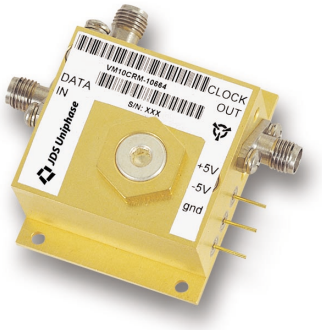
JDS Uniphase

Product Bulletin



10 Gb/s Clock Recovery Module

VM10CRM Series for RZ or NRZ

This product is used to generate a high-level synchronous clock signal from 10 Gb/s NRZ data. This module includes a temperature-stable high "Q" filter (800 to 1000) for excellent jitter transfer characteristic, which unlike phase-locked-loop designs cannot "loose lock."

The unit can be supplied with an optional data output port and factory-settable clock rate in the range of 9.9 to 11.5 Gb/s. Please specify the bit rate in MHz when ordering. (See instructions for the packaging part numbering.)

Key Features

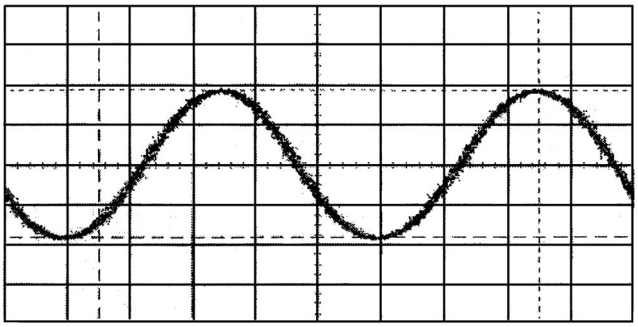
- Low DC power, 5 V at 160 mA typical
- Provides sinusoidal clock >1.5 V_{p-p}
- Accepts data input level as low as 300 mV_{p-p}
- Internal DC regulation and reverse voltage protection
- Spectral purity >30 dBc
- Optional data output port eliminates external splitters, couplers
- Excellent output amplitude and phase stability over input level range and temperature
- Fast start-up (50 to 100 bits)

Applications

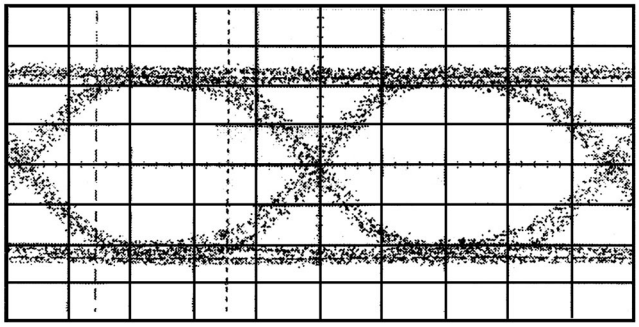
- Long-haul optical transmission systems
- OC-192 applications with FEC protocols

Typical Performance

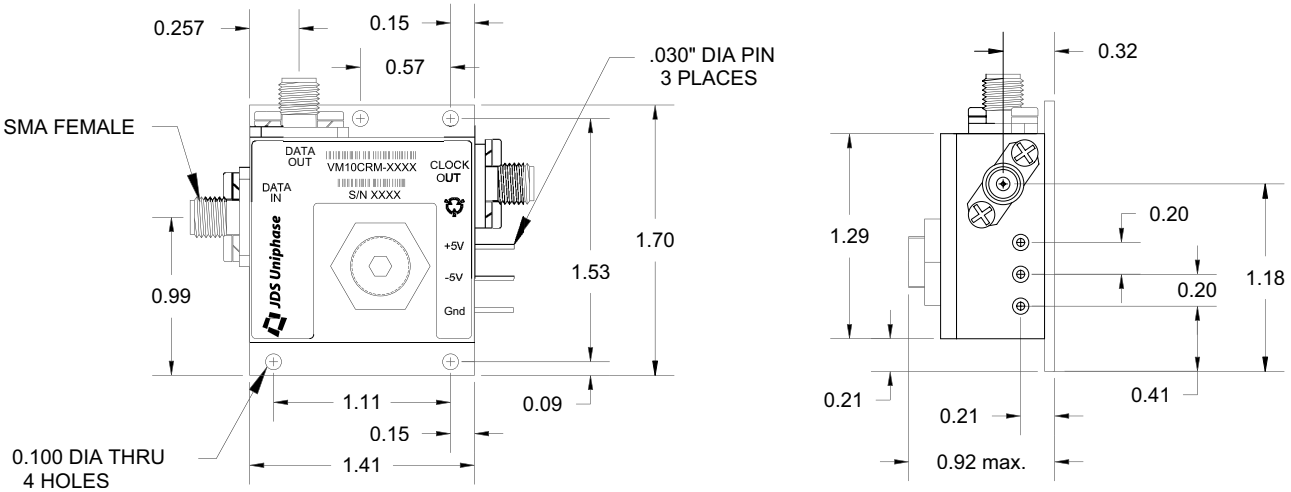
Clock Output at 10 Gb/s
PRBS = 2^{31} - 1
500 mV/div
20 ps/div

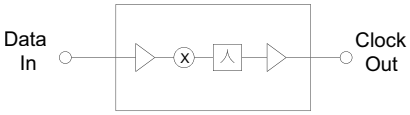


Clock Output at 10 Gb/s
1 V_{p-p} input
200 mV/div
20 ps/div

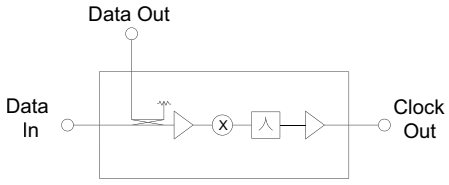


Package Dimensions (in inches)





No Data Out option



Data Out option

Specifications

Parameter		
Data input level		0.3 V_{p-p} to 0.8 V_{p-p}
		0.5 to 1.0 V_{p-p} (for units with Data Output option)
Input reflection	Maximum	-10 dB (100 KHz to 8 GHz)
	Typical	-15 dB (to 5 GHz)
Clock output level	Minimum	1.5 V_{p-p}
Clock output variation with input amplitude	Maximum	3 dB output change for 6 dB input change
Clock output variation with temperature	Maximum	10% at 0 to 80 °C
Internal resonator "Q"	Minimum	750
Clock output reflection	Maximum	-10 dB at FO ±100 MHz
Operating temperature		0 to 80 °C
Clock phase stability over temperature	Maximum	±20°, (±5 ps)
Clock phase stability over input level		±3 ps over any 3 dB change
Spurious output	Maximum	-30 dBc
Output jitter	Typical	1%
	Maximum	2% RMS noise on output sinusoid (10 seconds average)
Positive supply	Maximum	4.8 to 5.5 V DC at 200 mA, internally regulated
		Reverse polarity protected to 10 V
Negative supply	Maximum	-4 to -6 V DC at 10 mA, internally regulated
		Reverse polarity protected to 20 V
Data Output Port (optional)		
Thru path insertion loss	Maximum	2 dB (to 5 GHz)
Thru path 3 dB bandwidth	Minimum	DC to 10 GHz
Rise/fall time	Maximum	30 ps
Frequency flatness		±1 dB, from DC to 5 GHz (excluding loss slope)
Input/output reflection	Maximum	-10 dB at 100 KHz to 8 GHz

Ordering Information

For more information on this or other products and their availability, please contact your local JDS Uniphase account manager or JDS Uniphase directly at 800-871-8537 in North America and 1-800-8735-5378 worldwide or via e-mail at jdsu.sales@us.jdsuniphase.com.

Sample: VM10CRM-10664-ND

VM10CRM- □□□□□ **-** □ □

Code	Frequency[1]
09975	9.975 GHz
10664	10.664 GHz

Code	Transmission
N	NRZ
R	RZ

Code	Data Port
D	With data port

1. Please contact factory for different operating frequency.

JDS Uniphase

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