Preliminary

S-BAND 18kW Transmitter RRK273118K-690

Product Features

- Frequency from 2.7GHz to 3.1GHz
- Using High-Efficiency GaN Transistor
- Ethernet TCP/IP
- WR-284 Waveguide Output
- Forced Air Cooling

Applications

- Airport Surveillance Radar
- Weather Radar
- Industrial and Scientific
- Instrumentation Amplifier
- Defense Radar

Description

The RRK273118K-690 Transmitter, in which state of the art SiC GaN technology is used, is designed for the high-power radar application at the frequency of 2700 ~ 3100 MHz. The transmitter is majorly used in the areas of the airport, weather, maritime, defense, industrial, and scientific applications. This GaN-based Solid State Transmitter replaces industrial magnetrons or other vacuum tubes which have been currently used in high power applications. The forced air-cooling in each module is used for user convenience, easy and quick maintenance. The redundant architecture was applied PSUs, preventing single-point failures. HPAs in the transmitter sub-system are parallelized for secure operation in the event of an HPA fault condition, also.

Electrical Specifications @ V_{ac} = +400V, To =25°C, 50Ω Input System

PARAMETER	UNIT	MIN.	TYP.	MAX.	SYMBOL
Operating Frequency	GHz	2.7	-	3.1	f_O
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Peak Power	kW	16	18	-	P_O
Input Pulse Power	dBm	-2	0	2	P_I
Gain Variation	dB	-	-	2	ΔG_P
Duty Cycle	%	-	-	10	DC
Pulse Width	us	1	-	120	PW
Amplitude Pulse Droop	dB	-	-	1.0	Droop
Harmonics 1 to N	dBc	-60	-	-	HN
Rise / Fall Time	ns	-	-	100	T_r / T_F
VSWR	-	-	-	2.0 : 1	VSWR
Power Consumption @ 10%	kW	-	6	-	Pc
Operating Voltages	VAC	+ 208 VAC 3P3W or + 380 VAC 3P4W			
Control Interface	-	Ethernet TCP/IP			
Protection & Warning Alarm (BIT)	-	DC Fail Alarm		In case of exceeding 50 ± 2V	
	-	Over Pulse Duty Cycle Protection		In case of over 10%	
	-	Low Input Power Alarm		Drive Amp Fault Alarm by detecting driver amp input and output power level	
	-	Low Output Power Alarm			
	-	Over Temperature Shutdown for fault units		Temperature monitoring.	

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Temperature	℃	-10 ~ +40
Storage Temperature	℃	-30 ~ +60
Humidity	RH %	0 ~ 95

Power Supply Specifications

DESCRIPTION	PERFORMANCE VALUE
Input AC Voltage	+ 208 VAC 3P3W or + 380 VAC 3P4W
Input AC Frequency	47 - 63 Hz

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions	mm	800 × 1540 × 1000 (Width × Height × Depth)
Weight	kg	580
RF Input Connector	-	N-Type (Female)
RF Output Connector	-	WR-284(Flange, CPR284F)
Output Monitor Connector	-	N-Type (Female)
Cooling	-	Forced Air Cooling by Fans

Mechanical Drawing

unit: mm
[inch]

		
Front	**Side**	**Back side**

800 × 1540 × 1006 (Width × Height (The height does not include the wheels) × Depth)

Note

Dimensions and Connectors may be subject to change without notice.
D-sub connectors, rf cables, and power cables are not included in this picture.

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RRK273118K-690	January, 2025	0.1	Initial Release of Datasheet	Preliminary
RRK273118K-690	February, 2026	0.2	Revision	Preliminary

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