S-Band 1.3 kW Solid State Power Amplifier VSS3607

Communications & Power Industries
Beverly Microwave Division Solid State Power Amplifier

FEATURES:
• Frequency range: 2.7 - 2.9 GHz
• 1.3 kW pulsed modules
• High efficiency GaN transistors
• BIT and controls via EIA-422 remote connection
• Easily power combined for any power level
• Hermetically sealed for extreme environments

BENEFITS:
• Ruggedized design
• High efficiency
• Excellent pulse fidelity
• Excellent AM/PM, phase-noise, and spectral regrowth performance

APPLICATIONS:
• ATC radars
• Air surveillance radar

CPI-Built RF Power Modules

S-band Solid State Power Amplifiers produce high power and are compact with proven GaN transistor technology.

CPI’s Solid State Power Amplifiers are rugged, highly-efficient and easy to maintain. The VSS3607 Solid State Power Amplifiers are used in military (ATC & Search) radar applications and cover the 2.7 – 2.9 GHz frequency band. GaN transistors are combined into 1.3 kW bricks which are air cooled. The 1.3 kW bricks can be power-combined using radial combiners and waveguide combiners for high power transmitters.
S-Band 1.3 kW Solid State Power Amplifier: VSS3607

Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>2.7 – 2.9 GHz</td>
</tr>
<tr>
<td>Minimum saturated peak RF Output</td>
<td>1.3 kW</td>
</tr>
<tr>
<td>Typical pulse width</td>
<td>1 to 100 µsec</td>
</tr>
<tr>
<td>Maximum Pulse Droop</td>
<td>0.5 dB</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>10%</td>
</tr>
<tr>
<td>Output power flatness across frequency range</td>
<td>1 dB</td>
</tr>
<tr>
<td>Nominal small signal gain</td>
<td>50 dB</td>
</tr>
<tr>
<td>Maximum input VSWR</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Maximum output VSWR</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Harmonic output</td>
<td>-65 dBC</td>
</tr>
<tr>
<td>Maximum interpulse thermal noise</td>
<td>-165 dBM/Hz</td>
</tr>
<tr>
<td>Noise power density</td>
<td>-100 dBC into a 1 MHz bandwidth</td>
</tr>
<tr>
<td>MTBF</td>
<td>&gt;140,000 hours</td>
</tr>
<tr>
<td>NTIA Compliance</td>
<td>Compliant with customer pulse shaping as required</td>
</tr>
</tbody>
</table>

Prime Power

31 VDC @ 14 Amps

Ambient Temperature

-32°C to +70°C operating

Relative Humidity

100% non-condensing

Altitude

Operating: 30,000 feet (9.14km)
Non-operating: 70,000 feet (21.34km)

Shock and Vibration

Ruggedized for harsh environments

Cooling

Forced air

RF Input Connection

SMA male

RF Output Connection

Type N female

RF Output Monitor

Control connector

Dimensions (width)

9.5 in (24.13 mm)

Dimensions (height)

1.75 in (4.45 cm)

Dimensions (depth)

15.5 in (39.37 cm)

Weight

11 lbs. max. (4.99 kg)

Output Isolator (optional)

May be provided for VSWR protection.

Peak RF Pulse Plots

10 µsec PW, 1 kHz PRF

100 µsec PW, 1 kHz PRF

10 % Duty

For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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