



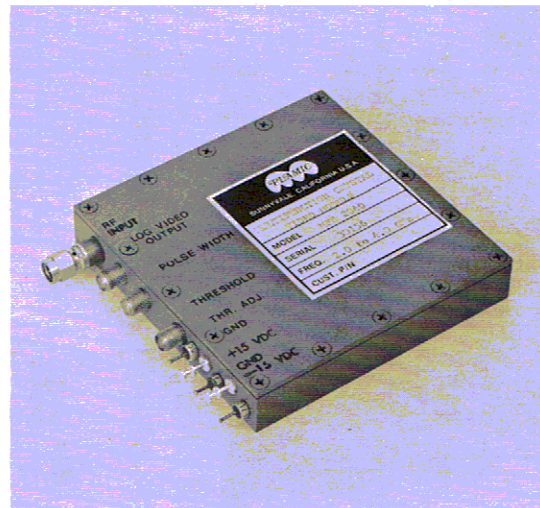
SINGLE CHANNEL MULTIFUNCTION CRYSTAL VIDEO MODULE

FEATURES

- Simultaneous Pulse Amplitude, Time of Arrival and Width Information
- Small Size per Function
- No Base Line Shift Errors up to 20 Micro Second Wide Pulses at 25% Duty Cycle
- PRI Capability of 300,000 P.P.S.
- Rugged and Miniaturized
- Low Recovery Time

DESCRIPTION:

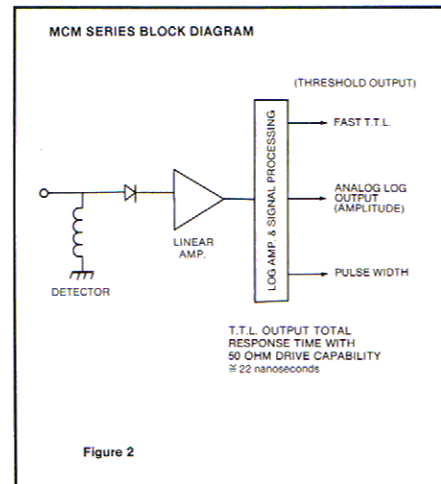
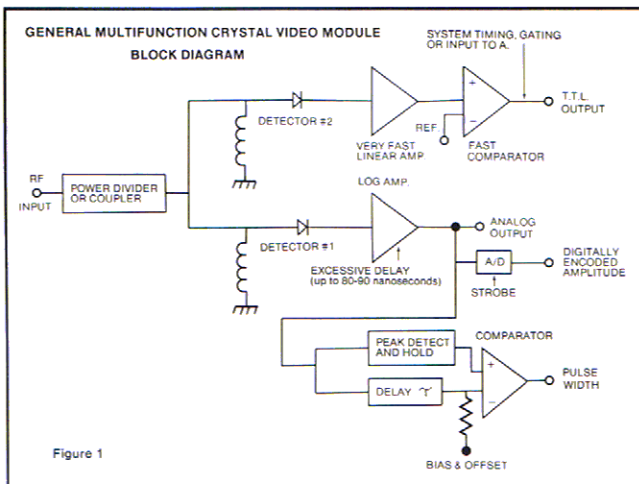
PLAMIC'S MCM Series of single channel multi-function crystal video modules offer systems designers an excellent high performance, high package density functional block. Crystal video components are commonly used in early warning receivers. Minimum pulse parameters of interest are Pulse Amplitude (analog or analog and digital), time of



arrival (for TOA or system timing and gating) and pulse width. Figure 1 and 2 compare the general method and MCM Series block diagram. MCM Series units are designed to meet the intent of Mil E-5400 and Mil E-16400. All units go through 96 hours of operating burn-in before final test.

APPLICATIONS:

- Elint Systems
- DF Systems
- Surveillance Receivers
- Medium Dynamic Range Power Measurement



For further information please contact:

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SPECIFICATIONS:

ANALOG LOG OUTPUT

(1) FREQUENCY GHz	(2) USEFUL DYNAMIC RANGE AT 25°C after warmup time signal noise = 16 dB min. (dBm)	(3) USEFUL DYNAMIC RANGE OVER -20°C to +71°C after warmup time signal noise = 16 dB min. (dBm)	(4) (5) NOMINAL FREQUENCY FLATNESS ERROR		(6) (7) NOMINAL VSWR		(8) T.S.S. @ 25°C and 10 MHz Bandwidth Signal noise = 8 dB (dBm) min.
			UP TO -20 dBm dB	UP TO 0 dBm dB	UP TO -20 dBm	UP TO 0 dBm	
2-4	-42 to 0	-41 to 0	±0.25	±0.50	2.0:1	2.5:1	-46.75
4-8	-40 to 0	-39 to 0	±0.40	±0.75	2.5:1	3.00:1	-45.25
8-12	-40 to 0	-39 to 0	±0.40	±0.75	2.5:1	3.00:1	-45.25
12-18	-38 to 0	-37 to 0	±0.50	±1.00	2.5:1	3.25:1	-42.75
2-18	-38 to 0	-37 to 0	±1.00	±1.75	3.0:1	3.50:1	-42.75

Amplitude Performance @ Ambient (25°C)

Log Accuracy for power levels in Column (2) at any single frequency, and after three minute warmup time. (Deviation from straight line):

±0.5 dB

Amplitude Performance Over Temperature

A. Deviation time from 25°C value after 5 minute warmup time for power levels in Column (3):

±0.6 dBm max.

B. At -54°C, add a total of 0.6 dB additional error.

Rise Time:

35 nanoseconds maximum

Propagation Delay from 50% RF to 50% video:

30 nanoseconds maximum

Total Response Time from 50% RF to the final value so that an amplitude measurement within accuracy specifications can be made:

85 nanoseconds maximum

Recovery Time:

Defined such that the amplitude of a pulse at power levels shown in Columns (2) and (3) when preceded by a 0 dBm pulse can be accurately decoded

up to -10 dBm:

1.0 microseconds maximum

up to 0 dBm:

2.0 microseconds maximum

up to +5 dBm:

3.5 microseconds maximum

The above includes the effect of temperature. Typical units feature about half values.

Log Slope (Nominal):

50 mv/dB

PULSE WIDTH OUTPUT

FREQUENCY GHz	DYNAMIC RANGE 25°C (dBm)	DYNAMIC RANGE -54°C to +71°C (dBm)
2-4	-39 to 0	-38 to 0
4 - 8	-37 to 0	-36 to 0
8 - 12	-37 to 0	-36 to 0
12 - 18	-35 to 0	-34 to 0
2 - 18	-35 to 0	-34 to 0

THRESHOLD or T.T.L. OUTPUT

FREQUENCY GHz	THRESHOLD ADJUSTMENT RANGE (dBm)	THRESHOLD AMBIGUITY at any single frequency	
		AT 25°C	OVER -54°C TO +71°C
2 - 4	-35 to -20	±0.50 dB max	±1.0 dB max
4 - 8	-33 to -20	±0.65 dB max	±1.1 dB max
8 - 12	-33 to -20	±0.65 dB max	±1.1 dB max
12 - 18	-31 to -21	±0.75 dB max	±1.2 dB max
2 - 18	-31 to -21	±0.75 dB max	±1.2 dB max

Total Response Time: Maximum response time from 50% RF to 90% of the output T.T.L. pulse is 23 nanoseconds. This includes internal driver which can drive 50 ohm load, as well as sink 5 T.T.L. loads.

Threshold Ambiguity: At a selected frequency, voltage at the adjust pin (or alternatively a resistor between adjust pins) can be set such that for the selected power level, the output just switches to logic "1". Threshold ambiguity defines the uncertainty around the "set level," where the output can be either in logic "1" or logic "0".

POWER SUPPLY AND MECHANICAL

Power Supply:

± 15.0 VDC @
100 mA (Nom.) each supply
+5.0 VDC

Connectors:

Input:

SMA - Male

Output:

SMA - Female

Power Supply:

Feedthrough's

All Connectors are on 2.65" x 0.65" surface.

Size:

3.5" x 2.65" x 0.65"