

VIPER RF GaN Discrete Bare Die



General Purpose - Broadband

Product Selection Guide v1

Features

- GaN HEMT Die
- 28 V Typical Operation
- High Efficiency
- Frequency Range: DC - 18 GHz
- Integrated Stability Enhancements



Description

VIPER RF gallium-nitride (GaN) high-electron-mobility transistors (HEMT) are available as bare die, capable of high efficiencies over a broad frequency range. Typical applications include saturated and linear transmitters, for the Defence and Space sectors, and for linear communications infrastructure solutions. The die are available as un-matched discrete and as pre-matched transistors (X Band), reducing the sensitivity of performance to manufacturing processes.

Discrete Bare Die (un-matched)

Product	Frequency (GHz)	Maximum Peak Output	Operating Voltage (V)	Input / Output	Die Size (mm)
VRFA0067-BD	DC - 18	70	28	Unmatched	0.886 x 4.895
VRFA0070-BD	DC - 18	35	28	Unmatched	0.886 x 2.58
VRFA0072-BD	DC - 18	12	28	Unmatched	0.886 x 1.62
VRFA0073-BD	DC - 18	10	28	Unmatched	0.886 x 1.62

Discrete Bare Die (Input and Output pre-matched)

Product	Frequency (GHz)	Maximum Peak Output	Operating Voltage (V)	Input / Output	Die Size (mm)
VRFA0068-BD	X Band	65	28	Prematched	2.328 x 4.895
VRFA0066-BD	X Band	35	28	Prematched	2.328 x 2.58
VRFA0074-BD	X Band	18	28	Prematched	2.328 x 1.62

MMIC Bare Die (50 Ω)

Product	Frequency (GHz)	Maximum Peak Output	Operating Voltage (V)	Input / Output	Die Size (mm)
VRFA0065-BD	7.9 - 8.4	12	28	50 Ω / 50 Ω	2.328 x 1.62

Please consult VIPER RF for reference designs and design advice

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Discrete Bare Die (Input pre-matched, Output un-matched)

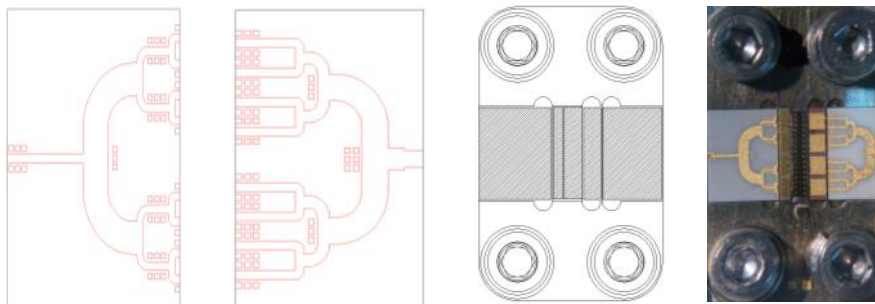
Product	Frequency (GHz)	Maximum Peak Output	Operating Voltage (V)	Input / Output	Die Size (mm)
VRFA0069-BD	X Band	70	28	Input Prematched Output Unmatched	1.4 x 4.895
VRFA0071-BD	X Band	35	28	Input Prematched Output Unmatched	1.4 x 2.58
VRFA0075-BD	X Band	18	28	Input Prematched Output Unmatched	1.4 x 1.62

Recommended Absolute Maximum Ratings

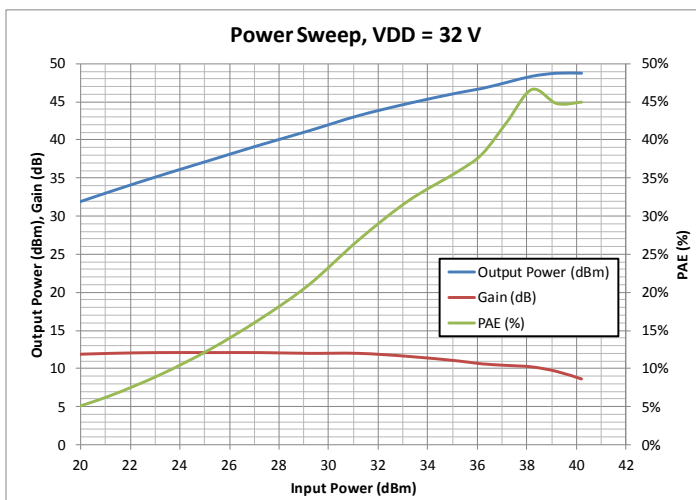
Please consult VIPER RF for recommended AMR and operating conditions

Reference Design Example: X Band GaN Amplifier Pallet

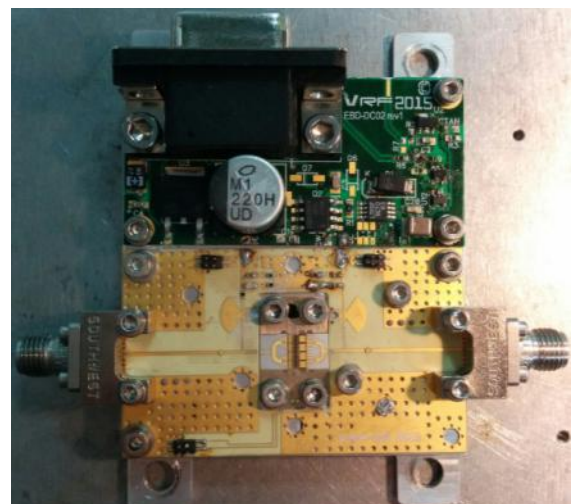
- GaN HEMT Die: VRFA0067-BD
- Frequency Range: X Band
- 80 Watts peak saturated power
- 28-35 V Operation
- Typ. 45% PAE



Pallet Design and Photograph



Pallet Performance at 8.5GHz



Evaluation Fixture and Pulsing Circuit

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