LUMERA

enabling new communication with high bandwidths and low drive voltage

20Gbps Electro-Optic Polymer Intensity Modulator

Lumera's 20 Gbps electro-optic intensity modulator is based on a revolutionary, proven design, using proprietary polymer-based materials that exhibit extremely high electro-optic activity. This high bandwidth modulator enables high quality serial data rates for all digital and analog applications. Additionally, the footprint is much reduced over that of inorganic crystalline-based devices. The Lumera 20 Gbps modulator is hermetically packaged and exhibits thermal and optical stability.

Features

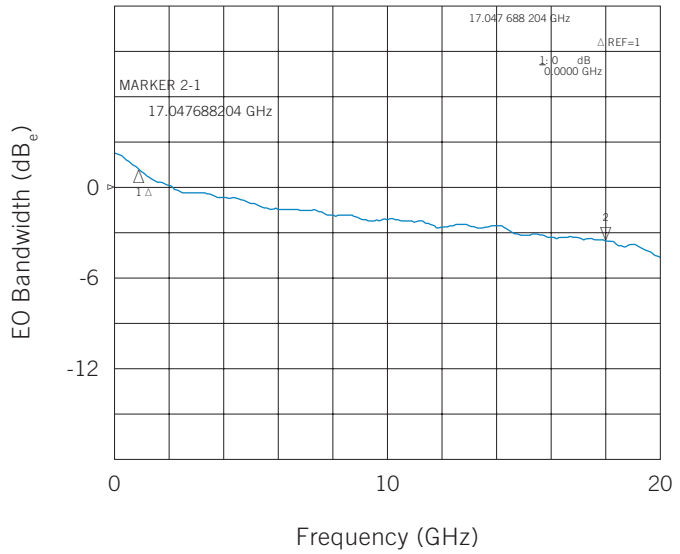
- electro-optic polymer waveguides
- C-band and L-band operation
- dual or single drive
- low power consumption
- high extinction ratio
- high bandwidth
- small footprint
- impervious to radiation

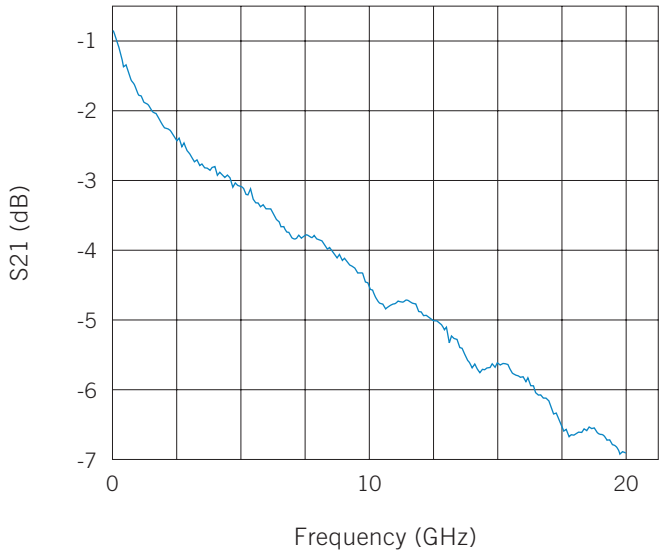
Applications

Lumera's modulators are suitable for all digital and analog formats commonly used in optical networking and optical transmission applications:

- VSR through ULH reaches
- OC-768 transmission by means of multiplexing 2 by 20 Gbps
- OC-768 pulse generation.
- RZ and NRZ intensity modulation formats
- Line cards and subsystems for high capacity optical transport systems
- Standard and custom optical modules and transponders
- Up to 20GHz analog modulation
- Free space optical transmission
- CATV
- Satellite communications
- High performance computing platforms

Electrical and Optical Characteristics





OPTICAL	min	max
S 21 Electro-Optic Bandwidth (Reference at 1 GHz)	16 GHz	19 GHz
DC Extinction Ratio	15 dB	20 dB
Wavelength Range	1528 nm	1610 nm
Insertion Loss	10 dB	12 dB

ELECTRICAL	min	max
V_π at 3 KHz	0.9 V	1.3 V
Return Loss (0-20 GHz)	10 dB	12 dB
Impedance	50 Ω	50 Ω
Bias Current (required to operate quadrature)	0	50 mA

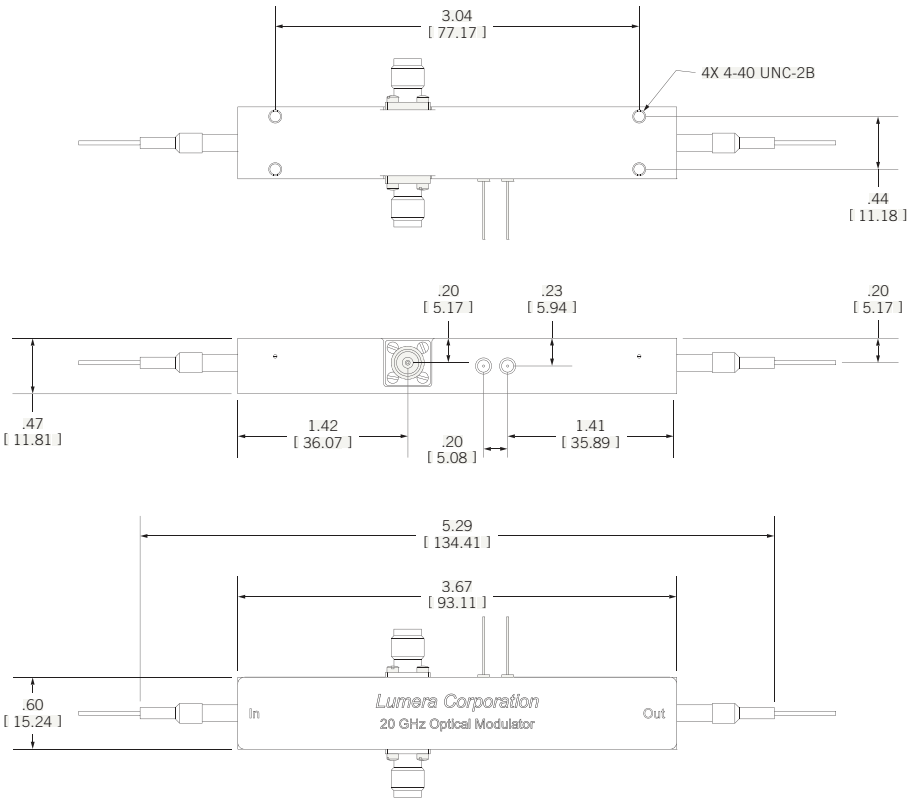
CONNECTORS AND FIBER OPTIONS	
Input Fiber	PMF
Output Fiber	SMF 28 or PMF
RF Connection	V, K (2.4 mm, 2.9 mm)
Bias Connection	Pins (with in-package termination)

PHYSICAL	
Package Dimensions	15 x 11 x 93 mm

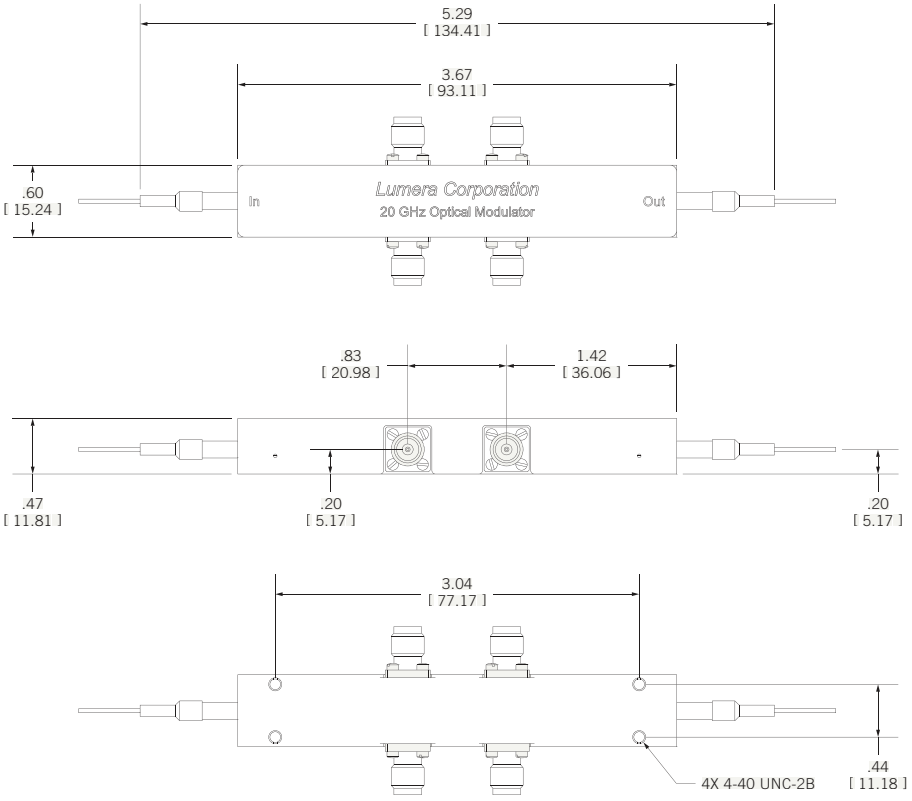
Preliminary specifications. Subject to change without notice.

Mechanical Details

Dual RF Connectors Modulator

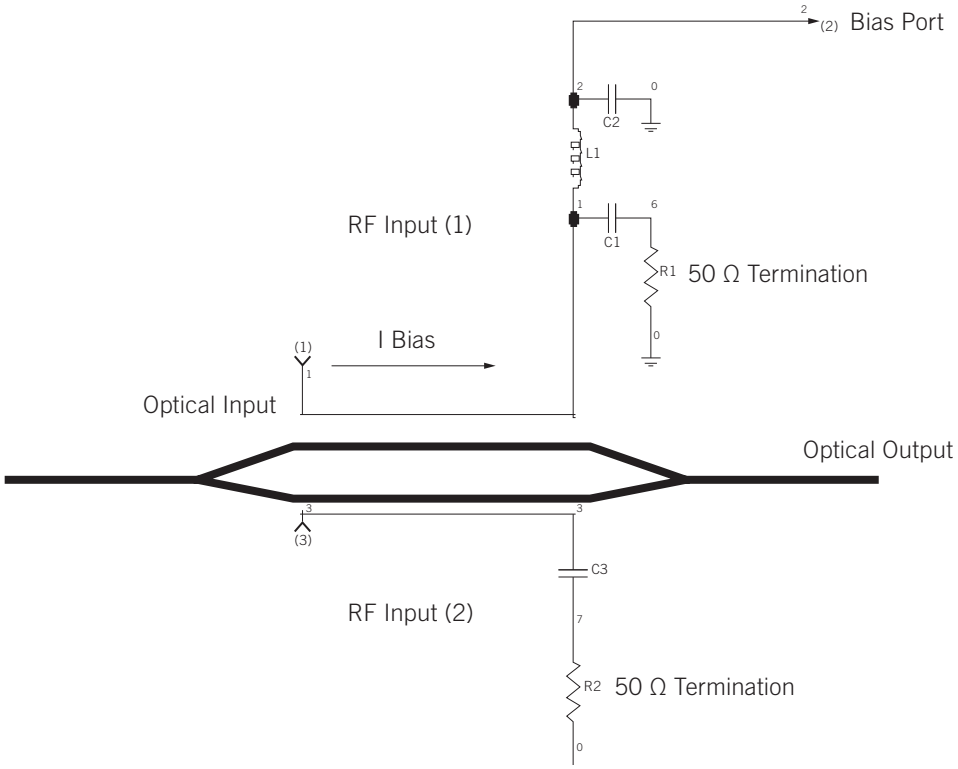


Quad RF Connectors Modulator



Bias Circuit

Apply current source at RF input (1) and ground the DC bias port to develop the recommended bias current through the RF electrode. Use an appropriate bias tee for your frequency range if you are using push-pull RF drive.



About Lumera

Lumera Corporation develops polymer electro-optic devices used in applications such as RF photonics, high speed optical communications, optical interconnects, sensing and imaging. Lumera polymer materials are uniquely engineered at the molecular level to enable active components, that feature a combination of the fastest switching speeds and the lowest drive voltages in the industry.

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