

## R&K-CA1300BW1-5766R-SL



- All Solid-State Amplifier
- Frequency Range: 1300MHz $\pm$ 0.5MHz
- Output Power : 3.8kW (min.) @1dB Comp.
- CW, 100% DUTY CAPABILITY
- VERY HIGH RELIABILITY

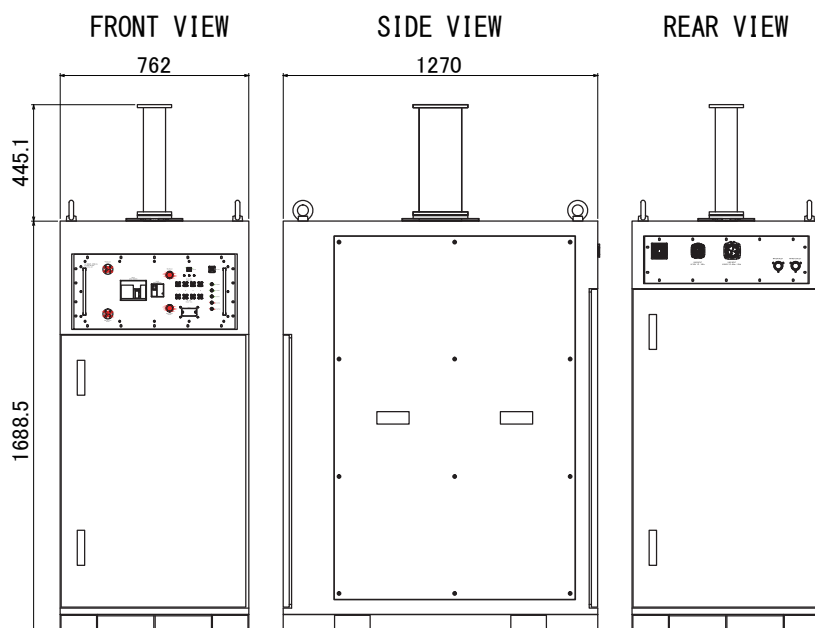
**3.8kW**

### SPECIFICATIONS @ +25°C

Frequency Range	: 1300MHz $\pm$ 0.5MHz
Small Signal Gain	: +56.8dB (min.)
Output Power	: 3.8kW (min.) @1dB Comp.
Amplitude Flatness	: 5% (max.) @1300MHz $\pm$ 100kHz
Phase Linearity	: 5deg (max.) @1300MHz $\pm$ 100kHz
Delay	: 300ns (max.)
Phase Variation	: 10deg (max.) @Po=200W~3.8kW
Harmonics	: -30.0dBc (max.) @Po=3.8kW
Spurious	: -70.0dBc (max.) @Po=3.8kW
Noise Figure	: 10dB (max.)
Efficiency	: 40% (min.) @Po=3.8kW
AC to RF Efficiency	
• Optimum Efficiency Performance	>41.4% at Vdd +42VDC Control
• Optimum P@-1dB Performance	>38.6% at Vdd +48VDC Control
Impedance	: 50 $\Omega$
Maximum RF Input Power	: +13.0dBm
AC Supply Input	: AC480V $\pm$ 5%/3 $\phi$ , 60Hz AC120V $\pm$ 5%/1 $\phi$ , 60Hz
Consumption Power	: 9.5kVA(max.)
Connectors	: RF - IN N - FEMALE RF - OUT WR650
Size	: (W)762mm $\times$ (D)1270mm $\times$ (H)1688.5mm (Excluding Projection)
Weight	: 635kg (typ.)
Cooling	: Forced Air Cooling and Water Cooling
Water Input Pressure	: 40-75psi(nominal), 150psi(max.)
Water Temperature	: +30°C $\pm$ 0.5°C
Water Flow Rate	: 4gpm (min.)
Protection Circuits	: Over Temperature Protection Power Supply Voltage Protection Output Over Power Protection
Other Function	: With Output Circulator (each final device)

### OUTLINE DRAWING

※IN MILLIMETERS



### FEATURES

#### 1) DOUBLE SHIELDED RACK CONSTRUCTION

Internal heat is water-cooled and discharged outside by self-contained heat exchanger. Double-layer housing provides high RF/EMI shielding performance.

#### 2) WILKINSON RADIAL COMBINER

Single-stage power combining of output transistors protected by each respective ferrite circulator provides high reliability in long-term operation.

#### 3) BROADCAST-TRANSMITTER-LEVEL REDUNDANCY

High redundancy design of power supplies provides fault-tolerant and sustainable system operation.

#### 4) PASSIVE ANALOG PRE-DISTORTION

Very ideal AB-class linear power amplifier is realized by passive analog predistortion circuit despite poor linearity of LD-MOS transistor.

#### 5) MULTIPLE CPU CONTROLLER AND SENSORS

Multiple CPUs monitor a total of 78 points and save the status data to an internal SD memory card by use of Modbus protocol and through Ethernet.

#### 6) ADVANCED ANALOG RF POWER TECHNOLOGY

Short-term (1sec) phase stability in free-running operation is within 0.1deg and RF voltage level stability is 0.1%.

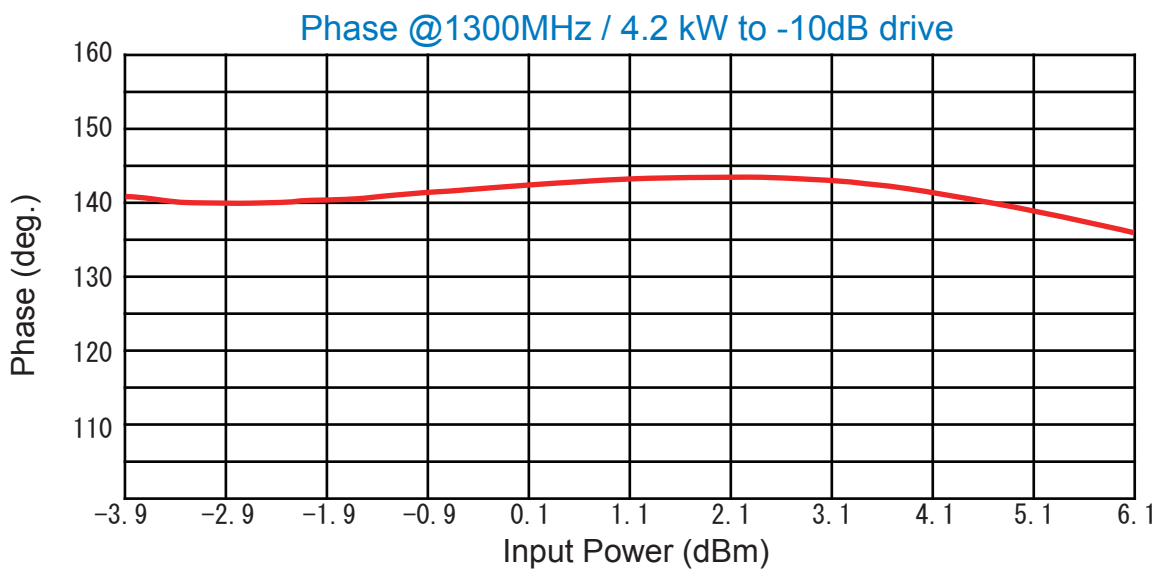
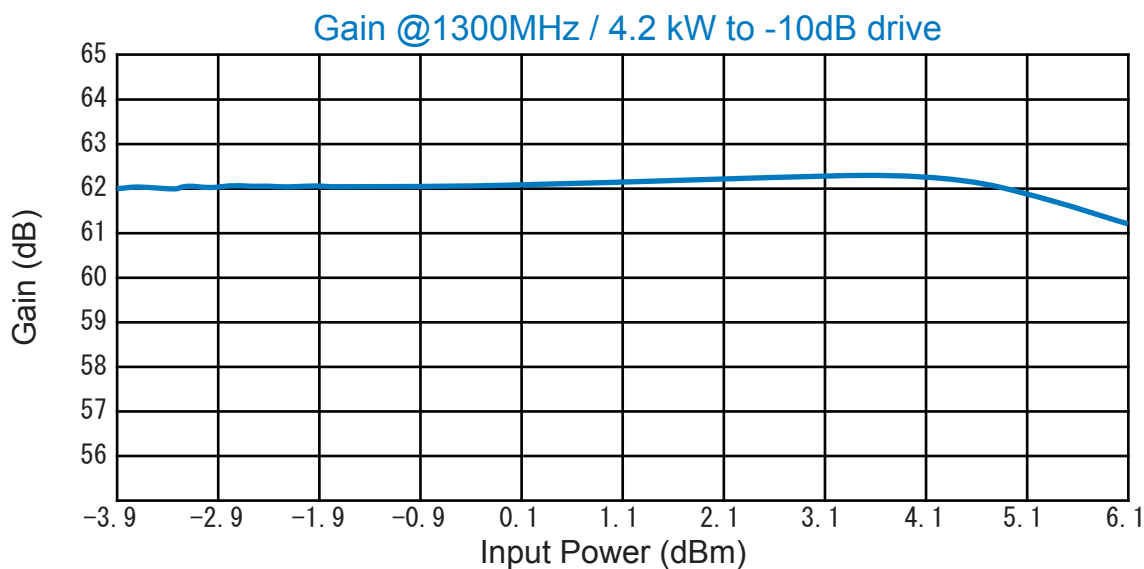
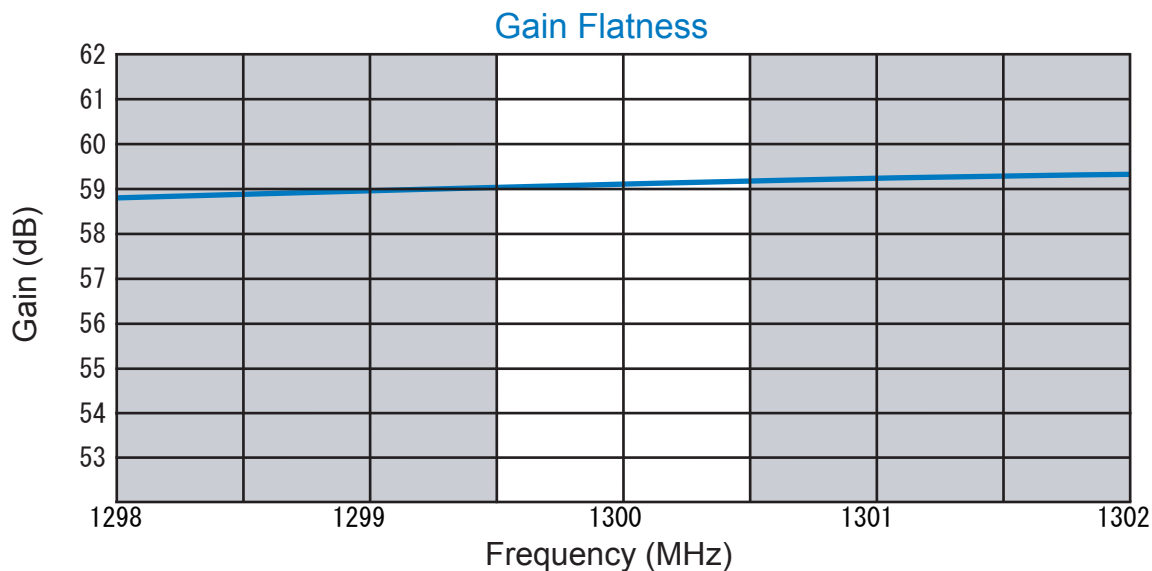
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## R&K Company Limited

721-1 Maeda, Fuji-City, Shizuoka-Pref. 416-8577 Japan  
Tel: +81-545-31-2600 E-mail: info@rkco.jp  
Fax: +81-545-31-1600 URL: http://rk-microwave.com

## TYPICAL PERFORMANCE (Temp @+25°C)

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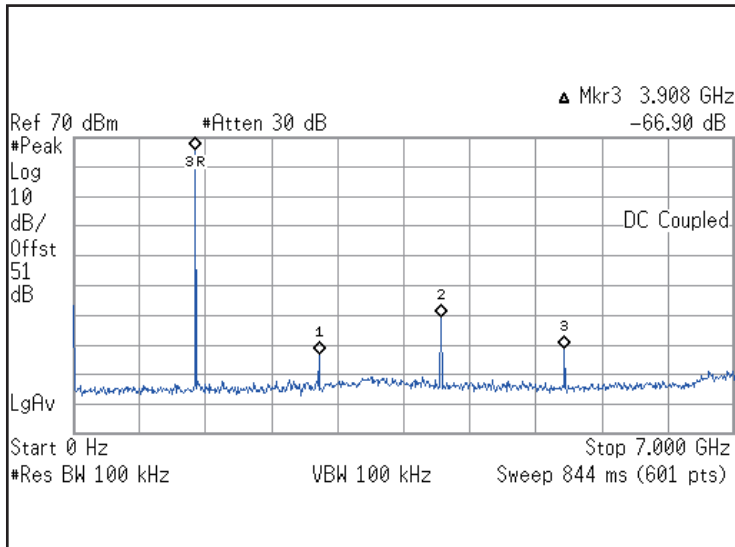
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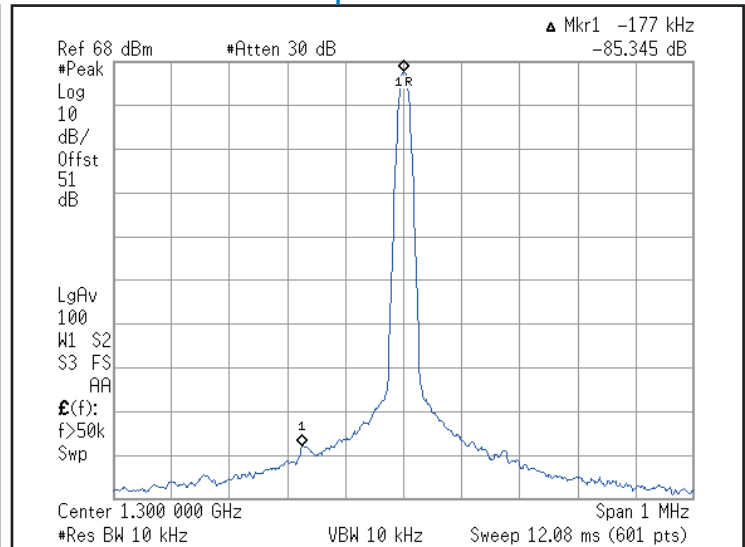
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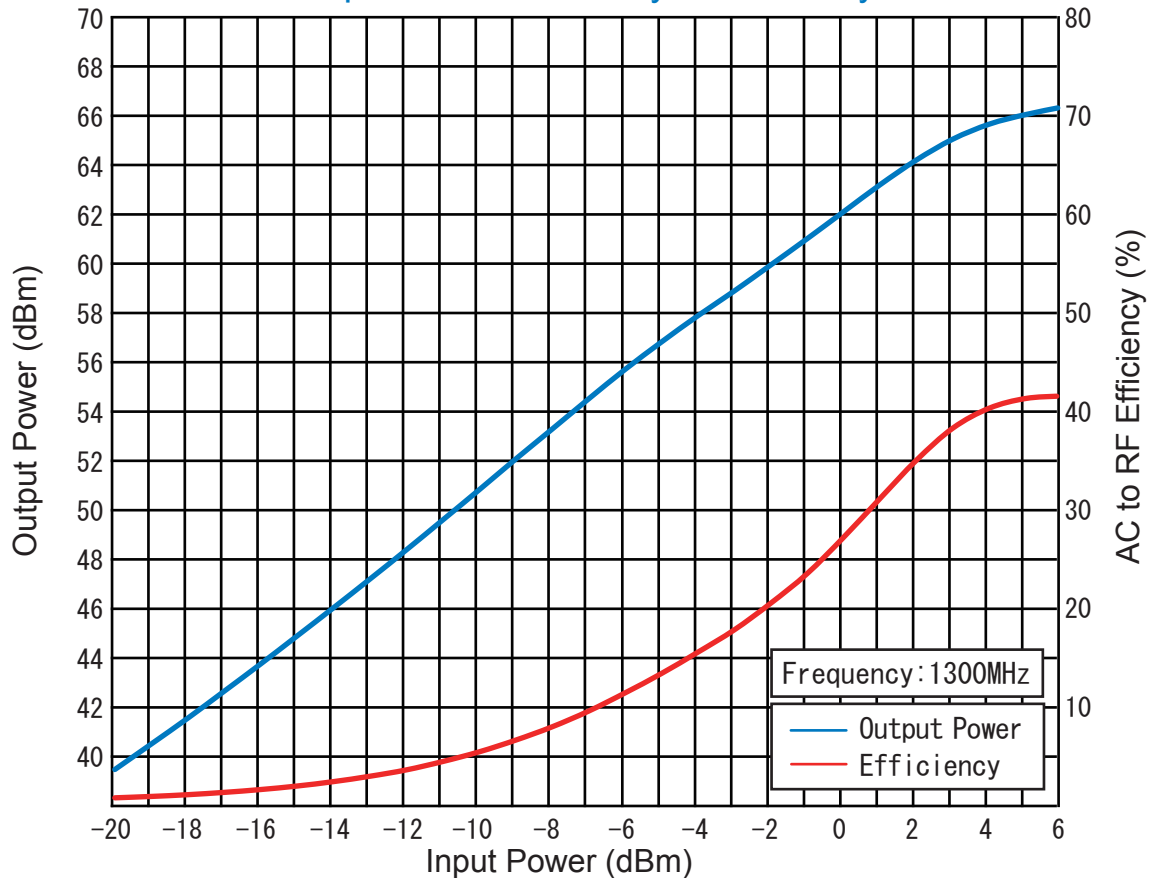
### Harmonics



### Spurious



### Output Power Linearity & Efficiency



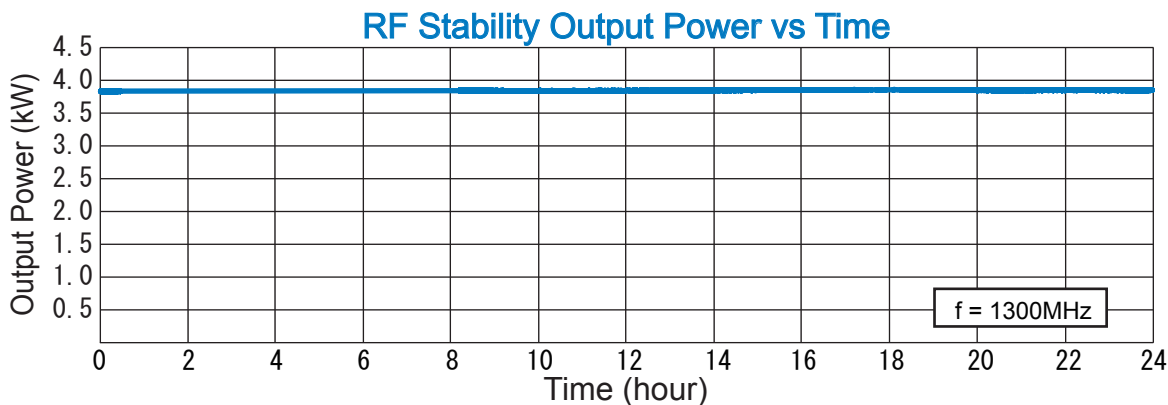
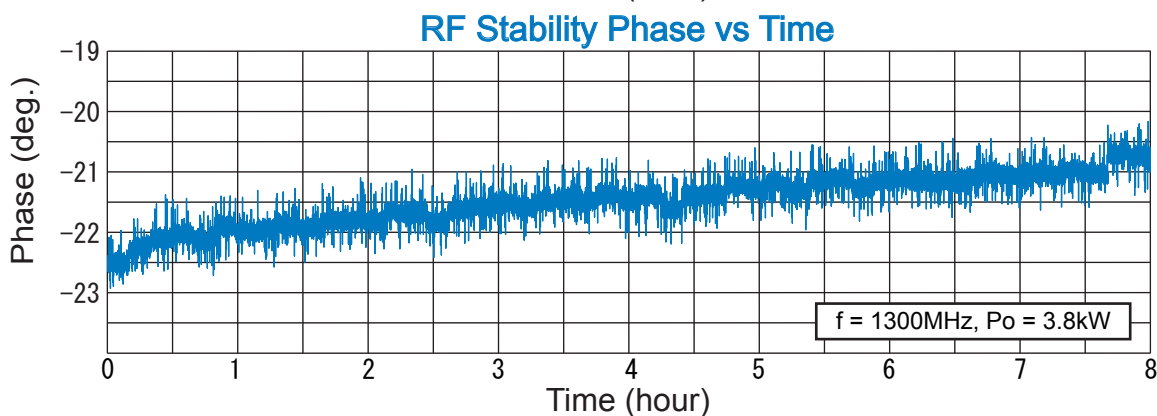
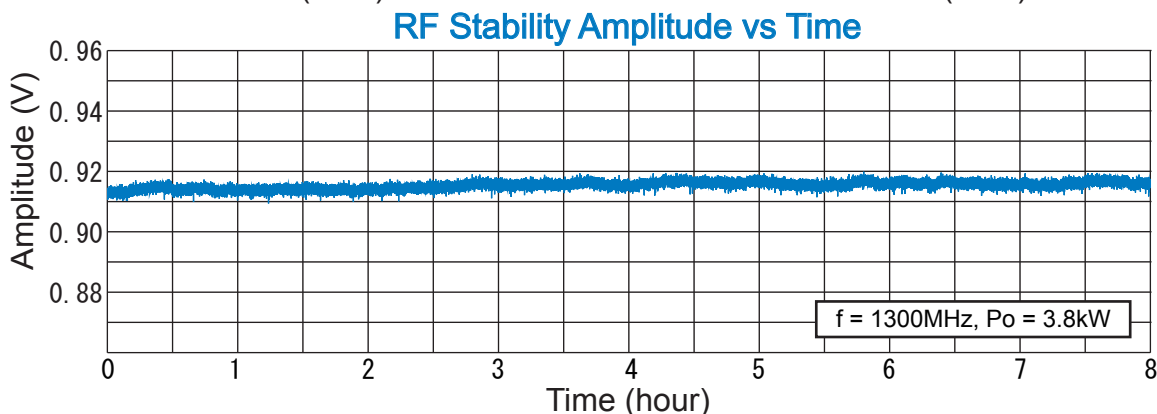
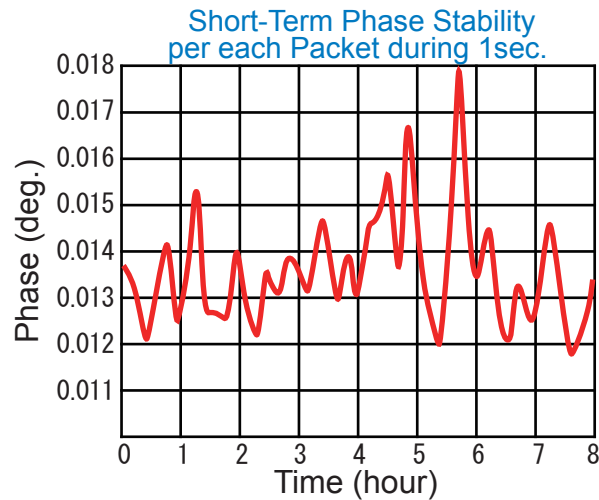
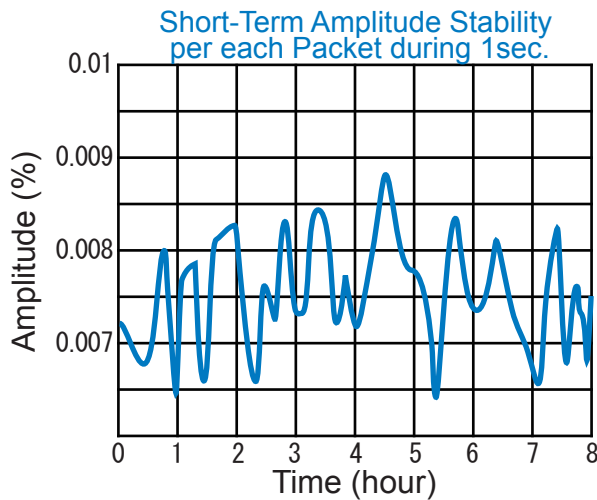
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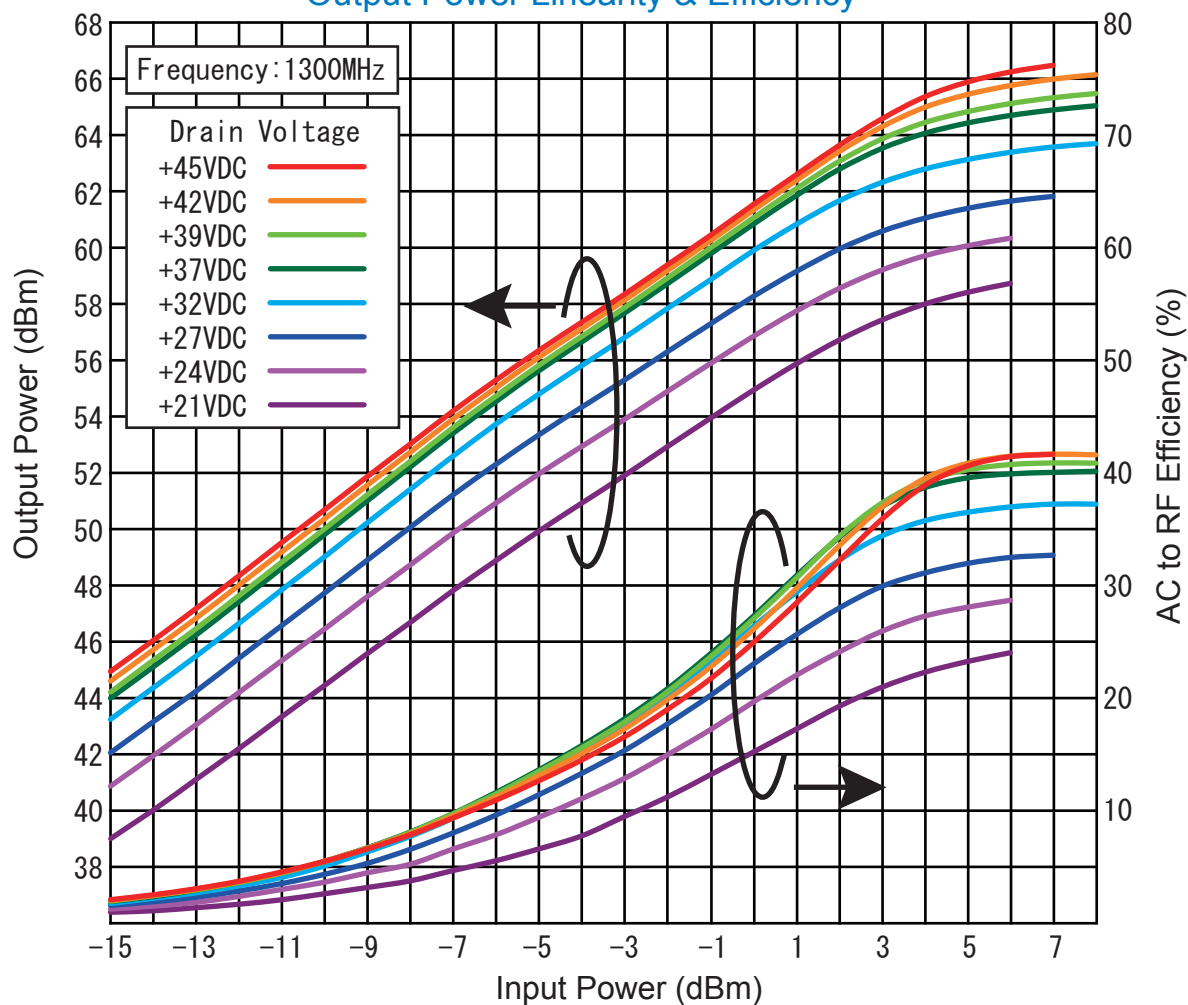
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## TYPICAL PERFORMANCE (Temp @+25°C)

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### ■ AM-AM / AM-PM Performance @ Drain Voltage Control

#### Output Power Linearity & Efficiency



#### Efficiency @Rated Drain Voltage

RF Output	Drain Voltage	AC to RF Efficiency
3800W	+45V	40.37%
3230W	+45V	≒ 37.5%
2850W	+45V	≒ 35.0%
1900W	+45V	≒ 29.0%
1140W	+45V	≒ 22.5%
760W	+45V	≒ 17.5%
380W	+45V	≒ 11.5%

#### Efficiency @Drain Voltage Control

RF Output	Drain Voltage	AC to RF Efficiency
3800W	+42V	41.46%
3230W	+39V	40.71%
2850W	+37V	39.78%
1900W	+32V	35.95%
1140W	+27V	29.93%
760W	+24V	24.74%
380W	+21V	17.13%

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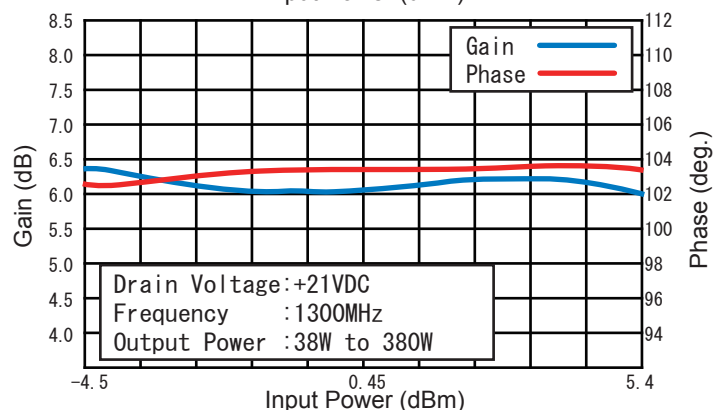
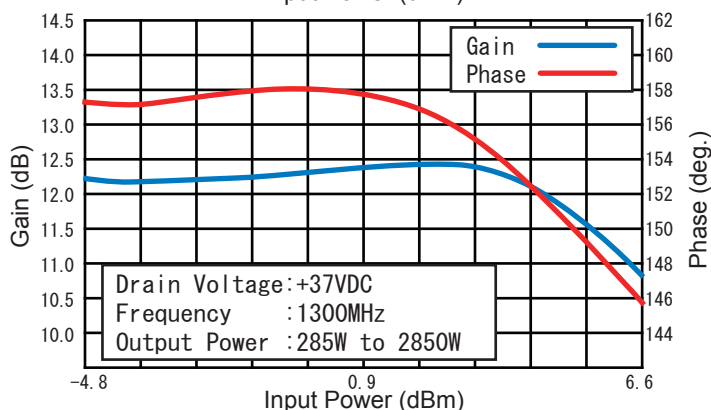
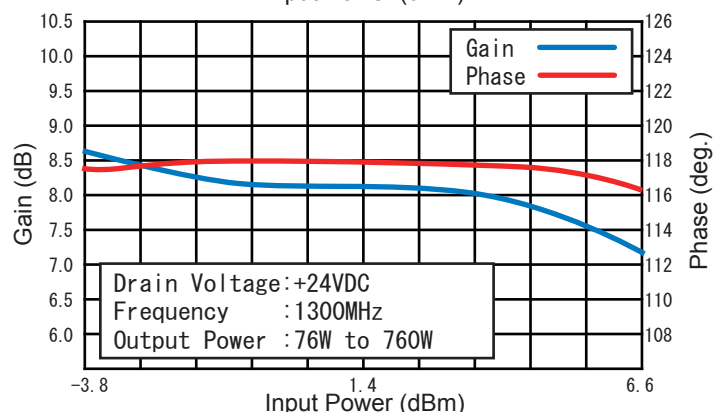
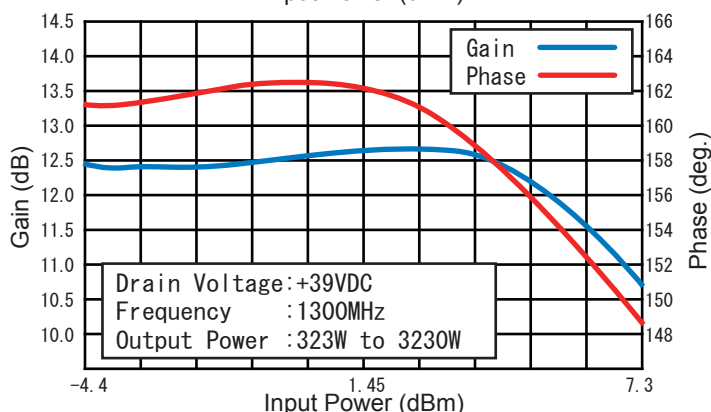
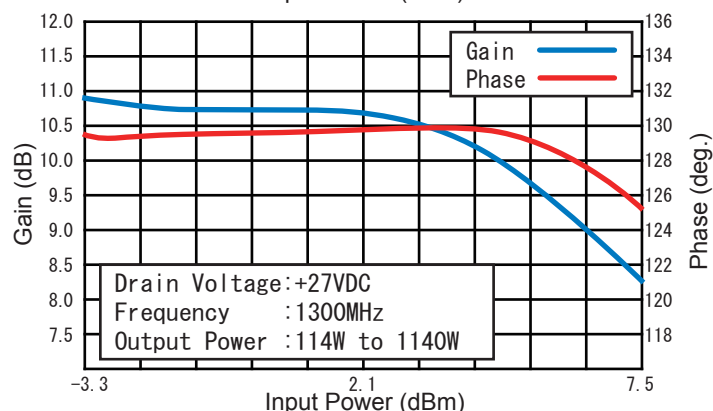
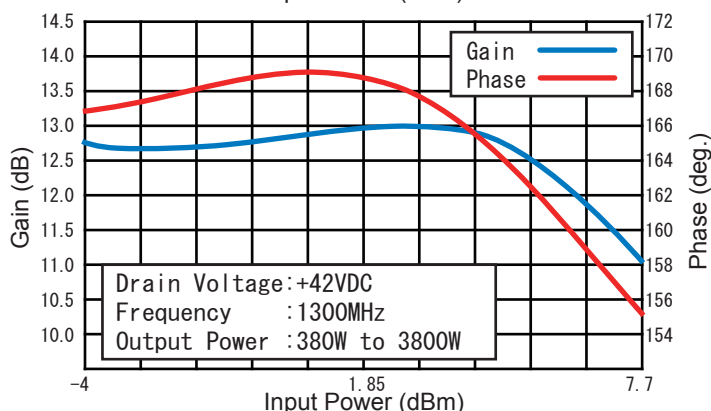
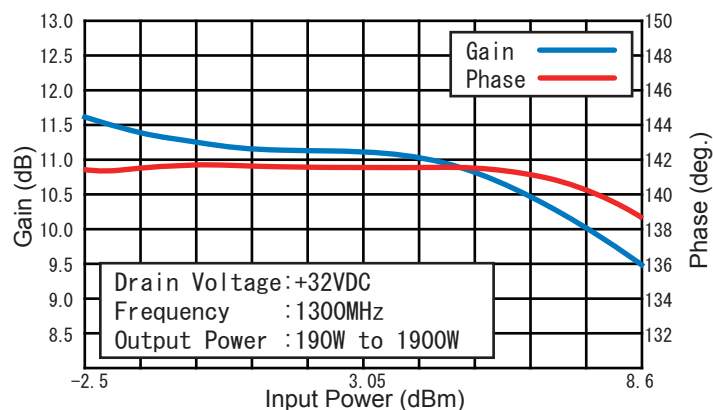
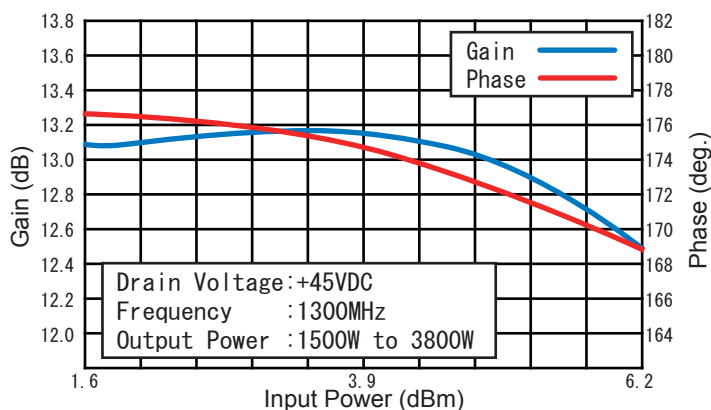
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### ■ AM-AM / AM-PM Performance @ Drain Voltage Control, Cont'd Gain & Phase Flatness



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