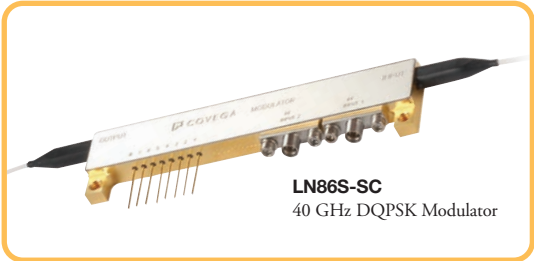


For current pricing,
please see our website.

40 GHz DQPSK/4QAM Modulator



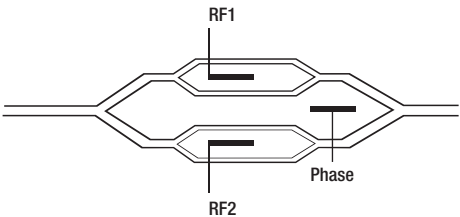
The LN86S is a Dual-Parallel, Titanium-Indiffused, X-Cut Lithium Niobate Modulator. It is capable of providing a 40 Gb/s signaling rate and offers a large bandwidth to benefit customers developing high-speed modulation systems. Each Mach-Zehnder Interferometer (MZI) has an independently-controlled bias section to achieve maximum performance. The front end of the modulator consists of two MZIs in parallel. Each MZI is an intensity modulator with separate external DC bias controls, giving the user the ability to perform multi-level signaling. The back end of the LN86S is a phase modulator which allows for the required phase control in the signal channel.

The LN86S is designed for quadrature modulation (QPSK or 4QAM) and single side-band suppressed carrier (SSB-SC) transmission. This modulator is part of a family of high-performance, Telcordia-compliant, external optical modulators with industry-leading long-term stability. It is hermetically packaged in a durable housing with PM and SM fiber pigtails on the device input and output, respectively. The standard device has fiber pigtails connectorized with FC/PC connectors. Please contact Technical Support for customization of these products.

Mach-Zehnder Modulator Operation

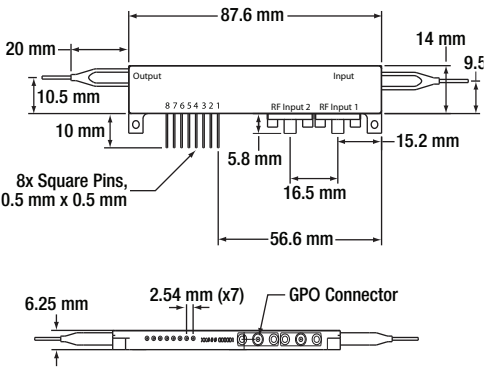
In this dual-parallel modulator, the incoming signal is equally split into two legs and sent through separate intensity modulators. Each intensity modulator can be modulated with a DPSK format. The outputs of each intensity modulator's legs are re-combined then sent through a low speed phase modulator. The phase modulator serves the purpose of applying a phase delay between the legs. The resultant output of the phase modulation section is then recombined and can form a DQPSK signal.

System Diagram of a Dual Parallel Modulator



40 GHz DQPSK Modulator Package Drawing

LN86S	
RF Input	GPO Connector
Pin 1	NC
Pin 2	RF2 Detector
Pin 3	NC
Pin 4	RF1 Detector
Pin 5	RF2 Bias
Pin 6	RF1 Bias
Pin 7	Phase Modulator
Pin 8	Ground



Please refer to our website for complete models and drawings.

ITEM #	LN86S / LN86S		
Parameter	Min	Typical	Max
Operating Wavelength ^a	1525 nm	—	1575 nm
Optical Insertion Loss (Connectorized)	—	5.0 dB	6.0 dB
Optical Extinction Ratio ^b (@ DC)	20 dB	—	—
Optical Return Loss	40 dB	—	—
V π RF Ports (@ DC)	—	3.5 V	4.5 V
V π RF Ports (@ 1 GHz)	—	4.5 V	6 V
V π Bias Ports (@ DC)	—	4.5 V	5.5 V
Insertion Loss Variation (EOL ^c)	-0.5 dB	—	0.5 dB
Operating Case Temperature	0 °C	—	70 °C
Storage Temperature	-40 °C	—	85 °C
RF Parameters			
E/O Bandwidth (-3 dB)	14 GHz	—	—
S ₂₁ Amplitude Difference (50 MHz to 20 GHz)	-1.5 dB	—	1.5 dB
S ₂₁ Phase Difference (50 MHz to 14 GHz)	-10°	—	10°
S ₂₁ Phase Ripple (50 MHz to 10 GHz)	-10°	—	10°
Differential RF Delay	-5 ps	—	5 ps
RF Port S ₁₁ (50 MHz to 14 GHz)	—	-12 dB	-10 dB
Phase Modulator			
DC V π	—	—	6 V
E/O Bandwidth	1 MHz	—	—
RF Detectors			
Threshold	—	—	0.5 V
Slope (0.1 V/V _{pp} - 0.4 V/V _{pp})	0.1 V/V _{pp}	—	0.4 V/V _{pp}
Linearity	-5 %	—	5 %

^aThe modulator is designed for use in the 1550 nm window. Using the modulator at another wavelength may cause a temporary increase in loss that is not covered under warranty.

^bPer MZI extinction ratio

^cEnd of Life

ITEM #	\$	£	€	RMB	DESCRIPTION
LN86S-FC	\$ 4,850.00	£ 3,492.00	€ 4,219.50	¥ 38,654.50	40 GHz DQPSK Modulator, FC/PC Connectors