

# PULSED RF POWER AMPLIFIER

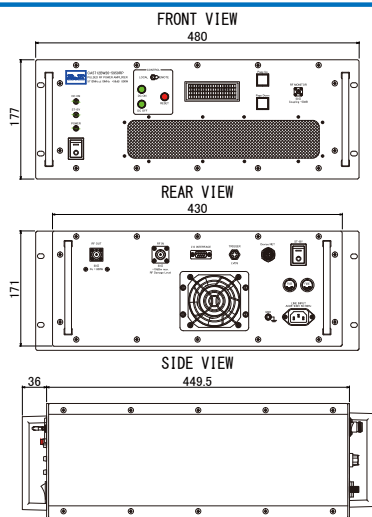


## CA5712BW20-5959RP



### OUTLINE DRAWING

※IN MILLIMETERS



- All Solid-State Amplifier
- Frequency Range : 5712MHz±10MHz
- Output Power (Pulse) : 800W(min.) @Peak

### APPLICATION

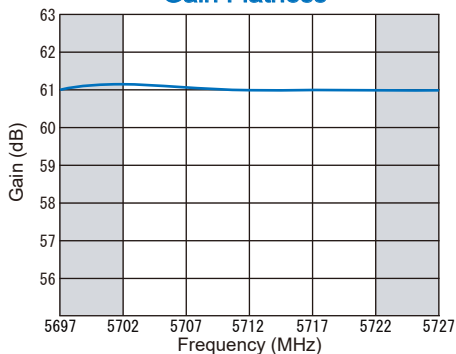
- Accelerator

### SPECIFICATIONS @ +25°C

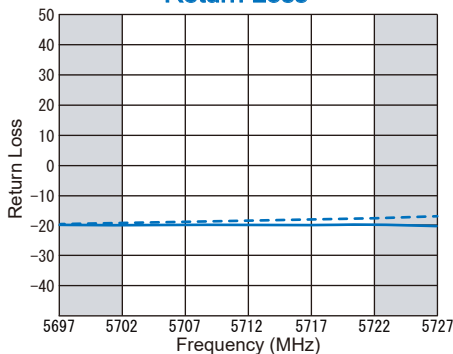
Frequency Range	: 5712MHz±10MHz
Peak Power	: 800W (min.)
Maximum Pulse Width	: 5µs
Maximum Duty Cycle	: 0.03%
Pulse Repetition Frequency	: 60Hz
Pulse Rise and Fall Times	: 100ns (max.)
Overshoot / Undershoot	: 3% (max.) @Po=800W
Pulse Flatness	: 5.5% (max.) @Po=800W @Flat-top
Output Power Stability	: ±3% @Pulse to Pulse Voltage fluctuation
Phase Stability	: ±3° @In-pulse flat top : ±1° @Pulse to Pulse
Small Signal Gain	: +59.0dB (min.)
Impedance	: 50Ω
Harmonics	: -25.0dBc (max.) @Po=800W
Spurious	: -60.0dBc (max.) @Po=800W
Input Return Loss	: 14.0dB (min.) / VSWR : 1.5 (max.)
Output Return Loss	: 14.0dB (min.) / VSWR : 1.5 (max.)
Maximum RF Input Power	: +10dBm
AC Supply Input	: AC100V±15%/1φ, 50/60Hz, 200VA
Operating Temperature	: 0°C to +35°C
Storage Temperature	: -15°C to +55°C
Connectors	: RF - IN N - FEMALE : RF - OUT N - FEMALE
Size	: (W)480mm×(D)449.5mm×(H)177mm(EIA:4U)
Weight	: 30.0kg (max.)
Cooling	: Forced Air Cooling Δ1
Protection Circuits	: Over Temperature Protection : Power Supply Voltage Protection : Output Over Power Protection(@800W)
Remote Interface	: Ethernet
Other Functions	: R&K Multi Monitoring System : With Output Circulator

### TYPICAL PERFORMANCE (Temp @+25°C)

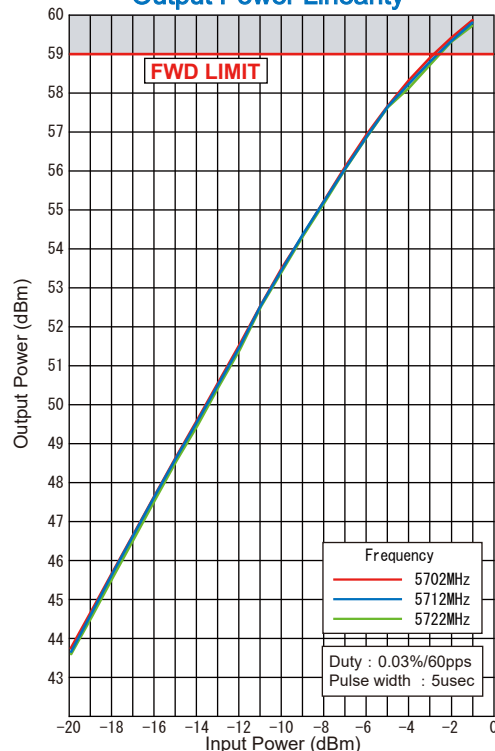
Gain Flatness



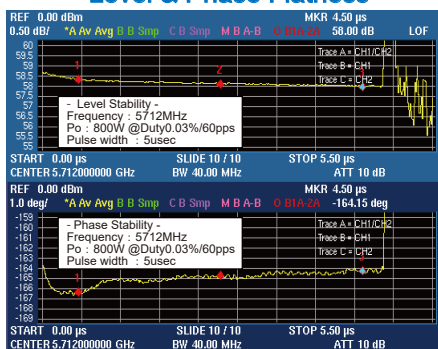
Return Loss



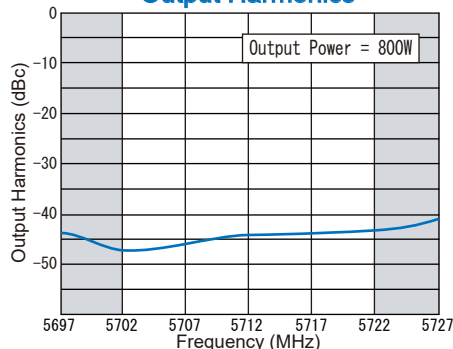
Output Power Linearity



Level & Phase Flatness



Output Harmonics



\* CHANGE Δ1 2/Feb./2024

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".

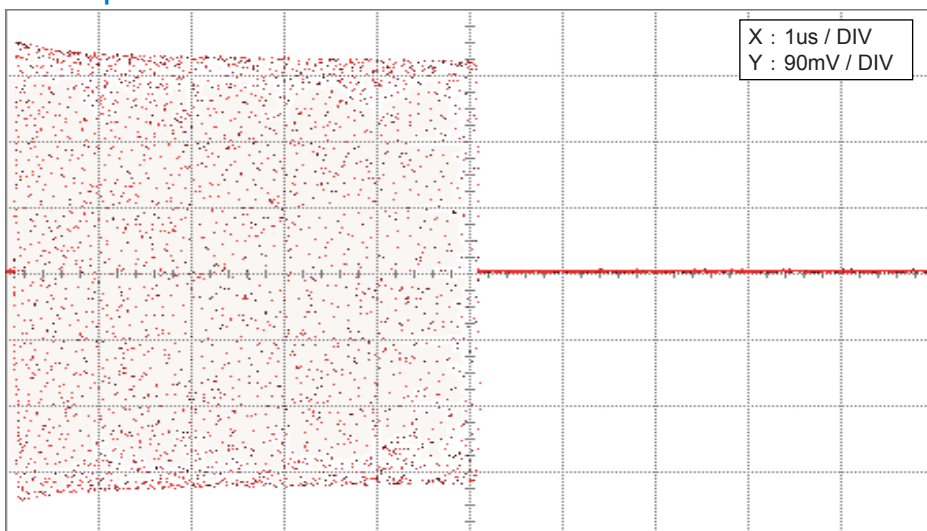
## R&K Company Limited

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)

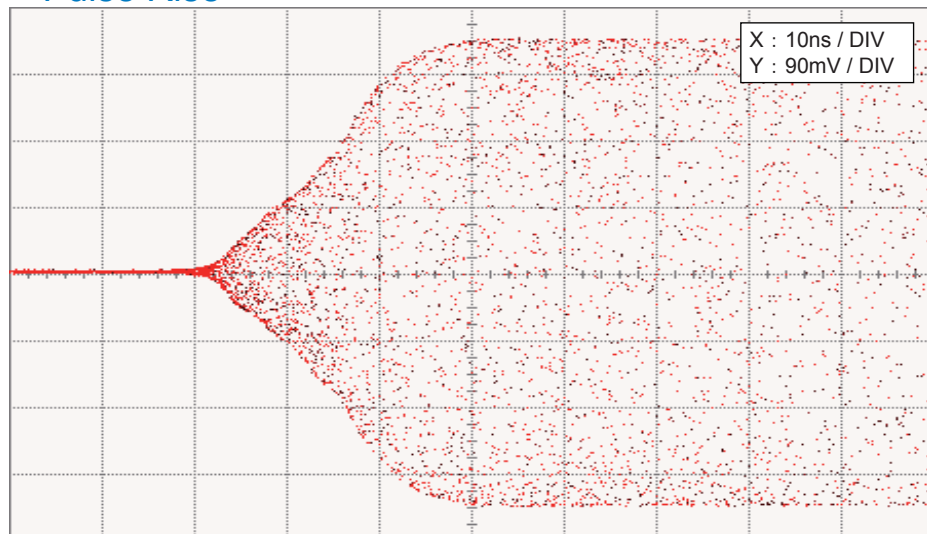
R&K-CA5712BW20-5959RP

### • Output Pulse



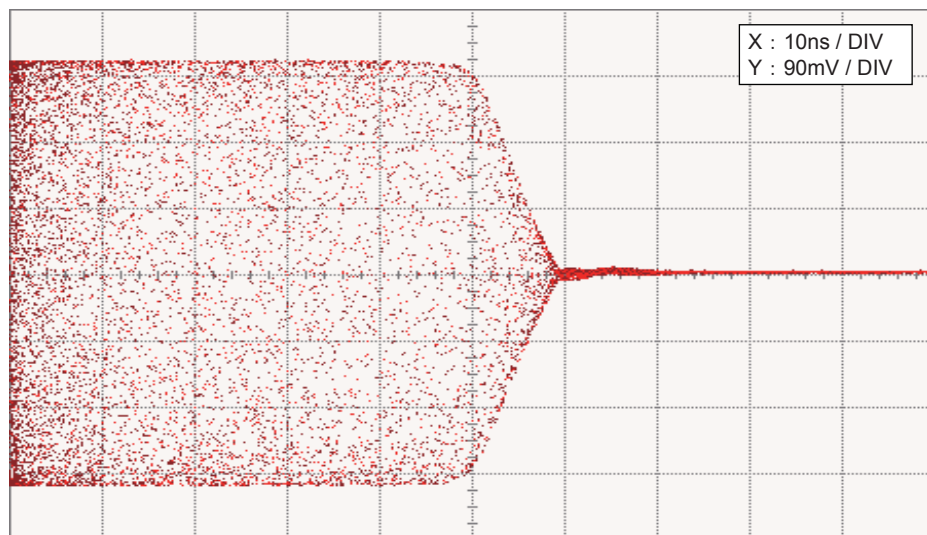
Frequency : 5712MHz  
Output Power : 800W  
Duty : 0.03%/100pps  
Pulse Width : 5usec  
Pulse Period : 16.67msec

### • Pulse Rise



Frequency : 5712MHz  
Output Power : 800W  
Duty : 0.03%/100pps  
Pulse Width : 5usec  
Pulse Period : 16.67msec

### • Pulse Fall



Frequency : 5712MHz  
Output Power : 800W  
Duty : 0.03%/100pps  
Pulse Width : 5usec  
Pulse Period : 16.67msec

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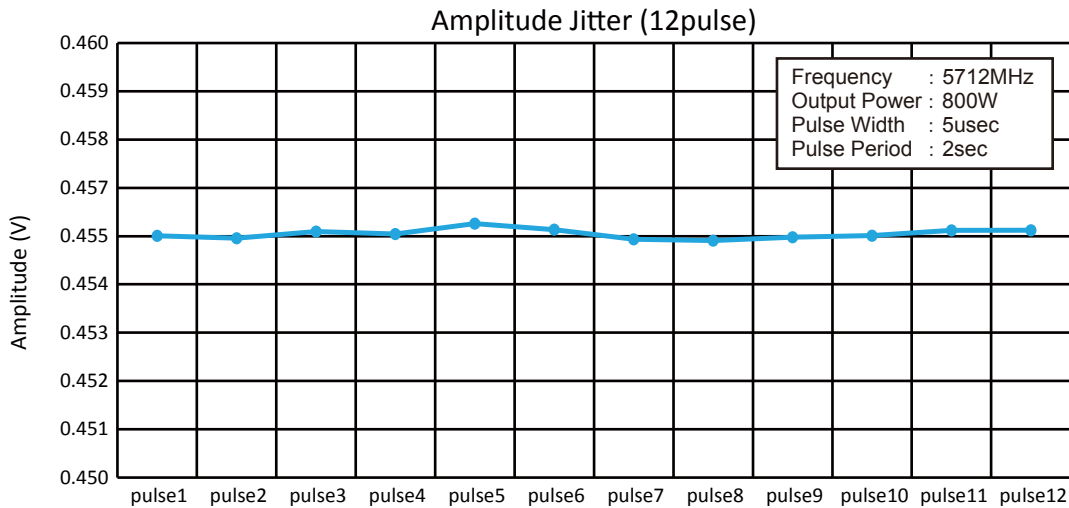
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## TYPICAL PERFORMANCE (Temp @+25°C)

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### • Pulse to Pulse Amplitude Jitter



\*Used Offset Frequency Generator for measurement. (fig.1)

Offset Frequency Generator 5712MHz  $\Rightarrow$  10MHz (RF Pulse Signal  $\Rightarrow$  I&Q Voltage)

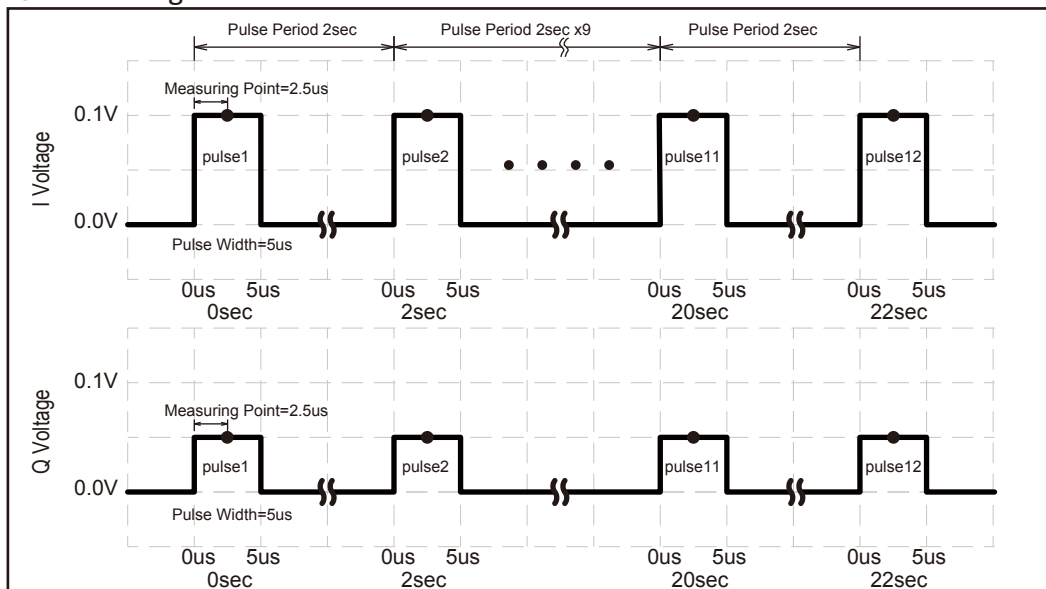
\*I and Q value after 2.5us of the rising of a pulse are measured in each 2 seconds.

I&Q Voltage $\Rightarrow$ Amplitude (pulse1 to Pulse12)			
Pulse No.	I (V)	Q (V)	Amp. (V) ※
Pulse1	-0.3580484	0.2808751	0.45507
Pulse2	-0.3577279	0.2812032	0.45502
Pulse3	-0.3582698	0.2807787	0.45519
Pulse4	-0.3585437	0.2803415	0.45513
Pulse5	-0.3580955	0.2813021	0.45537
Pulse6	-0.3586152	0.2804006	0.45522
Pulse7	-0.3576975	0.2811989	0.45499
Pulse8	-0.35787	0.2809458	0.45497
Pulse9	-0.3579465	0.2809741	0.45505
Pulse10	-0.3581932	0.2807189	0.45509
Pulse11	-0.3584187	0.2806337	0.45521
Pulse12	-0.3584438	0.2806118	0.45522

※  $\sqrt{I^2+Q^2}$

Std.(Amp.)/Mean(Amp.) in % = 0.026%  
(pulse1 to pulse12)

### ● Measuring Points

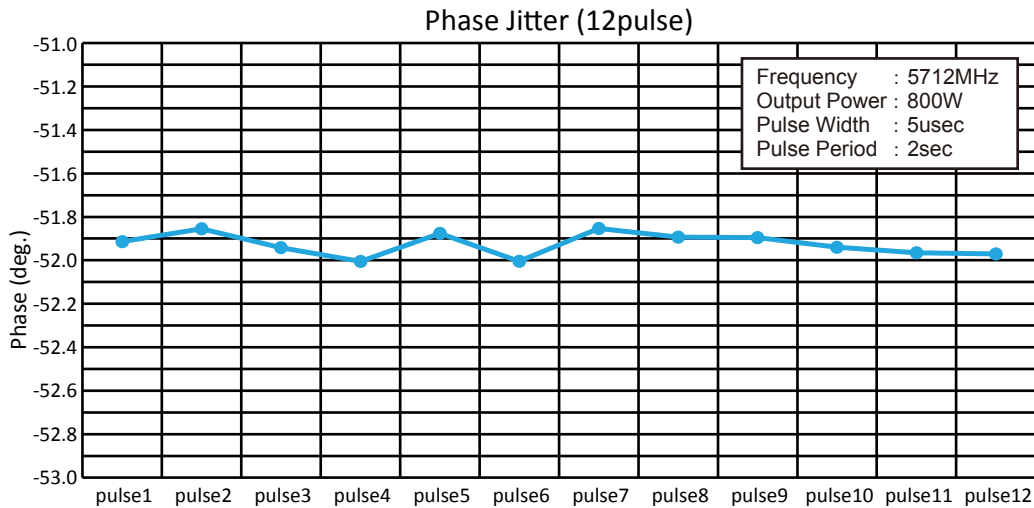


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### • Pulse to Pulse Phase Jitter



\*Used Offset Frequency Generator for measurement. (fig.1)

Offset Frequency Generator 5712MHz  $\Rightarrow$  10MHz (RF Pulse Signal  $\Rightarrow$  I&Q Voltage)

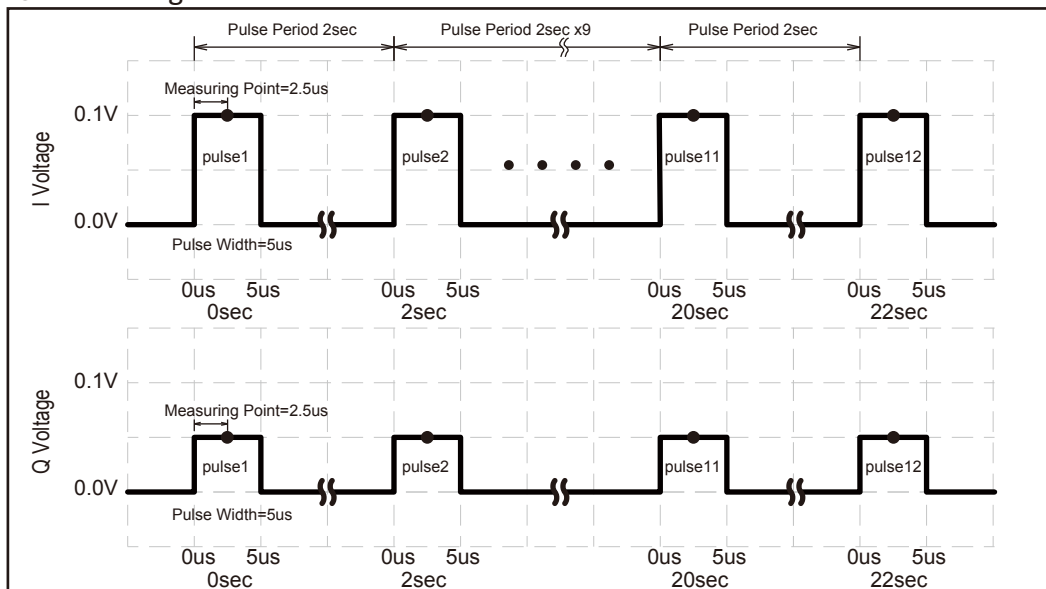
\*I and Q value after 2.5us of the rising of a pulse are measured in each 2 seconds.

I&Q Voltage $\Rightarrow$ Phase (pulse1 to Pulse12)			
Pulse No.	I (V)	Q (V)	Phase. (deg.) ※
Pulse1	-0.3580484	0.2808751	-51.913504
Pulse2	-0.3577279	0.2812032	-51.856069
Pulse3	-0.3582698	0.2807787	-51.940269
Pulse4	-0.3585437	0.2803415	-52.004892
Pulse5	-0.3580955	0.2813021	-51.874875
Pulse6	-0.3586152	0.2804006	-52.004581
Pulse7	-0.3576975	0.2811989	-51.854122
Pulse8	-0.35787	0.2809458	-51.892628
Pulse9	-0.3579465	0.2809741	-51.895773
Pulse10	-0.3581932	0.2807189	-51.940244
Pulse11	-0.3584187	0.2806337	-51.966205
Pulse12	-0.3584438	0.2806118	-51.970321

※ $\arctan(I/Q)$

Std.(Phase) in degree = 0.053deg.  
(pulse1 to pulse12)

### ● Measuring Points



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