



Announcing Rugged Plastic for Industrial Applications

MRFE6VP5150N

MRFE6VP5300N



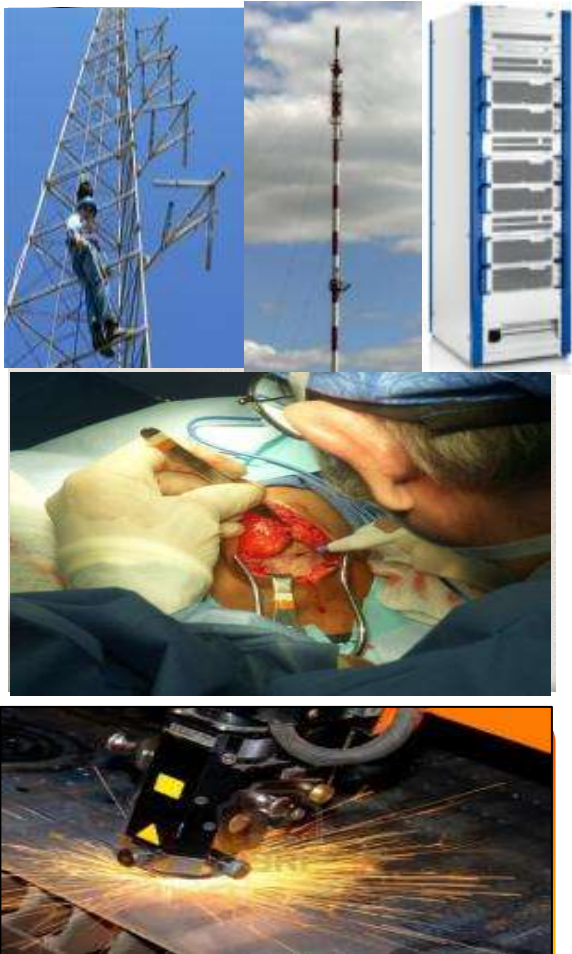
June.2014

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RF Industrial Challenges



- Modern manufacturing techniques
 - Enables surface mount plastic in industrial environments
 - Reduced cost compared to ceramic packaging
 - Competitive with lower performance, older technologies
- Reliability, ruggedness, stability
 - Mission critical applications
 - Harsh, uncontrolled environment
- High performance
 - High gain and efficiency across a wide frequency range: simplifies cooling and enables smaller end products

Freescale Solutions: **Rugged Plastic** Device Family

Features include

- Industrial capable plastic packages
- 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 broadcast bandwidths
- Freescale product longevity program

Freescale announces the MRFE6VP5150N and MRFE6VP5300N for industrial and broadcast applications. These products are the first of Freescale's enhanced ruggedness portfolio housed in plastic packages. Plastic packaged devices enable modern surface-mount manufacturing techniques to be used in traditional industrial applications.

The new products are targeted at applications including medical, laser, and FM and VHF broadcast systems. They are designed for operation at frequencies from 2 to 500 MHz.

These new devices offer high performance at a lower price point than comparable air cavity ceramic packaged products.



Announced June 2014

MRFE6VP5150N – sampling now; production Q314

MRFE6VP5300N – in production

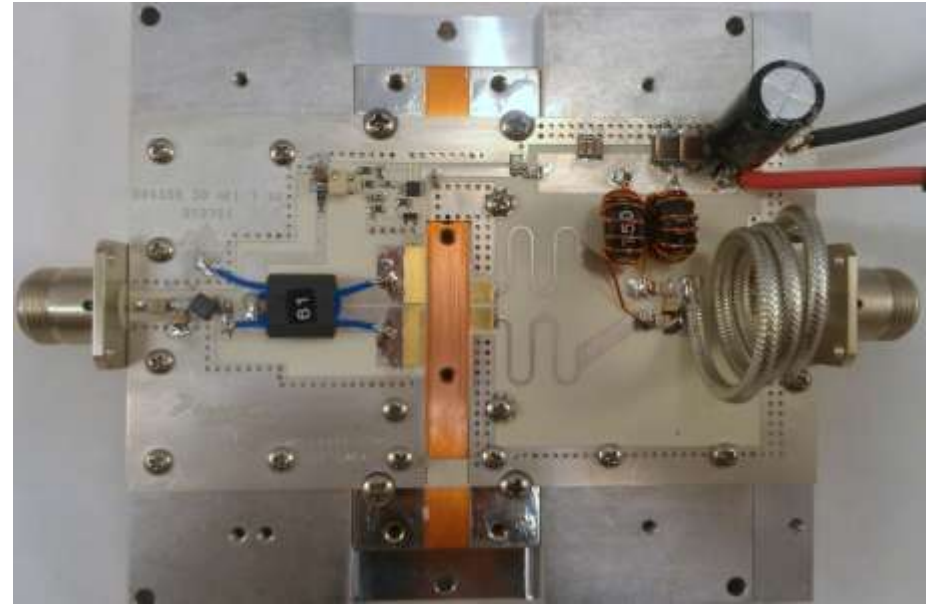
NXP Product Features

Designed for 50 V Operation at Frequencies between 2 to 500 MHz

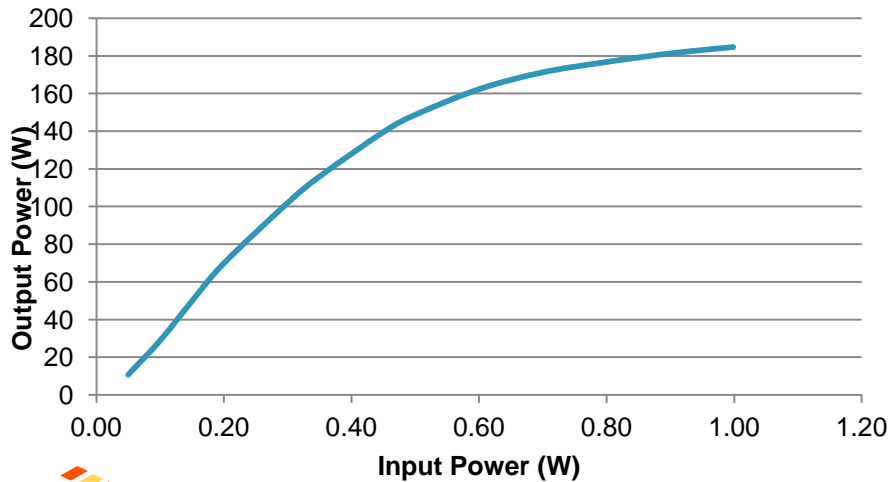
	MRFE6VP5150N	MRFE6VP5300N
<p>TO-270WB-4 Package</p>  <p>Package images not to actual size</p>	<ul style="list-style-type: none"> • 1.8 to 600 MHz • 150 W output power at 50 V • Ruggedness > 65:1 VSWR • High gain <ul style="list-style-type: none"> • < 0.5 W drive for rated power out @ 230 MHz • < 0.9 W drive for 170 W output power from 87.5 –108 MHz • Efficiency <ul style="list-style-type: none"> • 72% typical at 230 MHz • > 75% typical 87.5 –108 MHz 	<ul style="list-style-type: none"> • 1.8 to 600 MHz • 300 W output power at 50 V • Ruggedness > 65:1 VSWR • High gain <ul style="list-style-type: none"> • < 0.5 W drive for rated power out @ 230 MHz • < 0.9 W drive for 300 W output power from 87.5 –108 MHz • Efficiency <ul style="list-style-type: none"> • 70% typical at 230 MHz • > 77% typical 87.5 –108 MHz

NXP FE6VP5150N Reference Circuit – 179 W @ 87.5-108 MHz

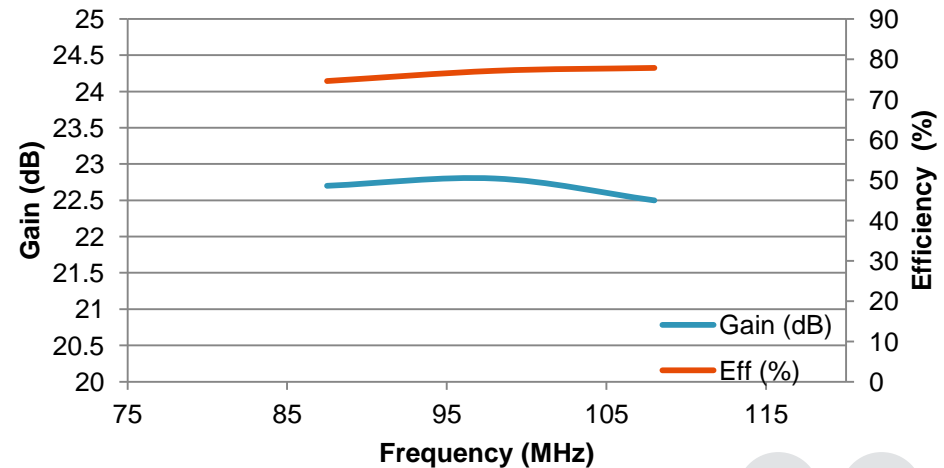
- Designed for high VSWR industrial, medical and broadcast applications
- Extreme ruggedness > 65:1 VSWR capable and 3 dB overdrive
- Excellent broadband performance
87.5 to 108 MHz in a single fixture
- Functional performance
Output Power: 179 W
Gain: 22.5 dB typical
High efficiency: 74.6% typical



Pout (W) vs Pin (W)

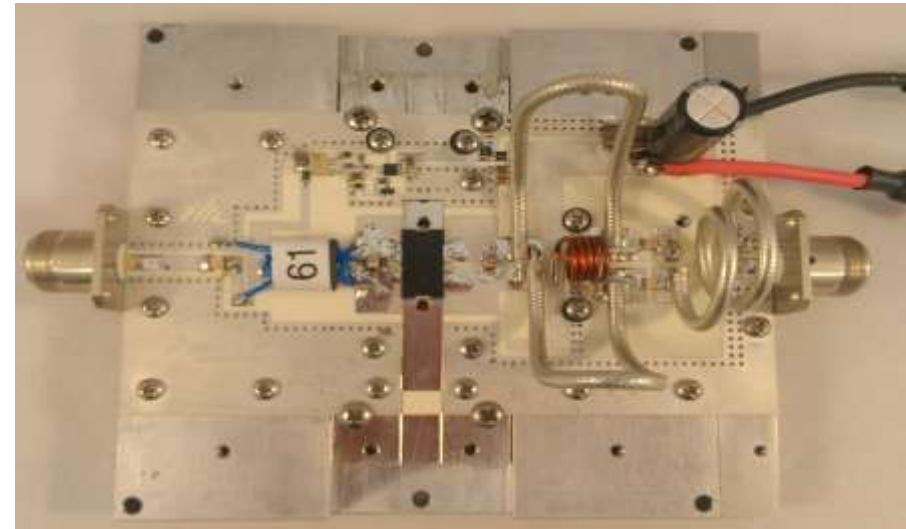


Gain and Efficiency vs Frequency

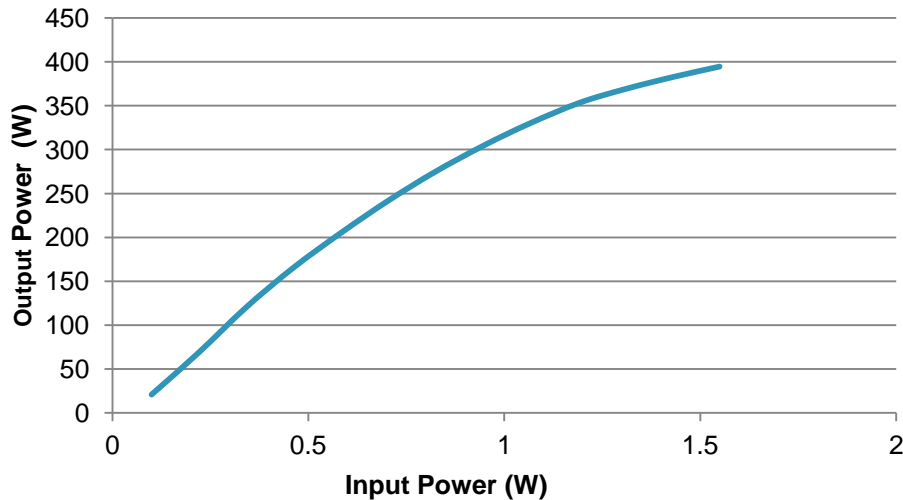


NXP FE6VP5300N Reference Circuit – 338 W @ 87.5-108 MHz

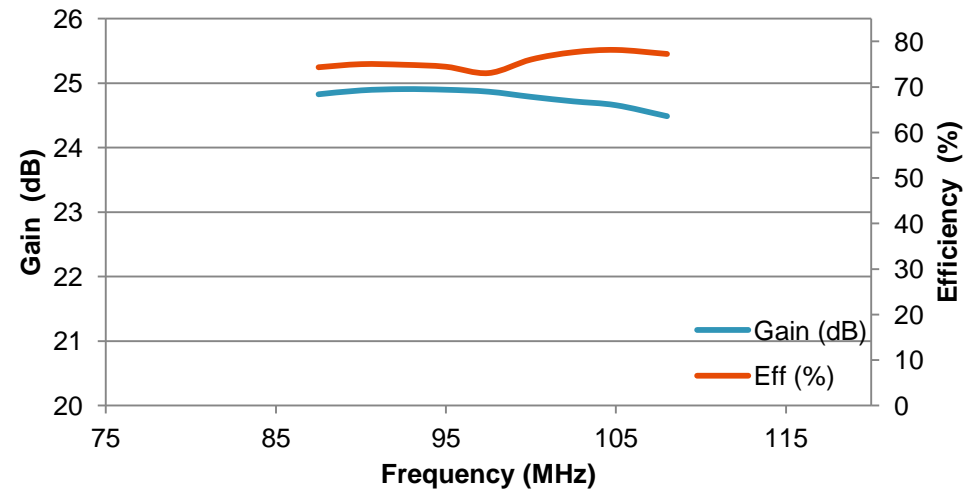
- Designed for high VSWR industrial, medical and broadcast applications
- Extreme ruggedness > 65:1 VSWR capable and 3 dB overdrive
- Excellent broadband performance
87.5 to 108 MHz in a single fixture
- Functional performance
Output Power: 338 W
Gain: 23.5 dB typical
High efficiency: 76.9% typical



Pout (W) vs Pin (W)



Gain and Efficiency vs Frequency



RF Power Products Resources and Support

- 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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