MAAP-009672-000000

S-Band 600W LDMOS Power Amplifier Module
3.1 - 3.5 GHz

2011 Datasheet v3 prelim

The most important thing we build is trust

Description

The Cobham MAL S-Band 600W LDMOS Module is designed for Radar and other pulsed transmission systems. It utilises a single supply voltage to provide over 600W of power for 100us pulse lengths at duty cycles up to 20%.It features an on-board temperature monitor which can perform unit shut-down, to help protect the unit against over heating and self-damage. An isolator is fitted in the output power path to protect the unit from reflected power conditions. It has low pulse droop of <0.5dB for optimum system performance. An external gating provision enables reduced inter-pulse power consumption to improve overall efficiency.

Features

- LDMOS Device Technology
- Minimum 600W Output Power
- Power, Temperature and Over Current BITE monitors
- 100us Pulse Width, 20% Duty Cycle
- Modular Design for Ease of Integration into Higher Power Amplifiers
- Large Internal Storage Capacitance for Optimum Pulse Shape
- European Manufacture.

Applications

The module has been designed to enable its use as a building block for higher power pulsed amplifier designs. In order for several modules to be combined as the output stage of a high power amplifier, a number of features have been built into the design.

An internal insertion phase matching section has been included to allow a number of modules to be phased matched to one another for optimum output power combining. External Built-in Test (BITE) and shutdown control lines allow ease of fault finding and control of a number of modules at the next highest level of assembly.

Internal input and output isolators enable ease of external power combination and the removal of the SMA field replaceable connectors will allow the RF ports to be launched directly onto Microstrip or Stripline divider and combiner networks if desired.

Integrated module cooling has not been included to allow flexibility in the assembly of several modules onto a single customer-provided solution, for example a 19 inch rack liquid cooled base-plate.

For further information please contact:

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RF Performance

Parameter	Performance
Electrical	
Frequency	3.1 – 3.5GHz
Peak Output Power @ 20% duty cycle	600W Min.
Output Power stability over frequency	±0.8dB
Pulse Width	2 – 100uS
Duty cycle	20%
Nominal Input Power	25W Typ.
Pulse droop	<0.5dB
Pulse Rise & Fall time	<60ns Typ.
Input and output VSWR	1.34:1
Supply Voltage	33V
Average Steady State Supply Current	16A Nominal for 20% Duty
In-Rush Current	80A Peak, 10mS Duration
Mechanical	
Mass	2Kg Typ.
Dimensions	228mm x 182mm x 34mm (Excludes Feet (TBD))
RF connectors	Field Replaceable SMA female
DC Connectors	Power D-Type—Supply 9-Way D-Type—BITE and Control
Pulse Gating Connector	SMA Female
Environmental	
Base Plate Temperature	+35°C ± 5°C
Operating Ambient Temperature	-30°C to +55°C (Thermal Shutdown set to + 55°C Base Plate temperature)
Storage Temperature	-40°C to +70°C

Absolute Maximium Ratings	
Base-plate Temperature	Thermal Shutdown set to +55°C (adjustable at factory)
Supply Voltage	+34V
Module Disable Control Voltage	+5.2V

Performance: 40°C Base Plate Temperature, Z_0 = 50Ω, V_{CC} = +33V

Mechanical Outline

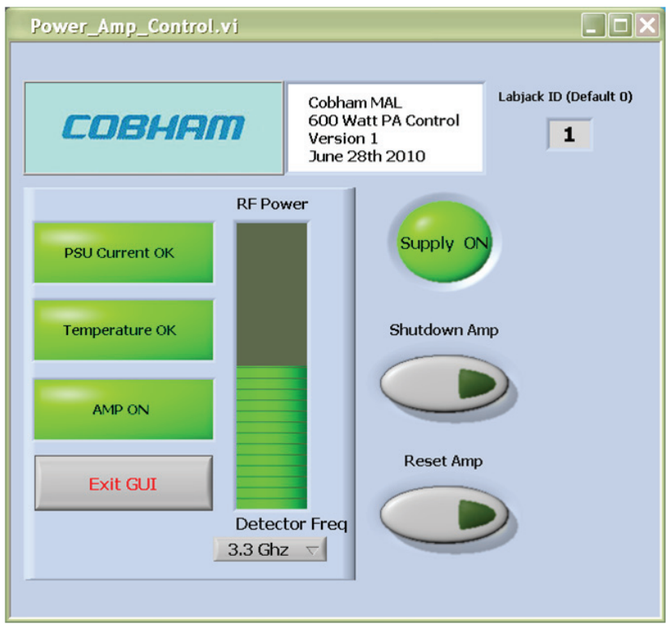
TBD

Connection Information

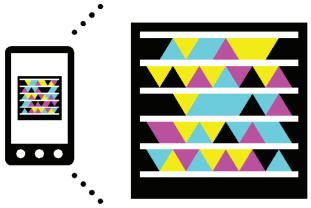
DC Power Connector	
Pin 1	+ 33 V Supply
Pin 2	Ground
Control and BITE Connector	
Pin 1	Module RESET
Pin 2	Over Temperature BITE
Pin 3	RMS Output Power Monitor
Pin 4	Peak Output Power Monitor
Pin 5	Module Shutdown Status
Pin 6	Over-Current BITE
Pin 7	DC Supply Status
Pin 8	Ground
Pin 9	External Shutdown Control

Optional Control Interface

The power amplifier is available with an external digital control interface which plugs into the USB port of a PC. This allows the control and monitoring of the Power Amplifier using a virtual front panel graphical user interface (GUI). All the required software to run the GUI is shipped with the digital control interface hardware.



COBHAM



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