

GaN Microwave Amplifier RIK138K0-40T



Product Features

- 1299 ~ 1301MHz
- High Output Power : 8kW(CW)
- Using GaN on SiC HEMT
- 58% System Efficiency
- High Reliability & Stability, Long-run Operation
- Stable frequency spectrum even at low power

Applications

- Building block for high-power systems
- Accelerator Light Source
- Industrial Heating and Drying
- Microwave CVD
- Materials processing
- Study of biological phenomena
- Food sterilization / pasteurization



Description

The RIK138K0-40T is a high-power microwave generator (SSPA) utilizing cutting-edge GaN on SiC HEMT technology, delivering high breakdown voltage and exceptional power efficiency. This product is engineered to meet the stringent and precise requirements of modern particle accelerators and synchrotron light sources.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX
Operating Frequency		MHz	1299	-	1301
Operating Bandwidth		MHz	-	2	-
CW Output Power		W	100	-	8000
System Efficiency		%	58	-	-
Input Power		dBm	-3	-	3
In/Out Return Loss		dB	-	-	-15
Operating Case Temperature		°C	-	-	60
Rise and fall time in pulse operation		us		≤ 10	
2 nd harmonic		dBc		≤ -42	
3 rd harmonic		dBc		≤ -59	
Spurious and sideband		dBc		≤ -60	
Phase noise 10Hz-300Hz		dBc		< -60	
Phase noise > 300Hz		dBc		< -80	
Monitoring	FWD & RVS Power	System Output and Reflect Power from 10 to 100%			
	Temperature	Individual Power Amplifier			
	Current	+50Vdc Output of Power Supply Unit			
Maximum mismatch for full power output		6 : 1 VSWR 30sec.			
Phase Shift	Operating Range	Deg	0	-	360
	Step Size	Deg	-	5.6	-

Generator Alarm & Protection Features

PARAMETER	State	CONDITION
Output Power	Alarm	Output Power > 8.2kW
Over-Temperature	Alarm	System Temperature > 50° C
Reflected Power	Alarm	Reflected Power > Output Power*0.5
Over input Power	Disabled	+3dBm
Over Water Temperature	Disabled	>33° C
Low Water Flow	Disabled	<16L/M
Over-Temperature	Disabled	System Temperature > 55° C
Reflected Power	Disabled	Reflected Power > 4kW

Environmental Conditions

PARAMETER	Value	note
Supply voltage	380Vac 3 phase 4wire 50/60Hz	
Input Current	3 x 19.4A	8kW (CW)
Power factor	≥ 0.9	
Ambient temperature	15 – 35°C	
Humidity	20 – 65%	
Output Voltage	50Vdc	
PSU Cooling	Air Cooling	

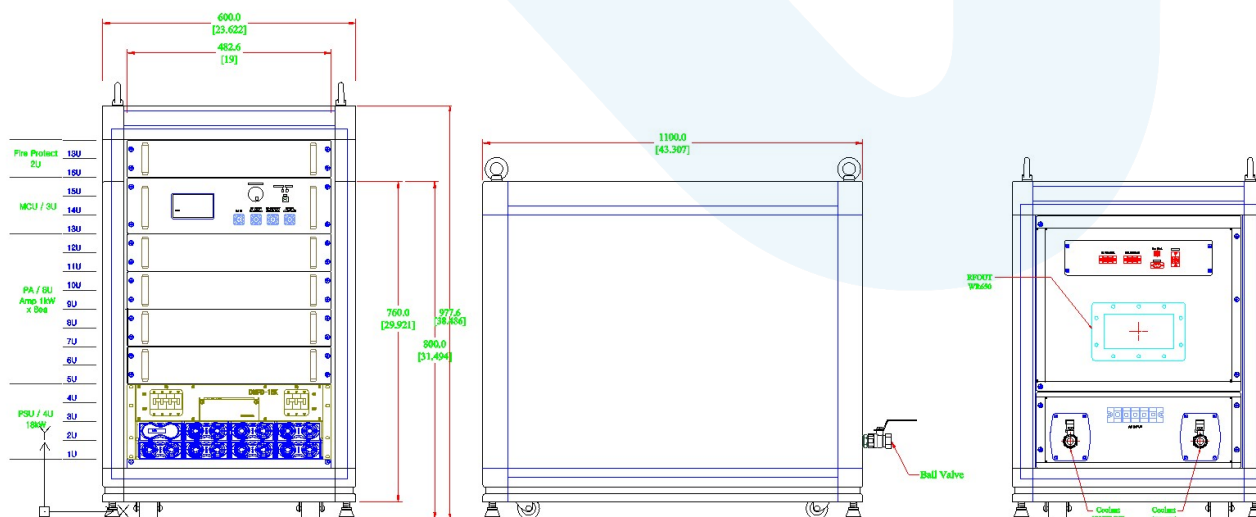
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PARAMETER	UNIT	VALUE	
Dimensions (WxDxH)	mm	600 x 1100 x 978	
Weight	kg	200	
Microwave Input Port	-	N-type	
Microwave Output Port	-	WR650	
Input,Output Monitoring Port	-	N-type	
VAC & GND	-	380 VAC 3 phase 4wire 50/60 Hz & R,S,T,N,GND(Y Connection)	
Control Interface		EPICS, Ethernet	
Cooling Requirements	-	Water Cooling Rate	20L/Min, 6~8Bar
		Cooling Water Inlet Temperature	29 °C~31°C (typ.)
		Relative humidity below dew point (non-condensing)	
		* De-ionized water shall be used to prevent system damage	
Fluid Inlet Size	Inch	1/2" male	
Fluid Outlet Size	Inch	1/2" male	

Mechanical Specifications

Dimension and weight may be subject to change.



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RIK138K0-40T



Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIK138K0-40T	JUN, 2026	0.1	Initial release of datasheet	



Certification

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

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