

PULSED RF POWER AMPLIFIER

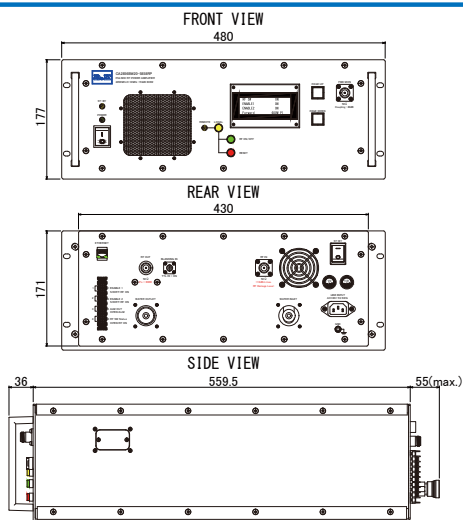


R&K-CA2856BW20-5858RP



OUTLINE DRAWING

※IN MILLIMETERS



- All Solid-State Amplifier
- Frequency Range: 2856MHz ± 10MHz
- Output Power : 600W (min.) @Peak (Pulse)

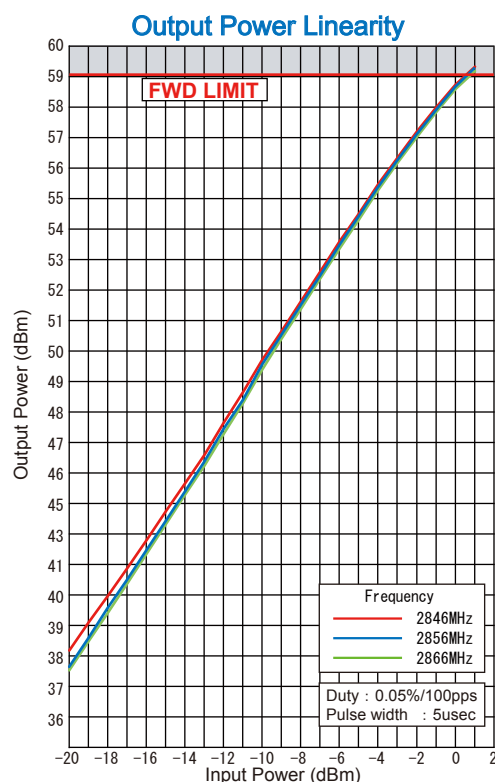
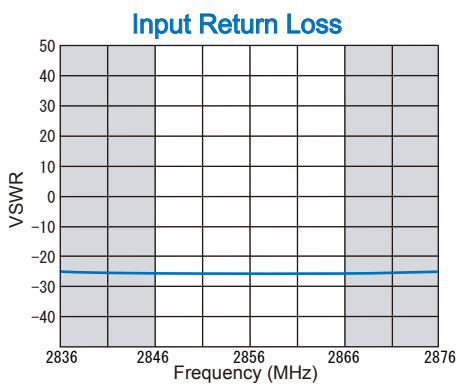
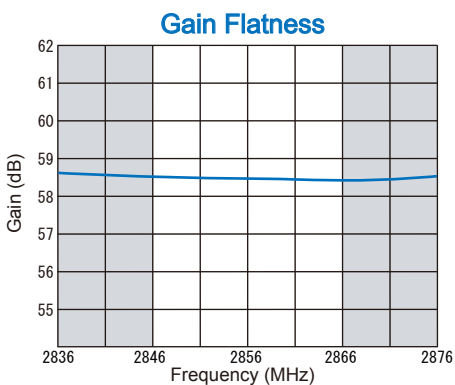
APPLICATION

- Accelerator Application

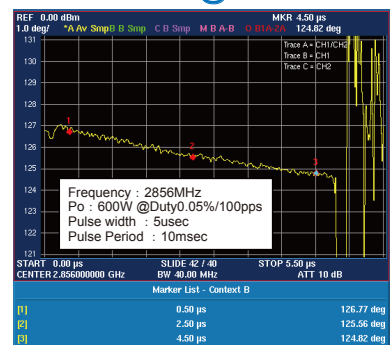
SPECIFICATIONS @ +25°C

Frequency Range	: 2856MHz ± 10MHz
Small Signal Gain	: +57.8dB (min.)
Rated Output Power	: 600W (min.) @Peak
Maximum Output Power	: 800W
Pulse Rise Time	: 100ns (max.) @Po=600W
Pulse Fall Time	: 100ns (max.) @Po=600W
Overshoot / Undershoot	: 3% (max.) @Po=600W
Flat-top Flatness	: 1% (max.) @Po=600W @Flat-top
Output Power Stability	: ±1% @Pulse to Pulse Voltage fluctuation
Phase Variation	: ±3° @within a Pulse @Flat-top
	: ±1° @every Pulse
Impedance	: 50Ω
Input Return Loss	: 20.8dB (min.) / VSWR : 1.2 (max.)
Maximum RF Input Power	: 0dBm
AC Supply Input	: AC100V ± 15% / 1 φ, 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)559.5mm × (H)177mm (EIA:4U)
Weight	: 25.0kg (max.)
Cooling	: Water Cooling (Water Temp: 30°C, Flow Rate: 3 liter/min, Pressure: 10kg/cm ²)
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

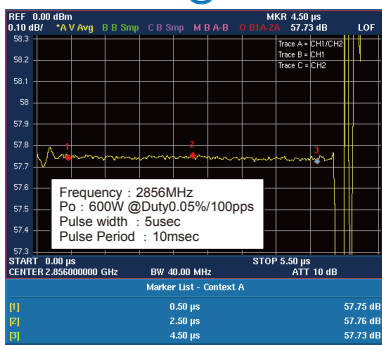
TYPICAL PERFORMANCE (Temp @+25°C)



Phase Flatness @Within a Pulse



Level Flatness @Within a Pulse



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".

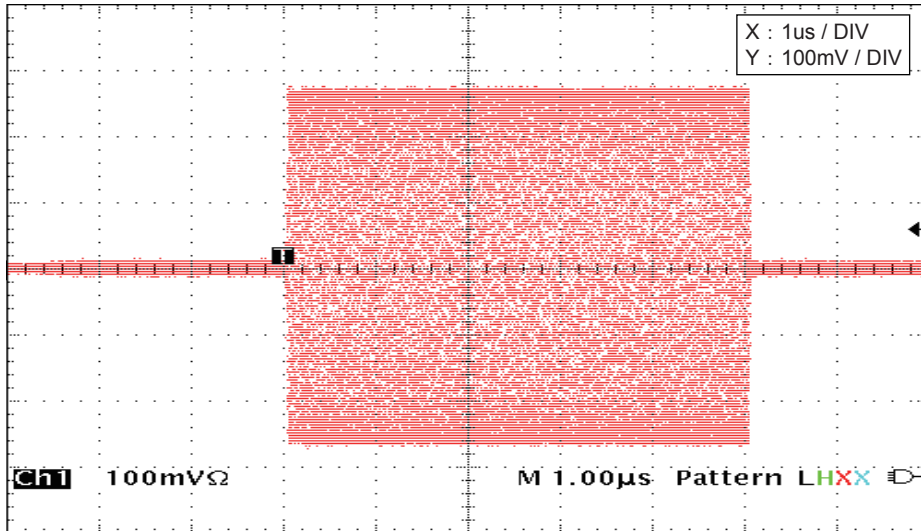
R&K Company Limited

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)

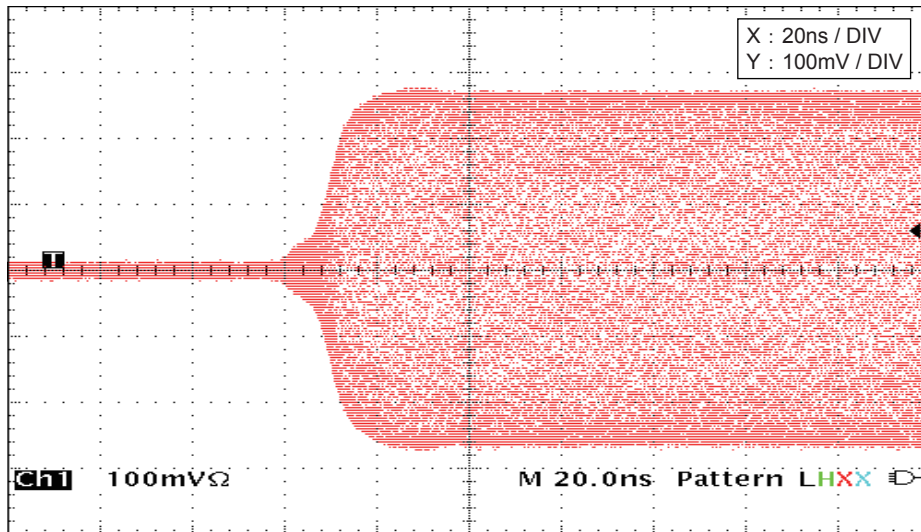
R&K-CA2856BW20-5858RP

• Output Pulse



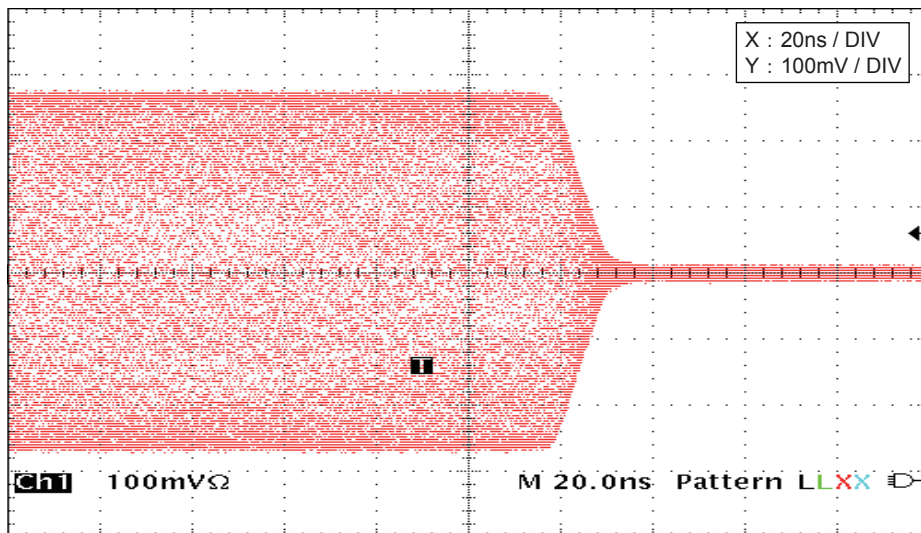
Frequency : 2856MHz
Output Power : 600W
Duty : 0.05%/100pps
Pulse Width : 5usec
Pulse Period : 10msec

• Pulse Rise



Frequency : 2856MHz
Output Power : 600W
Duty : 0.05%/100pps
Pulse Width : 5usec
Pulse Period : 10msec

• Pulse Fall



Frequency : 2856MHz
Output Power : 600W
Duty : 0.05%/100pps
Pulse Width : 5usec
Pulse Period : 10msec

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".

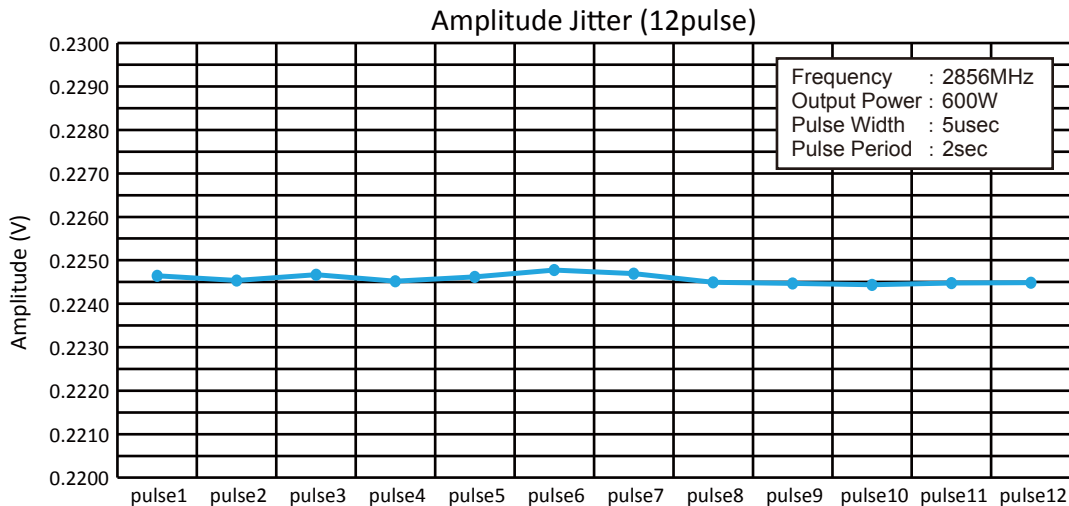
R&K Company Limited

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-CA2856BW20-5858RP

• Pulse to Pulse Amplitude Jitter



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

Offset Frequency Generator 2856MHz ⇒ 10MHz (RF Pulse Signal⇒I&Q Voltage)

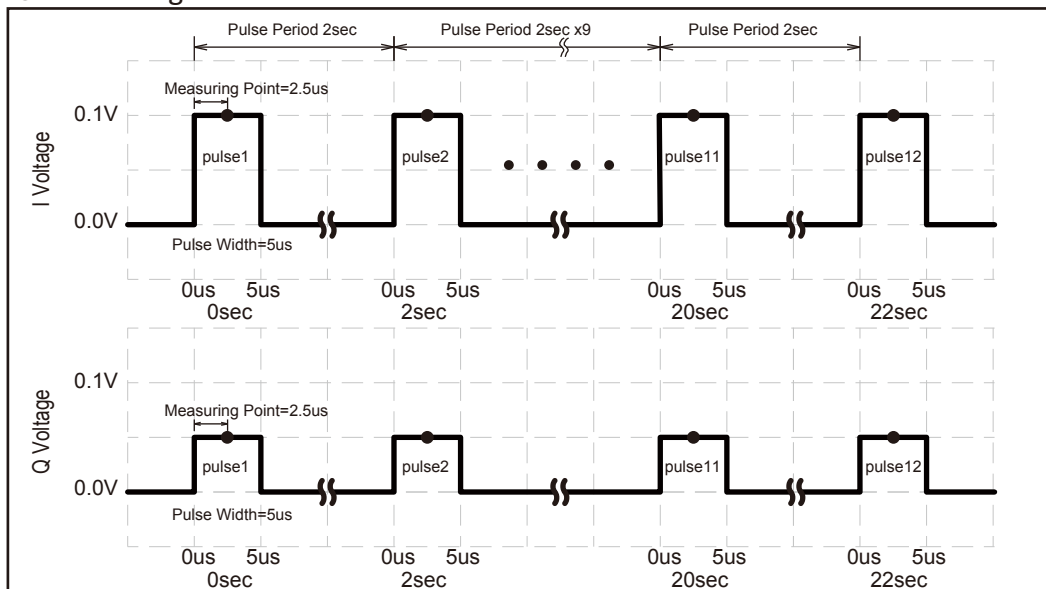
*I and Q value after 2.5us of the rising of a pulse are measured in each 2 seconds.

I&Q Voltage⇒Amplitude (pulse1 to Pulse12)			
Pulse No.	I (V)	Q (V)	Amp. (V) ※
Pulse1	0.00023	-0.22464	0.22464
Pulse2	0.00002	-0.22454	0.22454
Pulse3	-0.00007	-0.22467	0.22467
Pulse4	-0.00003	-0.22452	0.22452
Pulse5	0.00005	-0.22462	0.22462
Pulse6	-0.00013	-0.22478	0.22478
Pulse7	-0.00028	-0.22470	0.22470
Pulse8	-0.00007	-0.22450	0.22450
Pulse9	-0.00028	-0.22447	0.22447
Pulse10	-0.00045	-0.22444	0.22444
Pulse11	-0.00007	-0.22448	0.22448
Pulse12	-0.00014	-0.22448	0.22448

※ $\sqrt{(I^2+Q^2)}$

Std.(Amp.)/Mean(Amp.) in % = 0.048%
(pulse1 to pulse12)

● Measuring Points



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".

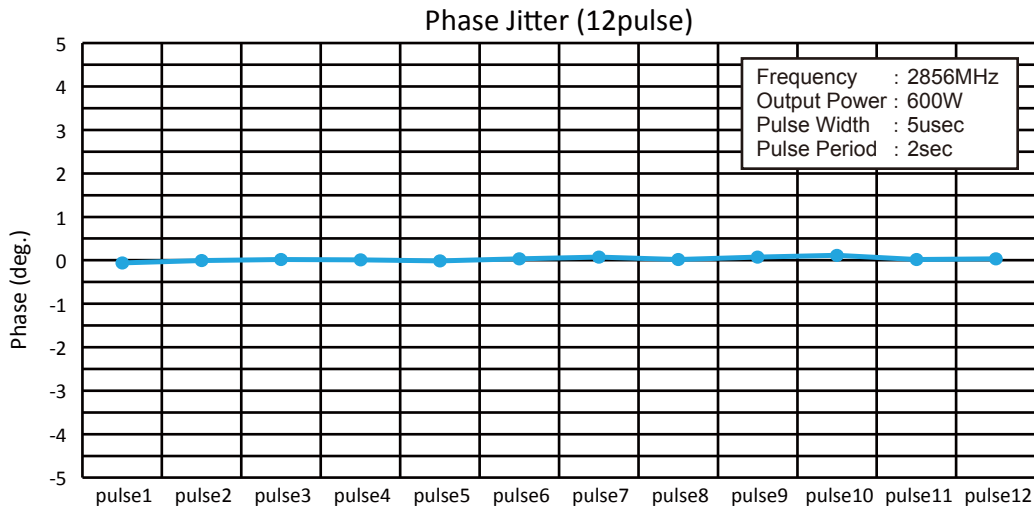
R&K Company Limited

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-CA2856BW20-5858RP

• Pulse to Pulse Phase Jitter



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

Offset Frequency Generator 2856MHz \Rightarrow 10MHz (RF Pulse Signal \Rightarrow I&Q Voltage)

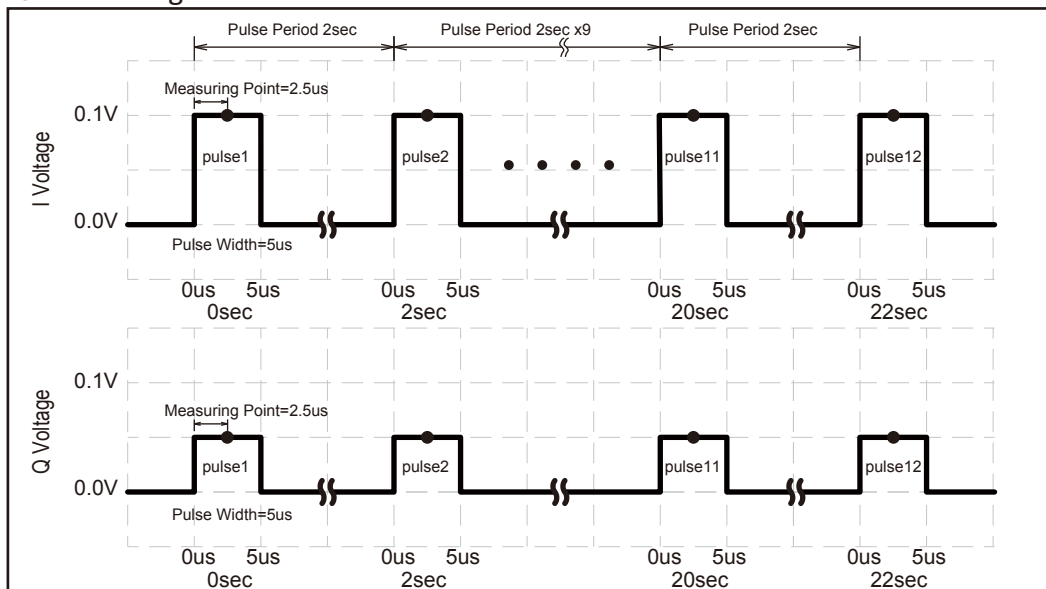
*I and Q value after 2.5us of the rising of a pulse are measured in each 2 seconds.

I&Q Voltage \Rightarrow Phase (pulse1 to Pulse12)			
Pulse No.	I (V)	Q (V)	Phase. (deg.) \times
Pulse1	0.00023	-0.22464	-0.05931
Pulse2	0.00002	-0.22454	-0.00626
Pulse3	-0.00007	-0.22467	0.01843
Pulse4	-0.00003	-0.22452	0.00881
Pulse5	0.00005	-0.22462	-0.01372
Pulse6	-0.00013	-0.22478	0.03335
Pulse7	-0.00028	-0.22470	0.07269
Pulse8	-0.00007	-0.22450	0.01699
Pulse9	-0.00028	-0.22447	0.07151
Pulse10	-0.00045	-0.22444	0.11527
Pulse11	-0.00007	-0.22448	0.01870
Pulse12	-0.00014	-0.22448	0.03636

$\times \arctan(I/Q)$

Std. (Phase) in degree = 0.045deg.
(pulse1 to pulse12)

● Measuring Points



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