Wide Band Systems, Inc.

Technical Bulletin

SUMMARY OF SPECIFICATIONS
Digital Frequency Discriminator 0.5–18.0GHz

ELECTRICAL OPERATING SPECIFICATION

Frequency Measurements Requirements

Operating Frequency Range	**0.5-18.0GHz**
Unambiguous Bandwidth	**20.48GHz**
Mean Frequency Resolution	**1.25MHz**
Digital Frequency Resolution	**14Bits**
Frequency Accuracy	**3.0MHz RMS**
Peak Error	**15.0MHz**
Signal Level Range	**-55 to +15dBm**
Pulse Width Range	**100ns to CW**
Minimum Input S/N Ratio	**+3dB minimum for full accuracy**
Maximum RF Input Power	**+17dBm CW maximum (no damage)**
RF Input VSWR	**2.0 : 1 typical**

TIMING REQUIREMENTS

Throughput Time	**The time from when the RF enters the DFD until a DATA READY indication must be 200 ns maximum**
Recovery Time	**The unit must recover to full sensitivity within 100ns after the end of a CW input at +10dBm.**
Processing Blind Time	**The unit must process two separated pulsed signals when the time between the leading edge of DATA ACKNOWLEDGE and the leading edge of the subsequent SIGNAL**

Wide Band Systems, Inc.
Wide Band Systems, Inc.
389 Franklin Avenue
Rockaway, NJ 07866
Phone: 973-586-6500 • Fax: 973-627-9190
E-mail: marketing@widebandsystems.com
Web: widebandsystems.com

	PRESENT is greater than 50ns
Signal Present Timing	**The time from when the RF enters the DFD until a SIGNAL PRESENT indication is issued must be 150ns maximum**
Data Ready Timing	**The time from when a SIGNAL RESENT indication is issued until a DATA READY indication is issued must be 50 ± 10ns**
Duty Cycle	**The combination of pulse width, pulse amplitude, or duty cycle cannot cause a false generation of either a DATA READY or SIGNAL PRESENT output**
INPUT/OUTPUT INTERFACE	
Control Input Logic Requirement	**TTL compatible**
Data Acknowledge	**Logic HIGH = normal state. When DATA ACK transitions to logic "L" state, the output data must be held in the output registers until the DATA ACK returns to logic "H" state. Pulse width of DATA ACKNOWLEDGE must be 50 ns to 100ns**
Read Select	**Logic HIGH selects INTERNAL MODE**
	LOW selects External Mode
External Read	**Logic HIGH = normal state. When transitions to logic "L" state, activates the reading of RF signal which is present.**
	Pulse width of the command shall be 100 nsec. to 150 nsec. DATA READY shall not be issued without SIGNAL PRESENT or CW ALARM active during EXTERNAL READ
Output Logic Requirement	**TTL compatible**

Wide Band Systems, Inc.

Wide Band Systems, Inc.
389 Franklin Avenue
Rockaway, NJ 07866
Phone: 973-586-6500 • Fax: 973-627-9190
E-mail: marketing@widebandsystems.com
Web: widebandsystems.com

Frequency Data	**14 bit binary active HIGH**
Fast Signal Present	**Logic LOW < 100nsec. From RF Input leading edge**
Coherent Signal Present	**Logic LOW < 150nsec. From RF Input leading edge**
Data Ready	**Logic HIGH initially changing to logic LOW when frequency data has settled and returning to logic HIGH when DATA ACKNOWLEDGE is supplied to DFD**
Out Of Band Flag	**Logic LOW when RF Input is frequency more than 550MHz above or below band edge**
FMOP	**Active LOW when the rate of change of the RF Input frequency exceeds 5MHz per 25nsec. Requires a minimum 200nsec RF pulse to activate**
CW Flag	**Active LOW when RF input pulse width exceeds a preset limit**
Data Invalid Flag	**Active LOW**

MECHANICAL SPECIFICATIONS

Physical Dimensions	**7in. X 10in. X 3in.**
Weight	**8lbs. maximum**
Cooling	**Conduction cooling at mounting surface**
RF Input Connector	**SMA Female**
Power Connector	**MDM9P**
Control Connector	**MDM51S**

POWER

DC +15 V ± 5%	**1.4 A maximum**

Wide Band Systems, Inc.

Wide Band Systems, Inc.
389 Franklin Avenue
Rockaway, NJ 07866
Phone: 973-586-6500 • Fax: 973-627-9190
E-mail: marketing@widebandsystems.com
Web: widebandsystems.com

	1.0 A typical
DC +5 v ± 5%	**2.0 A maximum** **1.5 A typical**
DC –5.2 v ± 5%	**600 mA maximum** **400 mA typical**

ENVIRONMENTAL CONDITIONS

Temperature

Storage Environment	**-40° C to +85° C**
Mounting Surface (operating)	**-40° C to +80° C**
Vibration	MIL-STD 202F Method 204D Condition B, (15G, 10Hz -2KHz)
Shock	MIL-STD-202G Method 213B Condition B, (75G, 6ms, Half-sine)
Humidity	MIL-E-5400T 3.2.24.4 (100% R.H.)
Altitude	MIL-E-5400T Table VIII (55,000 ft.)

WARRANTY

Wide Band Systems, Inc. warrants against DFD deterioration of performance specified above for twelve (12) months after delivery, except in the case of failures attributed to the user.

Wide Band Systems, Inc.

Wide Band Systems, Inc.
389 Franklin Avenue
Rockaway, NJ 07866
Phone: 973-586-6500 • Fax: 973-627-9190
E-mail: marketing@widebandsystems.com
Web: widebandsystems.com