

## R&K-CA1300BW1-6068R-SL



- All Solid-State Amplifier
- Frequency Range : 1300MHz  $\pm$  0.5MHz
- Output Power (CW) : 7kW (min.) @1dB Comp.
- CW, 100% DUTY CAPABILITY
- VERY HIGH RELIABILITY

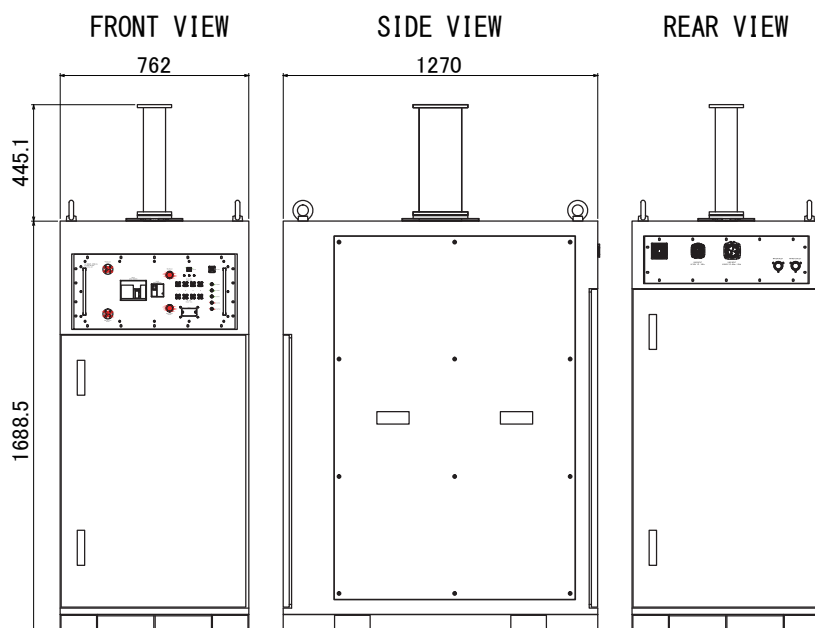
**7kW**

### SPECIFICATIONS @ +25°C

Frequency Range	: 1300MHz $\pm$ 0.5MHz
Small Signal Gain	: +60.0dB (min.)
Output Power (CW)	: 7kW (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=300W~7kW
Harmonics	: -30.0dBc (max.) @Po=7kW
Spurious	: -70.0dBc (max.) @Po=7kW
Efficiency	: 40% (min.) @Po=7kW
AC to RF Efficiency	
• Optimum Efficiency Performance	>42.1% at Vdd +42VDC Control
• Optimum P@-1dB Performance	>41.2% at Vdd +45VDC Control
Impedance	: 50 $\Omega$
Maximum RF Input Power	: +10.0dBm
AC Supply Input	: AC480V $\pm$ 5% / 3 $\phi$ , 60Hz AC120V $\pm$ 5% / 1 $\phi$ , 60Hz
Consumption Power	: 17.5kVA(max.)
Connectors	: RF - IN N - FEMALE RF - OUT WR650
Size	: (W)762mm $\times$ (D)1270mm $\times$ (H)1688.5mm (Excluding Projection)
Weight	: 740kg (typ.)
Cooling	: Forced Air Cooling and Water Cooling
Water Input Pressure	: 150psi(max.)
Water Temperature	: +30°C $\pm$ 0.5°C
Water Flow Rate	: 7.4gpm (min.)
Protection Circuits (All not listed)	: 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 85 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%.

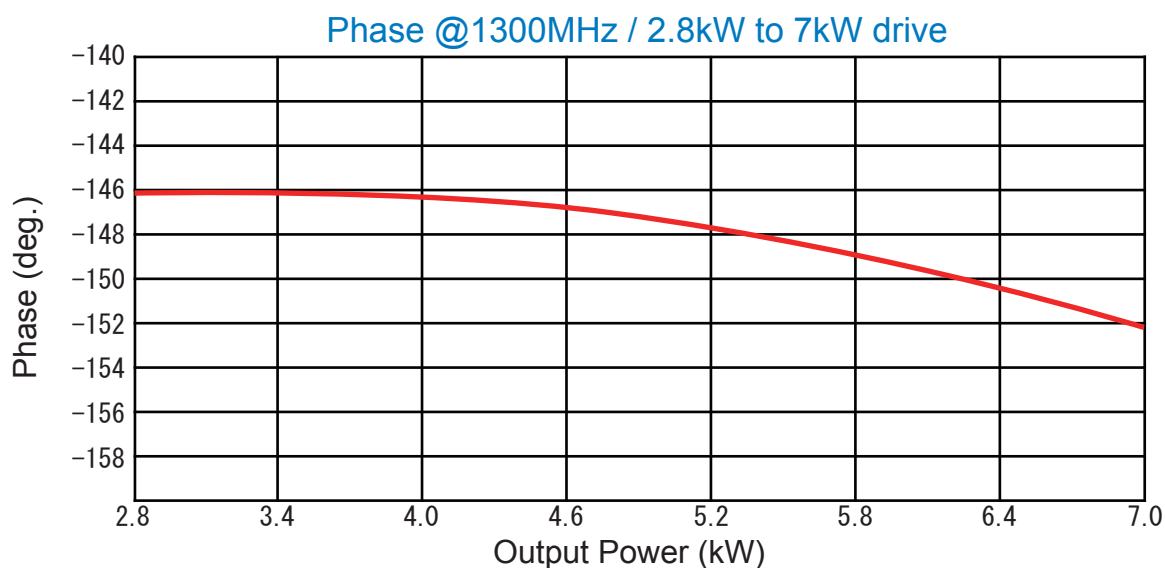
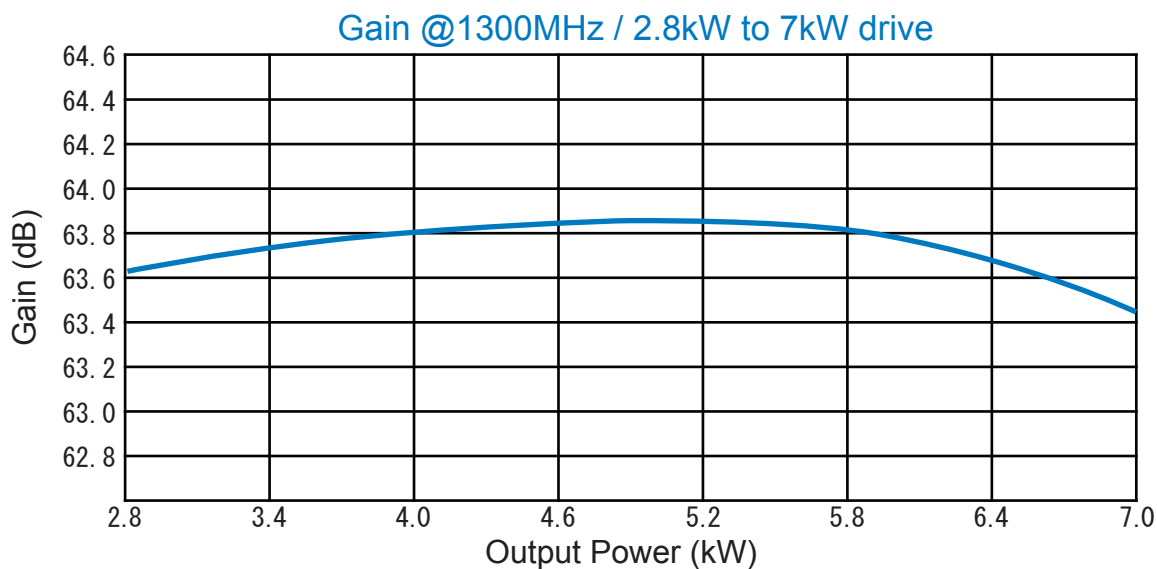
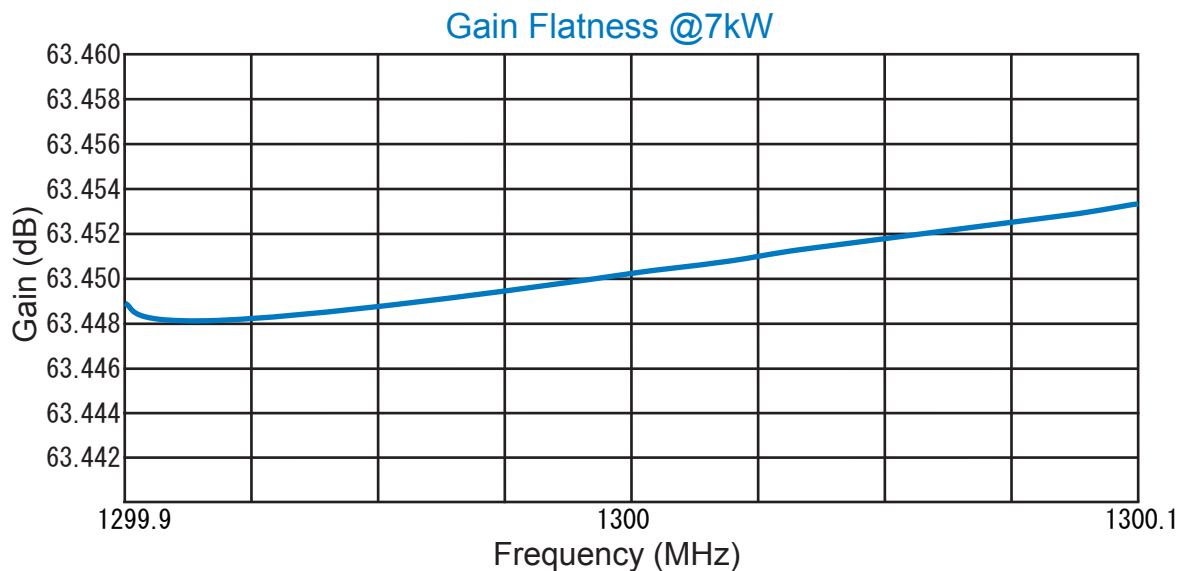
R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

## 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)

R&K-CA1300BW1-6068R-SL



R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

**R&K Company Limited**

721-1 Maeda, Fuji-City, Shizuoka-Pref. 416-8577 Japan

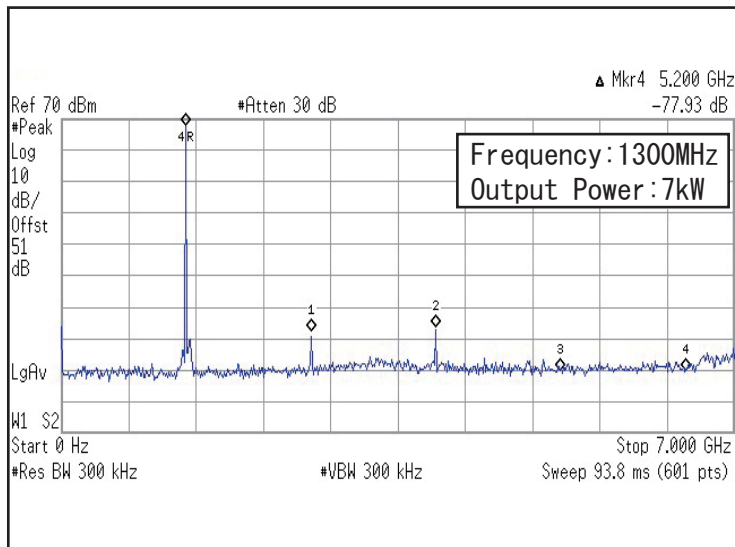
Tel : +81-545-31-2600 E-mail : info@rkco.jp

Fax : +81-545-31-1600 URL : <http://rk-microwave.com>

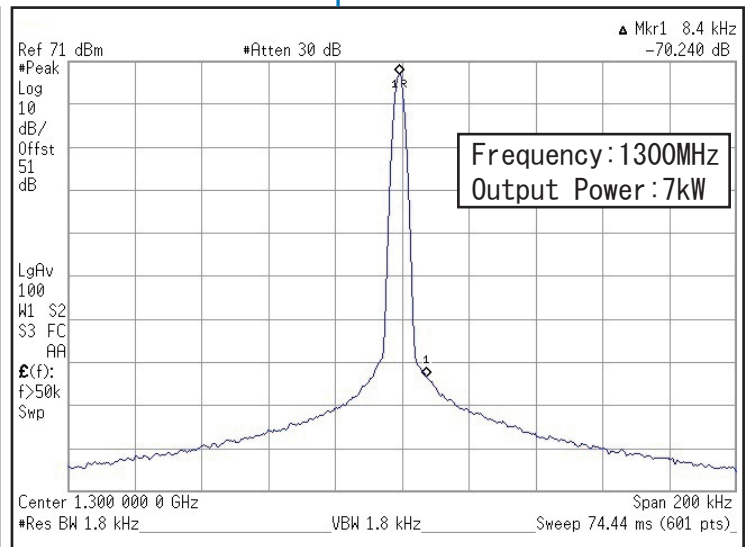
## TYPICAL PERFORMANCE (Temp @+25°C)

R&K-CA1300BW1-6068R-SL

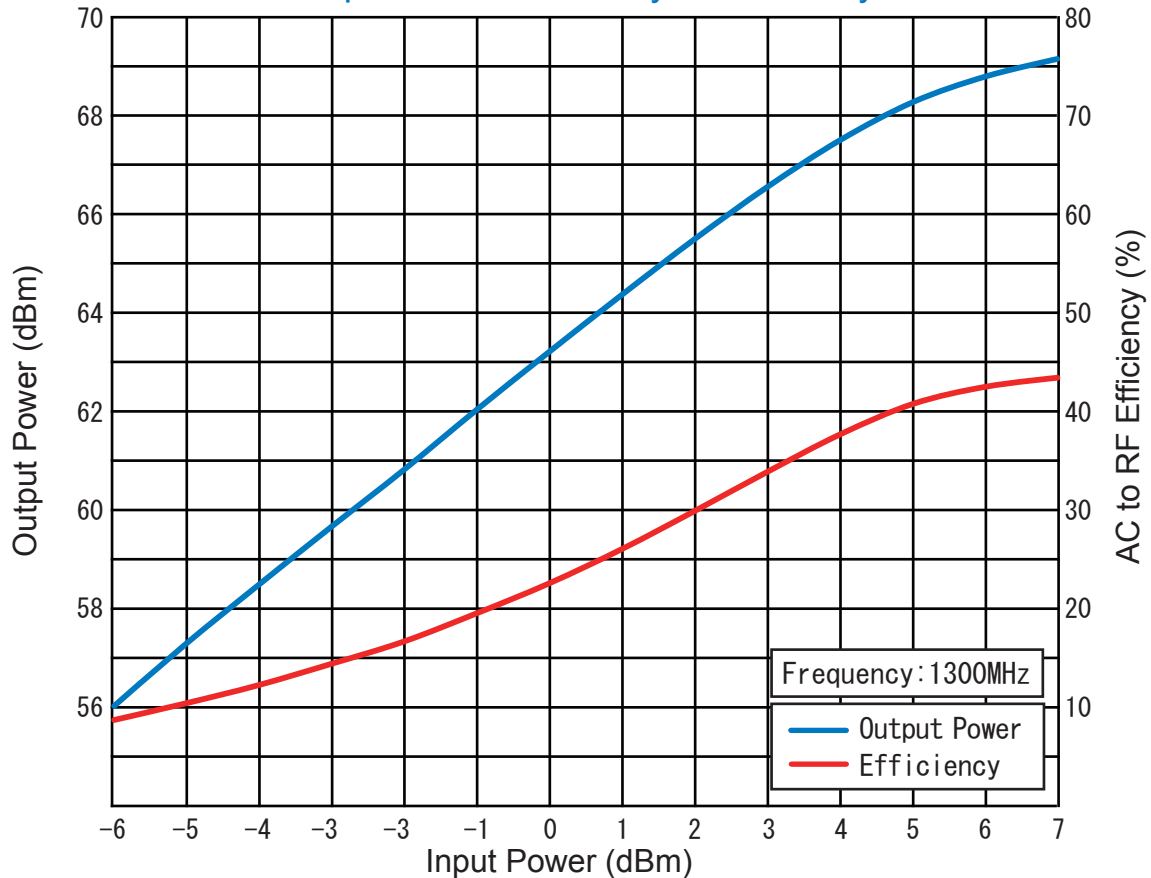
### Harmonics



### Spurious



### Output Power Linearity & Efficiency



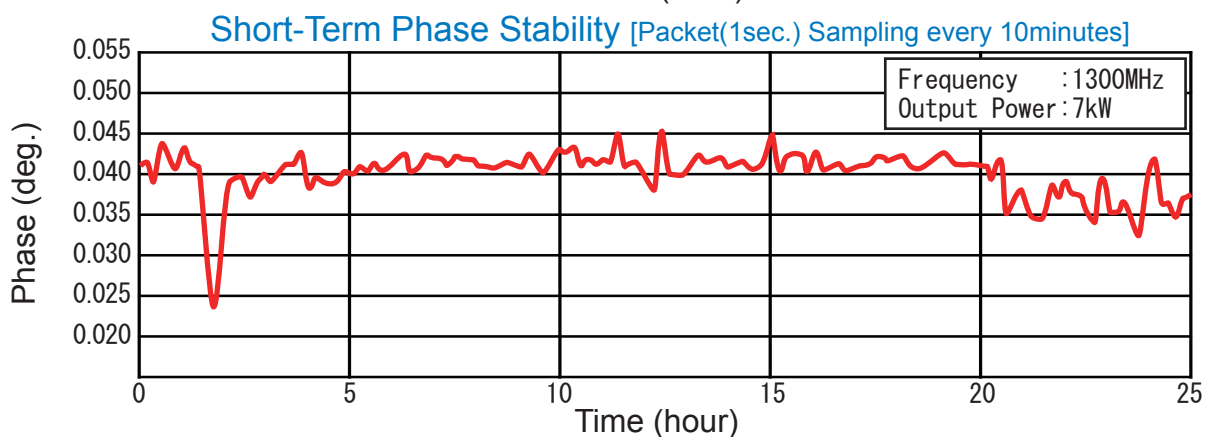
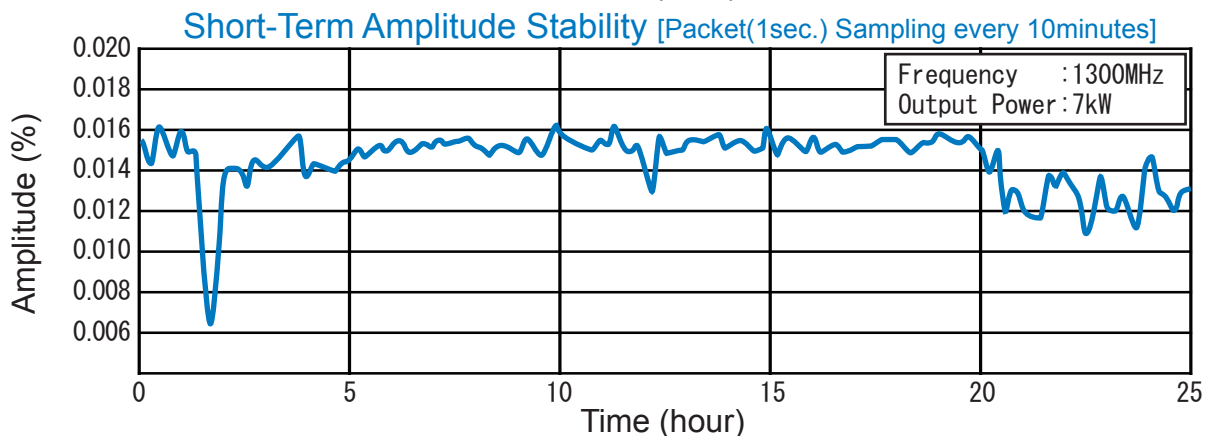
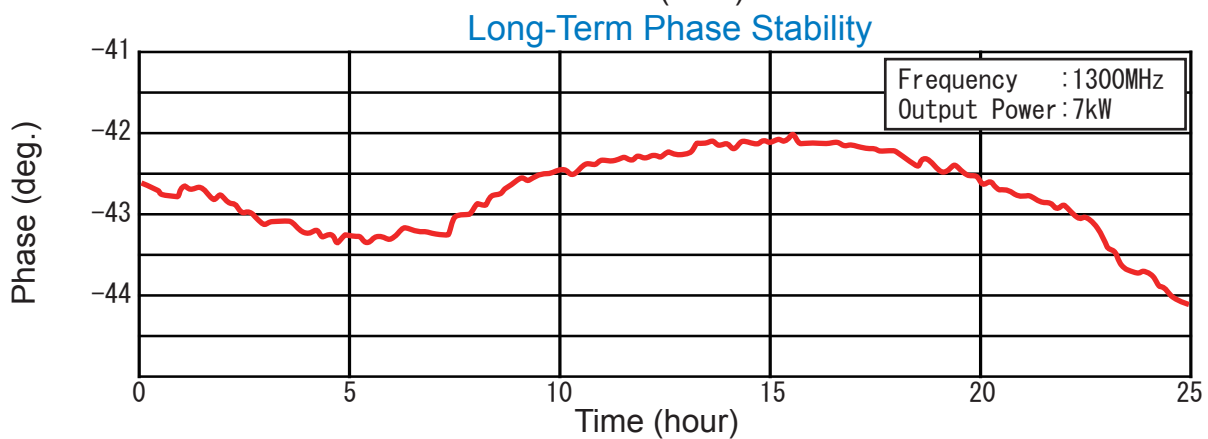
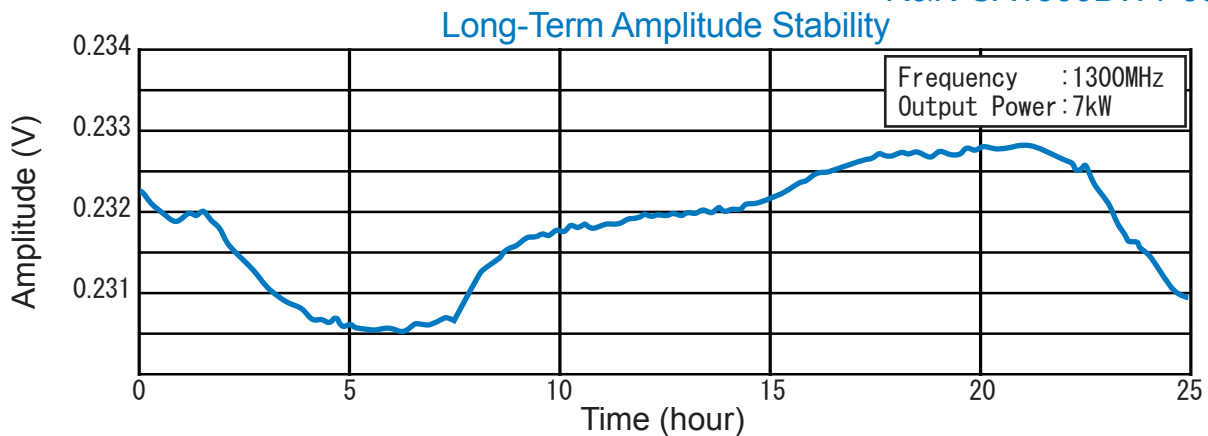
R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

**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)

R&K-CA1300BW1-6068R-SL



R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

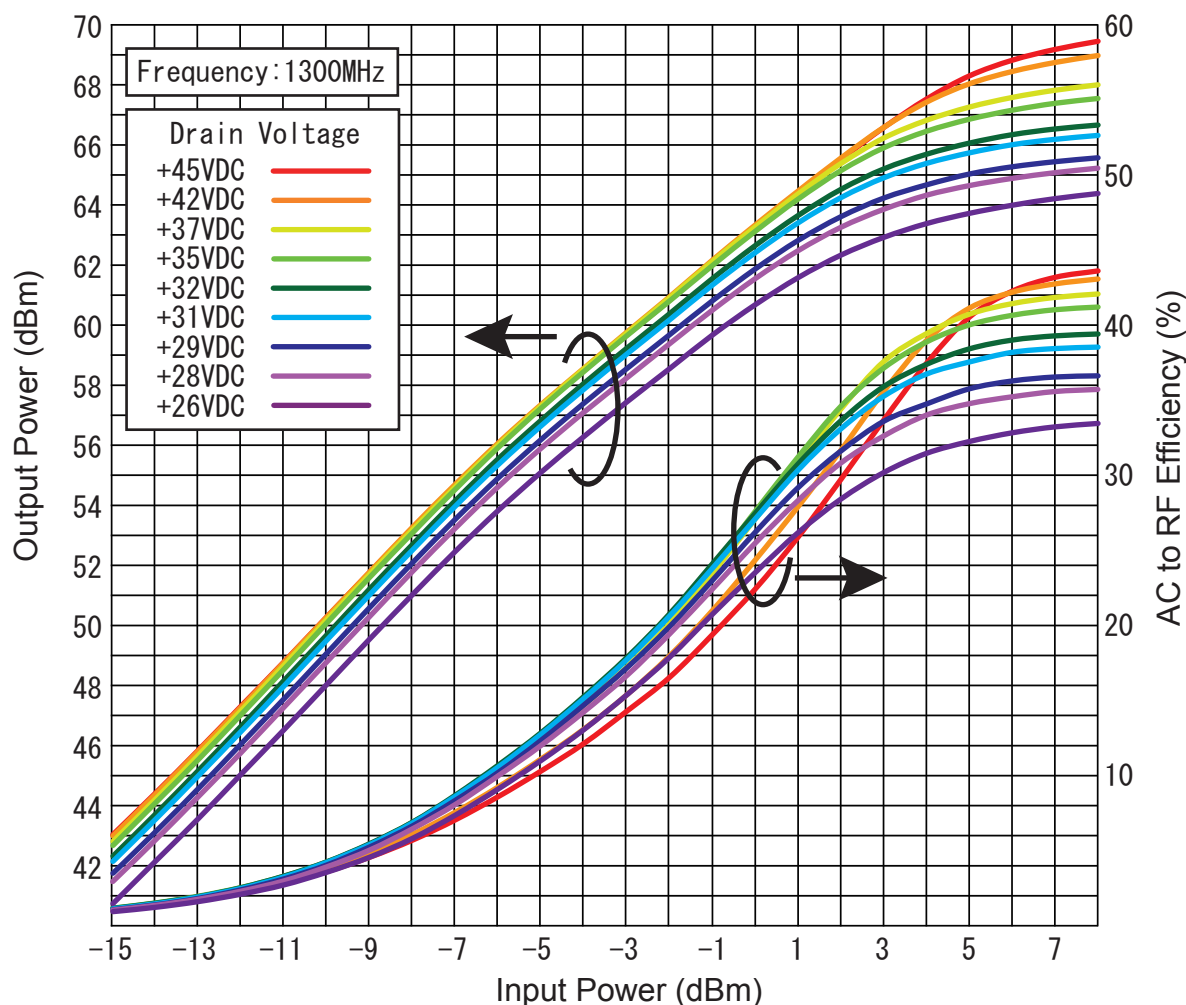
**R&K Company Limited**

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)

R&K-CA1300BW1-6068R-SL

### ■ Output Power Linearity & Efficiency @Drain Voltage Control



#### Efficiency @Rated Drain Voltage

RF Output	Drain Voltage	AC to RF Efficiency
7000W	+45V	41.18%
6000W	+45V	≒ 38.5%
5000W	+45V	≒ 35.4%
4000W	+45V	≒ 31.4%
3500W	+45V	≒ 29.3%
3000W	+45V	≒ 27.1%
2500W	+45V	≒ 24.6%
2000W	+45V	≒ 21.8%

#### Efficiency @Drain Voltage Control

RF Output	Drain Voltage	AC to RF Efficiency
7000W	+42V	42.06%
6000W	+37V	41.72%
5000W	+35V	40.16%
4000W	+32V	38.17%
3500W	+31V	36.72%
3000W	+29V	35.00%
2500W	+28V	32.89%
2000W	+26V	30.26%

R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

**R&K Company Limited**

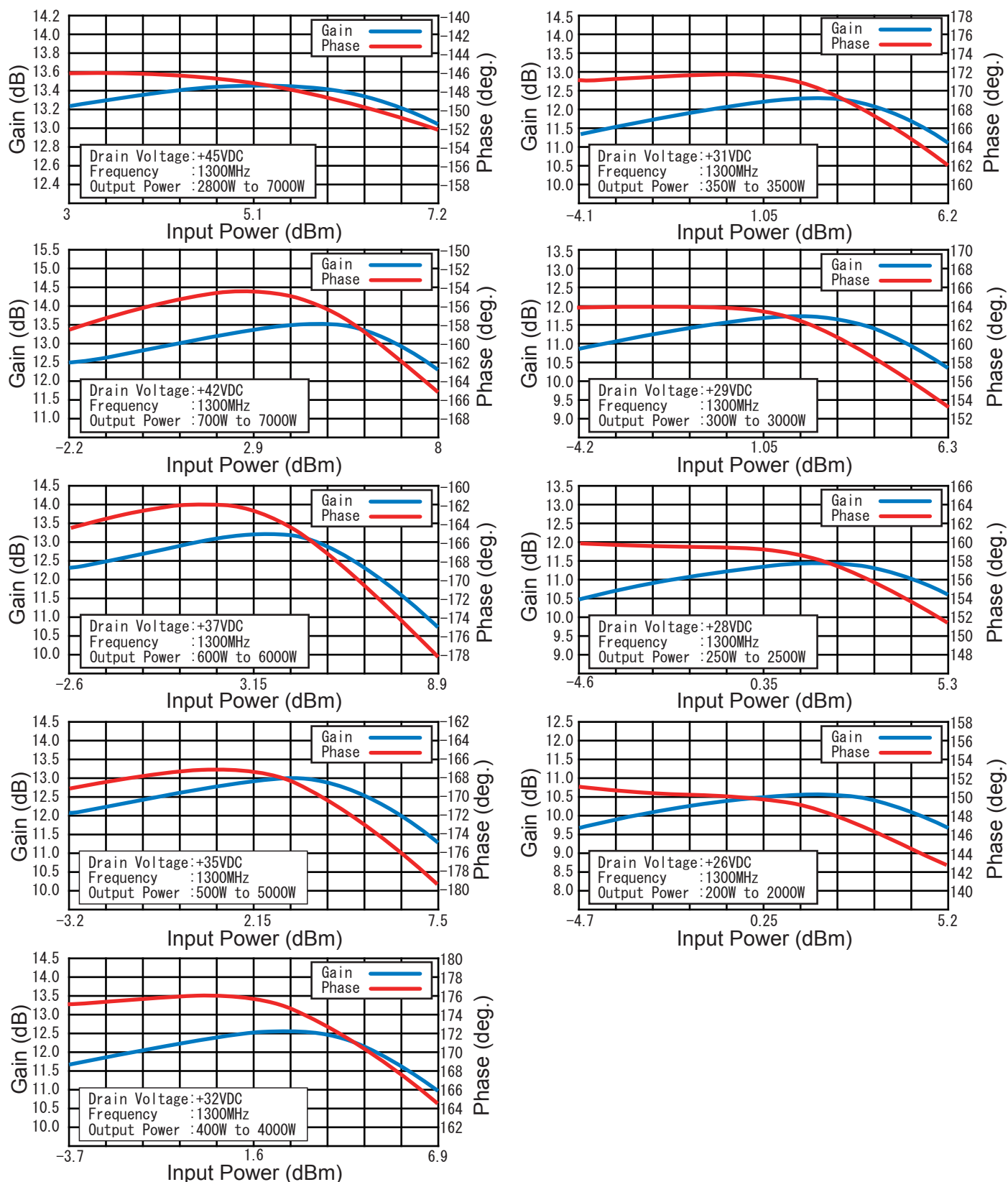
721-1 Maeda, Fuji-City, Shizuoka-Pref. 416-8577 Japan  
 Tel : +81-545-31-2600 E-mail : info@rkco.jp  
 Fax : +81-545-31-1600 URL : http://rk-microwave.com



## TYPICAL PERFORMANCE (Temp @+25°C)

R&K-CA1300BW1-6068R-SL

### ■ AM-AM / AM-PM Performance @ Drain Voltage Control Gain & Phase Flatness



R&K reserves the right to make changes in the specifications of or discontinue products at any time without notice. R&K products shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as aerospace uses or medical life support equipment. Further, the export of R&K products from Japan may be subject to an export license by the government of Japan, based on Japan's "Foreign Exchange and Foreign Trade Law".

## 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>