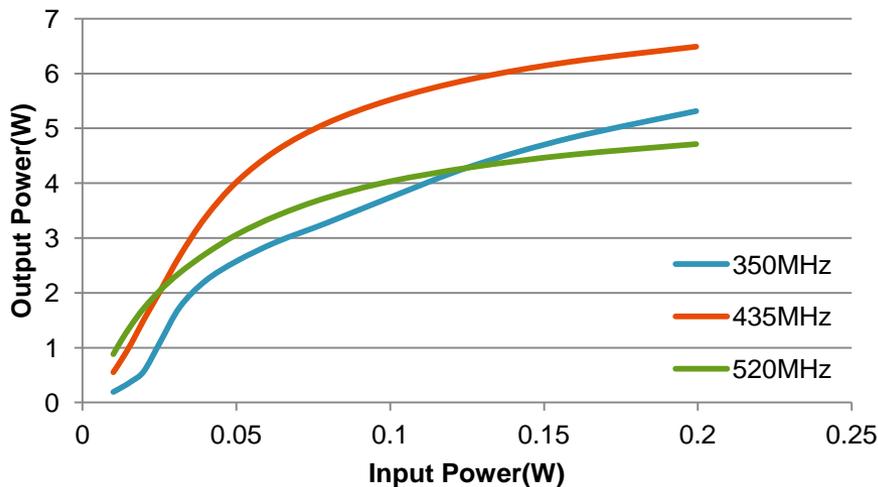
	AFT05MS004N	AFT05MS006N	AFT09MS007N
<p>*Package images not actual size</p>	<ul style="list-style-type: none"> • 136 to 941 MHz • > 5 W output power at 7.5 V • > 2 W output power at 3.6 V • Ruggedness > 65:1 VSWR • High gain < 0.02 W drive for rated power out • SOT-89 package 	<ul style="list-style-type: none"> • 136 to 941 MHz • > 6 W output power at 7.5 V • Ruggedness > 65:1 VSWR • High gain < 0.02 W drive for rated power out • Over-molded plastic package: PLD-1.5W 	<ul style="list-style-type: none"> • 136 to 941 MHz • > 7 W output power at 7.5 V • 3 W output power at 3.6 V • Ruggedness > 65:1 VSWR • High gain < 0.025 W drive for rated power out • Over-molded plastic package: PLD-1.5W 

AFT05MS004N Applications Performance at 7.5 V

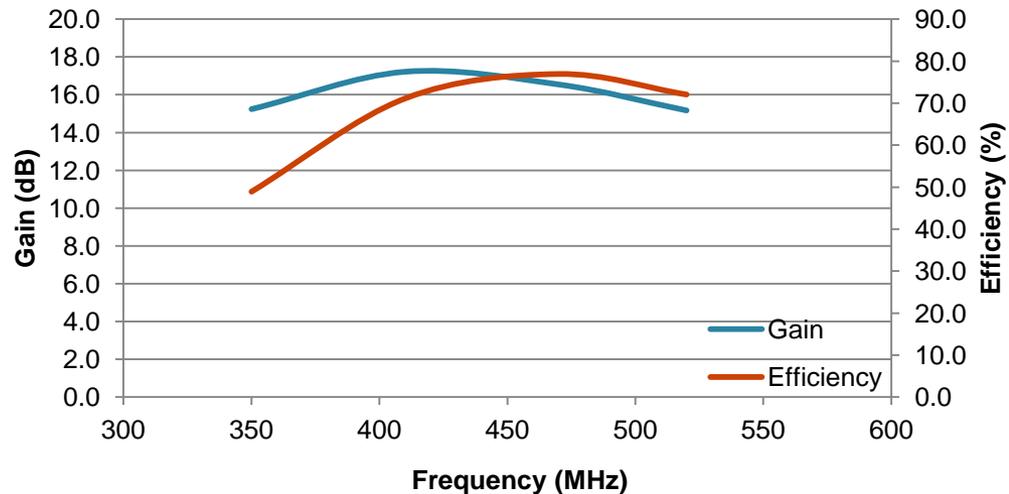
- Excellent broadband performance
 - 350 to 520 MHz in a single fixture
- Functional performance
 - Power > 5 W at P1dB
 - Gain: 17 dB typical
 - High efficiency: 60% typical
- Extreme ruggedness > 65:1 VSWR capable at 10.8 V and 3 dB overdrive



Pin(W) vs Pout(W)



Gain and Efficiency Performance @21 dBm Input Power

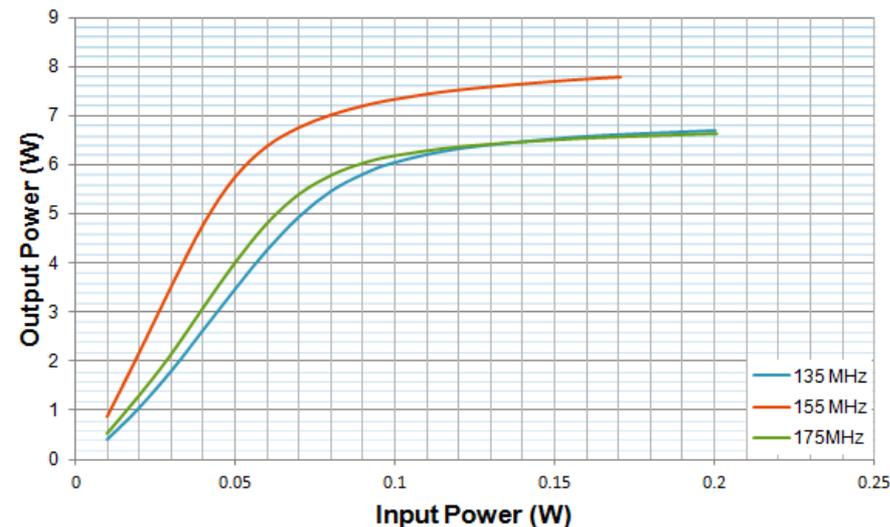


AFT05MS004N Applications Performance at 7.5 V

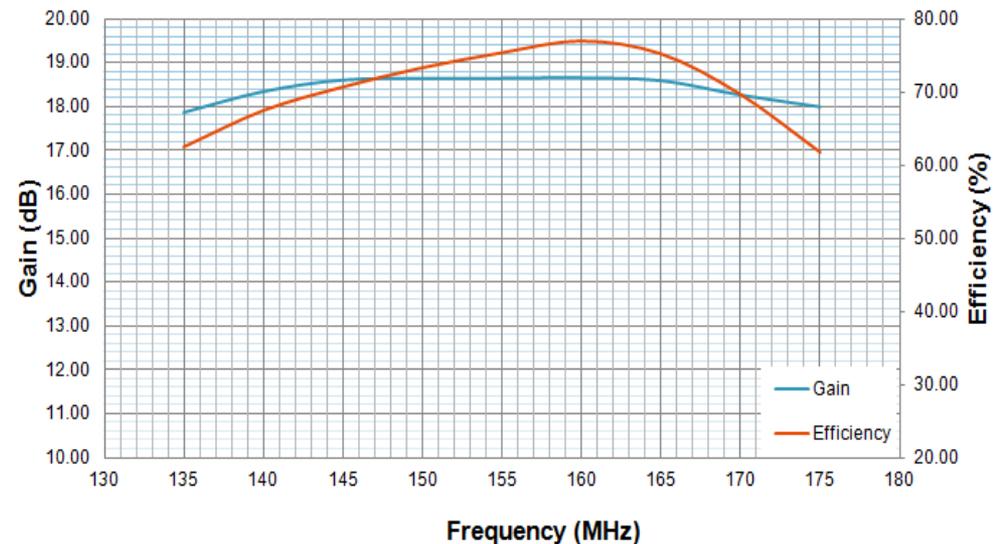
- Excellent broadband performance
 - 136 to 174 MHz in a single fixture
- Functional performance
 - Power > 5.5 W at P1dB
 - Gain: 17 dB typical
 - High efficiency: 60% typical
- Extreme Ruggedness > 65:1 VSWR capable at 10.8 V and 3 dB overdrive



Pin(W) vs Pout (W)



Gain and Efficiency Performance @ 20 dBm Input Power



RF Power Products Support Documentation

- www.freescale.com/RFpower
 - 50 V LDMOS [White Paper](#)
 - Application notes
 - Data sheets
 - MTTF calculators
 - Package index
 - Portfolio application pages
 - Product summary pages
 - RF power selector tool
- **Models**
 - ADS and AWR compatible large-signal models in development
 - www.freescale.com/RF/models
- **Evaluation Boards**
 - Test fixtures and test fixture kits available upon request
- **Application Support**
 - Direct assistance available by Freescale RF applications team
- **Freescale Product Longevity Program**
 - www.freescale.com/productlongevity
- **You Tube Videos**
 - www.youtube.com/freescale (search "RF Power")
- **Social Media**
 - Blogs & Twitter ([@RFLeonard](#))

Freescal LDMOS Leadership

Mobile Radio

***Industrial,
Scientific &
Medical (ISM)
& Aerospace***

Broadcast

***Cellular
Infrastructure***

- Leaders in LDMOS technology since its inception, building on more than 50 years of leadership and experience to deliver innovative, high performance products.
- Dedicated, performance-optimized portfolio for all frequency from 1 MHz to over 2 GHz.
- Comprehensive line of enhanced ruggedness devices.
- Advanced packaging technology that delivers superior thermal performance with both ceramic air cavity and over-molded plastic packages.
- Leader in reliability, performance and consistency.
- Leader in mobile radio and cellular infrastructure markets.



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