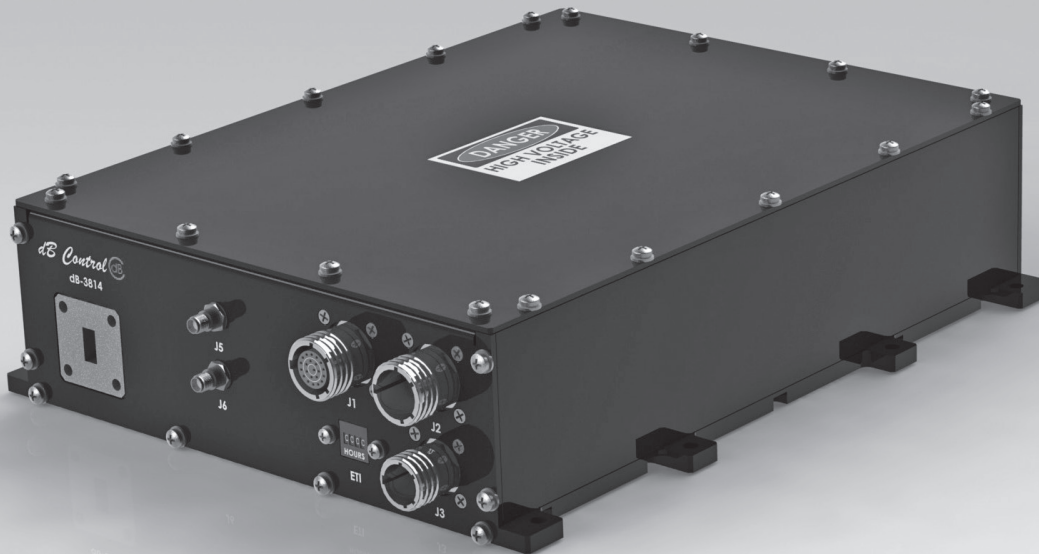


dB-3814 Microwave Power Module



The dB-3814 is a pulsed Microwave Power Module (MPM) operating in the 15 to 18 GHz frequency range and providing 1 kW peak power at 7% maximum duty cycle. A periodic permanent magnet (PPM)-focused, conduction-cooled mini-TWT is used for power amplification. A solid state driver amplifier is used to provide the required RF gain. The high-voltage power supply (HVPS) section uses modular architecture and low-noise power supply topology utilizing high-efficiency solid state power-conversion circuits. A highly stable, solid state modulator is used for pulsing the TWT grid. The dB-3814 features excellent amplitude and phase stability, very low phase noise and is suitable for airborne synthetic aperture and multi-mode radars.

Features

- High-Power MPM
- 15 to 18 GHz, 1 kW, 7% Duty Cycle
- Excellent Amplitude and Phase Stability
- Very Low Phase Noise and Spurious
- Reflected Power (VSWR) Protection

Applications

- Airborne Synthetic Aperture and Multi-Mode Radars
- EW Threat Simulation
- Radar Countermeasures
- Manned and Unmanned Platforms

dB-3814 Microwave Power Module Specifications

Reliability by Design™

Electrical

Frequency Range	15-18 GHz (instantaneous bandwidth)
Output Power, Peak	1000 Watts
Duty Cycle	7%, max.
PRF	40 kHz, max.
Pulse Width	0.2 to 50 μ sec
Gain at Rated Power	60 dB (with SSA driver option)
RF Drive for Rated Power	0 dBm
Harmonics	-12 dBc, max.
Phase Noise	-110 dBc/Hz at 1 kHz offset from carrier (with blanking and RF pulse bracketing)
Spurious	-60 dBc (with blanking and RF pulse bracketing)
RF Rise and Fall Times	25 nsec max.
Input VSWR	2.0:1 (50 Ω Impedance)
Load VSWR	1.5:1
Input Pulse (PRF)	Differential
Interface Control	Discrete (RS-422 option)
Delay, PRF to RF Pulse	250 nsec (leading edges, 50% points)
Prime Power	28 +/-3 VDC
Protection	Helix Over-Current Cathode Over-Current Over-Voltage High Reflected RF Power Over-Temperature Excessive PRF, Pulse Width or Duty Cycle

Mechanical

RF Input Connector	SMA (F)
RF Output Connector	WR-62 Waveguide
RF Output Sample	SMA (F)
Prime Power	D38999/20FC4PN
Control	D38999/20WE2SN
Size	12.0" x 10.0" x 3.0"
Weight	14 lbs

Environmental

Vibration	10 to 1000Hz, 0.02g ² /Hz
Operating Temperature	-40° C to +85° C (base plate)
Operating Altitude	Up to 40,000 feet
Humidity	Up to 95% RH, no condensation

Options

- Various options are available to meet specific requirements

About dB Control

Established in 1990, dB Control designs and manufactures high-power microwave amplifiers, radar and ECM transmitters, high- and low-voltage power supplies, modulators and custom assemblies for military and commercial applications. The company's high-power amplifiers use solid state, as well as vacuum, electronics devices and cover the 1 to 95 GHz frequency range. The modularity of dB Control's designs enable rapid configuration of custom products for a variety of platforms, from ground-based to high-altitude military manned and unmanned aircraft. dB Control's modern 40,000-square foot facility in Fremont, California, includes a high-voltage laboratory for manufacturing and testing transformers, inductors and integrated assemblies of up to 120 kV, RF/microwave test instruments for complete product characterization and environmental test capabilities for temperature, altitude, vibration and shock.

dB Control 