Souther knowless When of the item to be souther? State item to be used in: Describe the Item. The National Occanic and Atmospheric Administration (NOAA), Oceanic and Atmospheric Research (DAR), Earth Systems Research Laboratorics (SSA), Physical Sciences Laboratory (PSL) runs a significant of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application/the end use of the Item. Please describe the item application of the Item. Please describe the item application of the Item. Provide Item application of the Item Item Item Item Item Item Item Ite	ITEM OPPORTUNITY SYNOPSIS			
None	Scouting Number:	2024-238		
The National Oceanic and Atmospheric Administration (NOAA), Oceanic and Atmospheric Research (OAR), Earth Systems Research Laboratoriosic (ESR), Physical Sciences Laboratorios (FSR) unare a network of S-Band Precipitation Profilers that have been operating the field for over 10 years. The FSL is in reed of replacement pulse amplifier modules for use within their profilers, as the units are currently norfunctioning. This PSL is in reed of replacement pulse amplifier modules for use within their profilers, as the units are currently norfunctioning. This procurement will supplement that continuity and continued operation of the radar network. The FSL requires two (2) pulse amplifier modules like the Park Too PSR. requires two (2) pulse amplifier modules like the Park Too PSR. Requires two (2) pulse amplifier modules like the PSR. Report of Supplier Being Sought (select from the list below) *** *** *** ** ** ** ** ** *	Name of the item to be scouted:	Pulse Amplifier Modules		
The National Oceanic and Atmospheric Administration (NOAA), Oceanic and Atmospheric Research (DAR), Earth Systems Research Laboratories (ESRL, Physical Stences Laboratory (PSI) runs a network of Sabad Precipitation Profilers that have been operating in the field for over 10 years. The PSI is in need of replacement puls amplifier modules for use within their profilers, as the units are currently nonfunctioning. This procurement will support data continuity and continued poperation of the radar network. The PSI requires two (2) pulse amplifier modules like the RFHIC Corporation model RRP291K0-10 to use as drop-in-replacements. Supplier Information: You of Supplier Information: You of Supplier Information Type of Supplier Information You can be a supplier on the list below): A word of Supplier Information You can be a supplier on the list below): A word of Supplier Price Res Shore	State item to be used in:	None		
Oceanic and Atmospheric Research (OAR), Earth Systems Research Laboratories (SSRL), Physical Sciences Laboratories (SSRL), Physical Cornor Laboratories (SSRL), Physical Continues and personal of the radar network. The PSL requires two (2) pulse amplifier modules (the her BHIC Corporation model RRP291KO-10 to use as of opp-in replacements. Supplier Information: Supplier Information: Yepe of Supplier Being Sought (select from the list below): Manufacturer Contract Manufacturer Distributor Other (Please Specify) Reason for Scoutins, submission (select from the list below) 2nd Supplier Price Re-Shore Re	Describe the Item:			
Manufacturer	Please describe the item application/the end use of the item.	Oceanic and Atmospheric Research (OAR), Earth Systems Research Laboratories (ESRL), Physical Sciences Laboratory (PSL) runs a network of S-Band Precipitation Profilers that have been operating in the field for over 10 years. The PSL is in need of replacement pulse amplifier modules for use within their profilers, as the units are currently nonfunctioning. This procurement will support data continuity and continued operation of the radar network. The PSL requires two (2) pulse amplifier modules like the RFHIC Corporation		
Manufacturer Contret Manufacturer Distributor Other (Please Specify) Reason for Scouling, Submission (select from the list below) 2nd Supplier Price Re-Shore Past supplier no longer available New Product Startup BABA Other (Please Specify) Summary of Technical Specifications and Performance Requirements: Describe the manufacturing processes (elaborate to provide as much detail as possible) Unknown except as provided on the attached specs sheet Similar in form, fit and function to the RFHIC Corporation RRP291K0-10 a pulse amplifier module designed for Radar system application frequencies from 2.7 to 3.1 GHz. The module uses Gallium Miritle (Galy) high-electron-mobility transistors (HEMTs) technology, which performs high breakdown voltage, wide bandwidth, and high efficiency. Electrical Specifications: Operating Bandwidth: 400 MHz Output Pulse Power: 2100 W (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +1 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +1 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +1 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +2 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +2 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.3 dB (min 60 dB) Gain Flatness: +2 1 0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency; 321 dB Output VSWI. 1.51 dB Switching Time: 0.5 us (mi				
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possible) Similar in form, fit and function to the RFHIC Corporation RRP291KO-10 a pulse amplifier module designed for Radar system application frequencies from 2.7 to 3.1 GHz. The module uses Gallium Nitride (GaN) high-electron-mobility transistors (HEMTS) technology, which performs high breakdown voltage, wide admixed that and high efficiency. Electrical Specifications: Operating Frequency: 2700-3100 MHz Operating Bandwidth: 400 MHz Output Pulse Power: 3100 W (min 1000 W) input Pulse Power: 0 dBm Power Gain: 508 (min 6 0d B) Gain Flatness: 47-1.0 dB buty Cycle: 20% Pulse Width: 500 us Efficiency: 35% (min 30%) Amplitude Pulse Droop: 0.5 dB (max 1.0 dB) Harmonics 1 to N: 40 dBc Spurious Level: 60 dBc Rise Time: 200 ns Flat Time200 ns Input YSWR: 1.5:1 dB output YSWR: 1.5:1 dB Switching Time: 0.5 us (max 1 us) Phase Deviation: -20 to 20 " Absolute Maximum Ratings: Operating Junction Temperature: -225 "C Operating Flange Temperature: -30 to 75" C Storage Temperature: -30 to 125" C Operating Voltages: Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Sub Voltage: nominal voltage 50 V, -4-5% accuracy Drain-Source Current (AVG): 14 A (max 20 A) Drain-Source Sub Current (AVG): 0.12 A (max 0.2 A) Mechanical Specifications: Mass: 1.3 kg Dimension: 220 mm x 145 mm x 27 mm RF Connector: SMA Female, RF Input, N-type Female, RF Output DC Connector: 3W3 connector, supply; 9pun D-Sub, Control List required materials needed to make the product, including materials of product components, if applicable	Summary of Technical Specifications and Performance Requirements:			
pulse amplifier module designed for Radar system application frequencies from 2.7 to 3.1 GHz. The module uses Gallium Nitride (GaN) high-electron-mobility-masistors (HEMTs) technology, which performs high breakdown voltage, wide bandwidth, and high efficiency. Electrical Specifications: Operating Frequency: 2700-3100 MHz Operating Bandwidth: 400 MHz Output Pulse Power: 1100 W (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.5 dB (min 60 dB) Gain Flatness: +/- 1.0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency: 35% (min 30%) Amplitude Pulse Droop: 0.5 dB (max 1.0 dB) Harmonics 1 to N: 40 dBc Spurious Level: 60 dBc Rise Time: 200 ns Fall Time: 200 ns Input VSWR: 1.5:1 dB Output VSWR: 1.5:1 dB Switching Time: 0.5 us (max 1 us) Phase Deviation: -20 to 20 * Absolute Maximum Ratings: Operating Junction Temperature: 225 °C Operating Flange Temperature: -30 to 75 °C Storage Temperature: -30 to 125 °C Operating Voltages: Drain-Source Voltage: nominal voltage 50 V, +/- 5% accuracy Drain-Source Sub Voltage: nominal voltage 12 V, +/- 5% accuracy Drain-Source Sub Voltage: nominal voltage 12 V, +/- 5% accuracy Shutdown Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltage: TTL Low(OV): PA ON, TTL High(SV): PA OFF On/Off Control Voltag		Unknown except as provided on the attached specs sheet		
components, if applicable		pulse amplifier module designed for Radar system application frequencies from 2.7 to 3.1 GHz. The module uses Gallium Nitride (GaN) high-electron-mobility transistors (HEMTs) technology, which performs high breakdown voltage, wide bandwidth, and high efficiency. Electrical Specifications: Operating Frequency: 2700-3100 MHz Operating Bandwidth: 400 MHz Output Pulse Power: 1100 W (min 1000 W) Input Pulse Power: 0 dBm Power Gain: 60.5 dB (min 60 dB) Gain Flatness: +/- 1.0 dB Duty Cycle: 20% Pulse Width: 500 us Efficiency: 35% (min 30%) Amplitude Pulse Droop: 0.5 dB (max 1.0 dB) Harmonics 1 to N: 40 dBc Spurious Level: 60 dBc Rise Time: 200 ns Fall Time: 200 ns Input VSWR: 1.5:1 dB Output VSWR: 1.5:1 dB Switching Time: 0.5 us (max 1 us) Phase Deviation: -20 to 20° Absolute Maximum Ratings: Operating Junction Temperature: 225 °C Operating Flange Temperature: -30 to 75 °C Storage Temperature: -30 to 125 °C Operating Voltages: Drain-Source Voltage: nominal voltage 50 V, +/- 5% accuracy Drain-Source Sub Voltage: nominal voltage 12 V, +/- 5% accuracy Shutdown Voltage: TTL Low(0V): PA ON, TTL High(5V): PA OFF On/Off Control Voltage: TTL Low(0V): PA ON, TTL High(5V): PA OFF Power Supply: Drain-Source Current (AVG): 14 A (max 20 A) Drain-Source Sub Current (AVG): 0.12 A (max 0.2 A) Mechanical Specifications: Mass: 1.3 kg Dimension: 220 mm x 145 mm x 27 mm RF Connector: SMA Female, RF Input; N-type Female, RF Output DC Connector: 3W3 connector, supply;		
		Unknown except as provided on the attached specs sheet		
		L		

Yes	
No	X
Please explain:	
Are there any applicable regulations that apply to the production of this item?	
Yes	
No	х
Please explain:	
Are there any other standards / requirements?	
Yes	
No	Х
Please explain:	
NAICS CODES:	
NAICS 1	334413 Semiconductor and related device manufacturing
NAICS 2	
Additional Comments:	
	All offered products must be completely compatible (form, fit, and
Additional technical comments:	function) with existing radar network without need for modification
	to product or system.
Volume and Pricing:	
Estimated Potential Business Volume (i.e. #units per day, month, year):	One-time purchase
Estimated Target Price/Unit Cost Information:	Quantity of two (2) amplifier modules \$10,276.81 each
Delivery Requirements:	
	Anticipate award of contract by end of current fiscal year (9/20/2024), with
When is it needed by? (Immediate, 30 days, 6 months, etc.)	delivery by 60 days after date of award.
Describe packaging requirements (i.e. individually/group packaging, etc.)	Best available. Product must be delivered undamaged.
Where will this item be shipped?	Boulder, CO
Additional Comments:	
Is there other information you would like to include?	This is a Simplified Acquisition, which has a shorter lead time to completion than an action over \$250,000.00. It is expected that this requirement will be awarded within the next 30-60 days, and any timely scouting (requested completed within 15 days from submission) would be appreciated to align with Simplified Acquisition requirements for posting and the Buy American Act Waiver process. Department of Commerce Point of Contact information for questions including BABA/Buy American compliance: Marcelle Loveday, Director Acquisition Policy & Workforce Office of Acquisition Management MLoveday@doc.gov Please copy scouting@nist.gov on all correspondence

Pulse Amp Module

RRP291K0-10

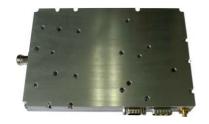


Product Features

- Frequency from $2.7 \sim 3.1 GHz$
- GaN HEMT
- 50 Ohm Input/Output impedance
- High efficiency

Applications

• Radar system



Description

The RRP291K0-10 is designed for Radar system application frequencies from $2.7 \sim 3.1 GHz$. This module uses GaN HEMT technology which performs high breakdown voltage, wide bandwidth and high efficiency.

Electrical Specifications @ V_{DS} =50V, T=25°C, 50Ω System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	2700	-	3100	fo
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Power	W	1000	1100	-	Po
Input Pulse Power	dBm	-	0	-	PI
Power Gain	dB	60	60.5	-	G_P
Gain Flatness	dB	-	-	±1.0	ΔG_P
Duty Cycle	%	-	-	20	DC
Pulse Width	us	-	-	500	PW
Efficiency	%	30	35	-	Eff
Amplitude Pulse Droop	dB	-	0.5	1.0	Droop
Harmonics 1 to N	dBc	40	-	-	H_N
Spurious Level	dBc	60	-	-	Spur
Rise Time	ns	-	-	200	$t_{\rm r}$
Fall Time	ns	-	-	200	t_{f}
Input VSWR	dB	-	-	1.5:1	VSWR
Output VSWR	dB	-	-	1.5:1	VSWR
Switching Time	us	-	0.5	1	t _{SW}
Phase Deviation	۰	-20	-	20	Δφ

^{*} Test Pulse conditions = 100us, 10%

^{*} Above electrical specifications is measured by connecting electrolytic condenser 10,000uF to DC. Please make sure that electrolytic condenser is connected properly while testing the module.

^{*} Custom design available

Pulse Amp Module

RRP291K0-10



Absolute Maximum Ratings

PARAMETER	UNIT	RATING	SYMBOL
Operating Junction Temperature	°C	225	$T_{\rm J}$
Operating Flange Temperature	°C	-30 ∼ 75	Tc
Storage Temperature	°C	-30 ∼ 125	Tstg

Operating Voltages

PARAMETER	UNIT	NOMINAL VOLTAGE	VOLTAGE ACCURACY	SYMBOL
Drain-Source Voltage	V	50	± 5%	V _{DS} 1
Drain-Source Sub Voltage	V	12	± 5%	V _{DS} 2
Shutdown Voltage	V	TTL Low(0V): PA ON, TTL High(5V): PA OFF		V _{DC} 1
On/Off Control Voltage	V	V TTL Low(0V): PA ON, TTL High(5V): PA OFF		V _{DC} 2

Power Supply

PARAMETER	UNIT	MIN	ТҮР	MAX	SYMBOL
Drain-Source Current(AVG)	A	-	14	20	I _{DS} 1
Drain-Source Sub Current(AVG)	A	-	0.12	0.2	I _{DS} 2

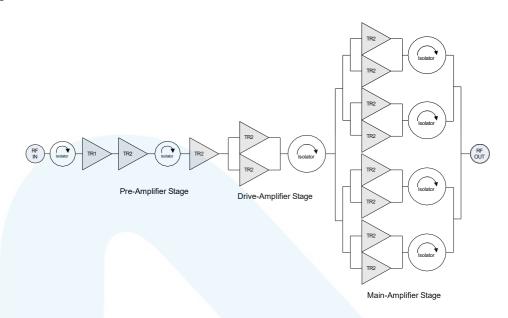
^{*} Duty Cycle 20%, Pulse Width 200us

Pulse Amp Module

RRP291K0-10



Block diagram



Mechanical Specifications

PARAMETER	UNIT	ТҮР
Mass	kg	1.3
Dimension	mm	220 x 145 x 27
77.6		SMA Female: RF Input
RF Connector	-	N-type Female : RF Output
P.C.C.	-	3W3 connector : Supply
DC Connector		9Pin D-Sub : Control

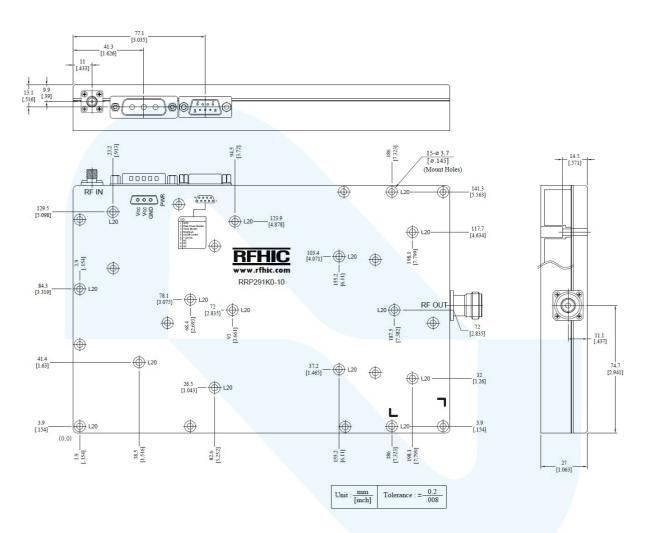
Pulse Amp Module

RRP291K0-10



Outline Drawing

* Unit: mm[inch] | Tolerance ± 0.2 [.008]



Pin Description

	Supply: 3W3 Connector						
Pin No	Description	Pin No	Description				
A1	GND	A2 & A3	V _{DS} 1 (+50V)				
	Control:	9Pin D-Sub					
Pin No	Description	Pin No	Description				
1	GND	6	V _{DS} 2 (+12V)				
2	Peak Power Monitor	7	NC				
3	Temp Monitor	8	NC				
4	Shutdown	9	NC				
5	On/Off Control	-	-				

Pulse Amp Module

RRP291K0-10



Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RRP291K0-10	2012.12.28	1.1	-	-
RRP291K0-10	2012.12.28	1.0	Version update	-
RRP291K0-10	2012.9.6	0.1	-	Preliminary





Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.

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