

Preliminary

C-BAND 15kW Transmitter

RRT545915K-720



Product Features

- 15kW Pulsed Transmitter
- Frequency from 5.64 GHz to 5.66 GHz
- Using High-Efficiency GaN Transistor
- Control Communication RS422
- Real time status of Amplifier over Ethernet
- WR187 Waveguide Output
- Internal Power supply unit
- Forced Air Cooling

Applications

- Radar
- Weather Radar
- High Power RF Application

Description

RRT545915K-720 uses GaN transistors and is designed for the high power radar applications at 5642.5 ~ 5657.5 MHz. This solid-state transmitter allows upgrading the existing VED (Vacuum Electronic Device, such as Klystron, Magnetron, Travelling Wave Tube, and Cross Field Amplifier) based transmitter for radar platforms.

Electrical Specifications @ $V_{ac} = 380V, 50 \& 60Hz, T_o = 25 \text{ }^\circ C, 50 \text{ } \Omega$ Input System

| PARAMETER | UNIT | MIN | TYP | MAX | SYMBOL |
|---|------|---------------------------------------|-----|------------------------------|--------------|
| Operating Frequency | GHz | 5.6425 | - | 5.6575 | f_o |
| Operating Bandwidth | MHz | - | - | 15 | BW |
| Output Pulse Power | kW | - | 15 | - | P_o |
| Input Pulse Power | dBm | -16 | - | -10 | P_i |
| Power Gain | dB | - | 85 | - | G_p |
| Power Gain Variation | dB | - | - | 1 | ΔG_p |
| Duty Cycle | % | - | - | 11 | DC |
| Pulse Width | us | 1 | - | 143 | PW |
| Pulse Rise Time/ Pulse Fall Time | ns | - | - | 100 | T_r / T_f |
| Spurious | dBc | -60 | - | - | Spur |
| Harmonics 1 to N | dBc | -40 | - | - | H_N |
| VSWR | - | - | - | 2.0 : 1 | VSWR |
| Output Power Monitoring | dBc | -57 | - | -63 | P_M |
| Operating Voltage | VAC | +342 | - | +418 | AC |
| | Hz | 50 | - | 60 | V_F |
| Gate Pulse Interface | - | RS422 Differential (Guard time : 1us) | | | C_i |
| Protection & Warning Alarm (Ethernet & LEDs, Real time status) | - | RVS Power Alarm & Shutdown | | VSWR over 3 : 1 (TBC) | |
| | - | Over Duty Cycle Alarm & Shutdown | | > 11 % (TBC) | |
| | - | HPA Over Temp Alarm & Shutdown | | > 95 $^\circ C$ (TBC) | |
| | - | HPA Alarm(each) | | Output power, Ethernet & LED | |
| | - | Pre Driver Alarm(each) | | Input power/ Output power | |
| | - | Communication | | LED | |

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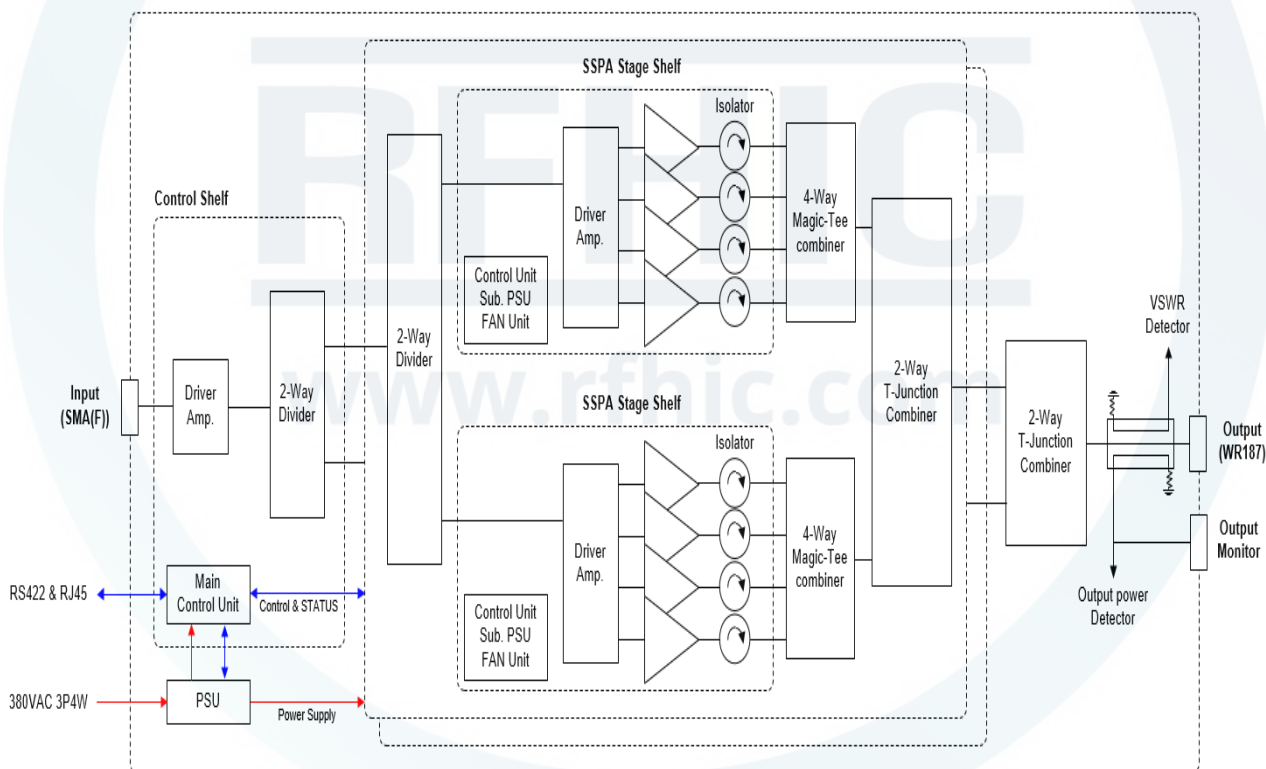


| | | | |
|--|---|----------------------------|------|
| | - | PSU & FAN, Interlock Alarm | LEDs |
|--|---|----------------------------|------|

Environmental Specifications

| PARAMETER | UNIT | VALUE |
|-----------------------------|------|----------------------|
| Operating Temperature Range | °C | 0 ~ + 55 °C |
| Storage Temperature Range | °C | - 40 ~ + 85 °C |
| Humidity | % | 95 %, Non-condensing |

Block Diagram



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Revision History

| Part Number | Release Date | Version | Description | Data Sheet Status |
|----------------|------------------------------|---------|-----------------|-------------------|
| RRT545915K-720 | Jul. 13 th . 2022 | 0.1 | Initial release | Preliminary |

* All the data in this document may be subject to change without prior notice.



Certification

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

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