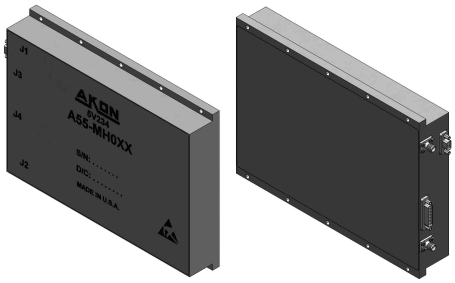
Digital Frequency Discriminators 2-6 GHz, 6-18 GHz and 2-18 GHz

Datasheet 345

KEY PERFORMANCE FEATURES:

- **Wide Band Coverage**
- **High Sensitivity**
- **External Trigger**
- **TTL Compatible 12 BIT Output**
- **Built-In Input Filter**
- **Built-In Limiting Amplifier with Exceptional Small Signal Gain Flatness**



PRODUCT DESCRIPTION:

AKON is a leading manufacturer of RF Microwave Millimeter Wave Components and Subsystems. AKON has developed a new series of 12 BIT Digital Frequency Discriminators (DFD) covering the frequency range of 2-6, 6-18, and 2-18 GHz. 12 BIT resolution DFD's exhibit high accuracy of 5 MHz RMS for 2-18 GHz, 3.5 MHz RMS for 6-18 GHz and exceptional 1.5 MHz RMS for 2-6 GHz. These DFD's have been designed with input Band Pass Filters to eliminate high level out of band signals producing false output and Limiting Amplifiers with approximate 80 dB small signal RF gain with exceptional frequency flatness of ±2.0 dB, inclusive of input Band Pass Filter. Exceptionally Low frequency flatness has a direct effect on DFD sensitivity. With 4.0 dB total Noise Figure, effective operational sensitivity for 6-18 GHz band is -60 dBm.

SPECIFICATIONS:

Model Number	A55-MH036	A55-MH037	A55-MH038
Input Frequency Range (GHz)	2 - 6	6 - 18	2 - 18
Built-In Input Filter Rejection 60 dB (GHz) Rejection 30 dB (GHz)	BPF DC - 1.7 6.9 - 18.0 GHz	BPF DC - 5.2 20 - 30 GHz	BPF DC - 1.7 20 - 30 GHz
Sensitivity, where specified accuracy is met dBm	-61	-60	-59
Pulse Width (Nano Seconds)	50 to CW	50 to CW	50 to CW
Input VSWR	2.0:1	2.0:1	2.0:1
Dynamic Range (dBm)	-61 to +5	-60 to +5	-59 to +5
Resolution Bits	12	12	12
Resolution Nominal (MHz)	1.0	3.0	4.0
Frequency Accuracy (RMS MHz)	1.5	3.5	5.0
Input Noise Figure (dB) Including loss of Input BPF	6.0	6.0	6.0
Input Harmonics (dBc)	-20	-20	-20
Input Spurious (dBc)	-50	-50	-50
Triggering (External), a negative going pulse, 50 nano second pulse width,	0 - 10	0 - 10	0 - 10

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Model Number	A55-MH036	A55-MH037	A55-MH038
applied within 0 to 10 nano seconds of RF leading edge.			
Recovery Time/ Shadow Time Minimum time required between two signals for frequency measurement (Nano seconds)	500	500	500
Frequency Data Output	FFF Hex for < 1950 MHz; 000 Hex for 1950 MHz FFF Hex for > 6050 MHz	FFF Hex for < 5950 MHz; 000 Hex for 5950 MHz FFF Hex for > 18050 MHz	FFF Hex for < 1950 MHz input; 000 Hex for 1950 MHz FFF Hex for > 18050 MHz input
Through Put Time (Nano Seconds) From Leading edge of External Trigger	300 Max.	300 Max.	300 Max.
Data Ready Pulse Width (Nano Seconds)	100, Low TTL	100, Low TTL	100, Low TTL
Temperature Range (Degrees C) Note: Available from -40°C to +85°C	-20/ +71	-20/ +71	-20/ +71
Power Supply	+12V @ 250 ma +9V @ 2.0A -9V @ 0.3 A	+12V @ 250 ma +9V @ 2.0A -9V @ 0.3 A	+12V @ 250 ma +9V @ 2.0A -9V @ 0.3 A
Size: See Outline	8.0”x5.9”x1.3”	8.0”x5.9”x1.3”	8.0”x5.9”x1.3”
ESS To be discussed with customer based on application	Optional	Optional	Optional

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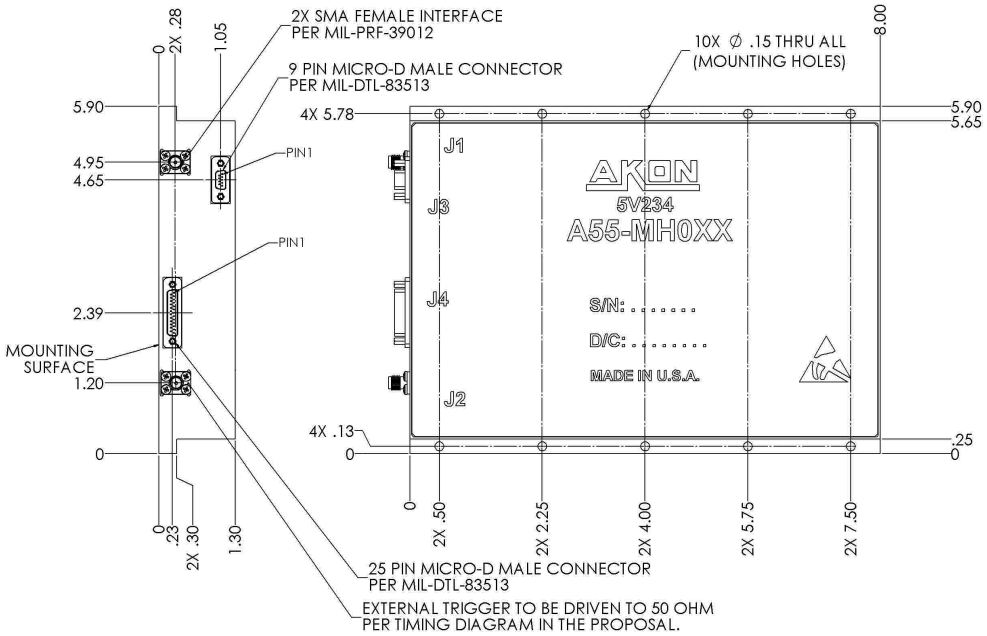
OUTLINE DRAWING:



CONNECTOR DESIGNATION	
CONNECTOR	FUNCTION
J1	RF IN
J2	CLOCK
J3	POWER
J4	CONTROL

J4 (PIN DESIGNATION)	
PIN	CONFIGURATION
1	DIGITAL GND
2	A0 (DATA)
3	A1 (DATA)
4	A2 (DATA)
5	A3 (DATA)
6	A4 (DATA)
7	A5 (DATA)
8	A6 (DATA)
9	A7 (DATA)
10	A8 (DATA)
11	A9 (DATA)
12	A10(DATA)
13	A11(DATA)
14	SPARE
15	SPARE
16	DIGITAL GND
17	DATA READY
18	DIGITAL GND
19	SPARE
20	SPARE
21	SPARE
22	SPARE
23	SPARE
24	SPARE
25	SPARE

J3 (PIN DESIGNATION)	
PIN	CONFIGURATION
1	+12V DC
2	+12V RET
3	SPARE
4	SPARE
5	-12V DC
6	-12V RET
7	SPARE
8	SPARE
9	SPARE

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