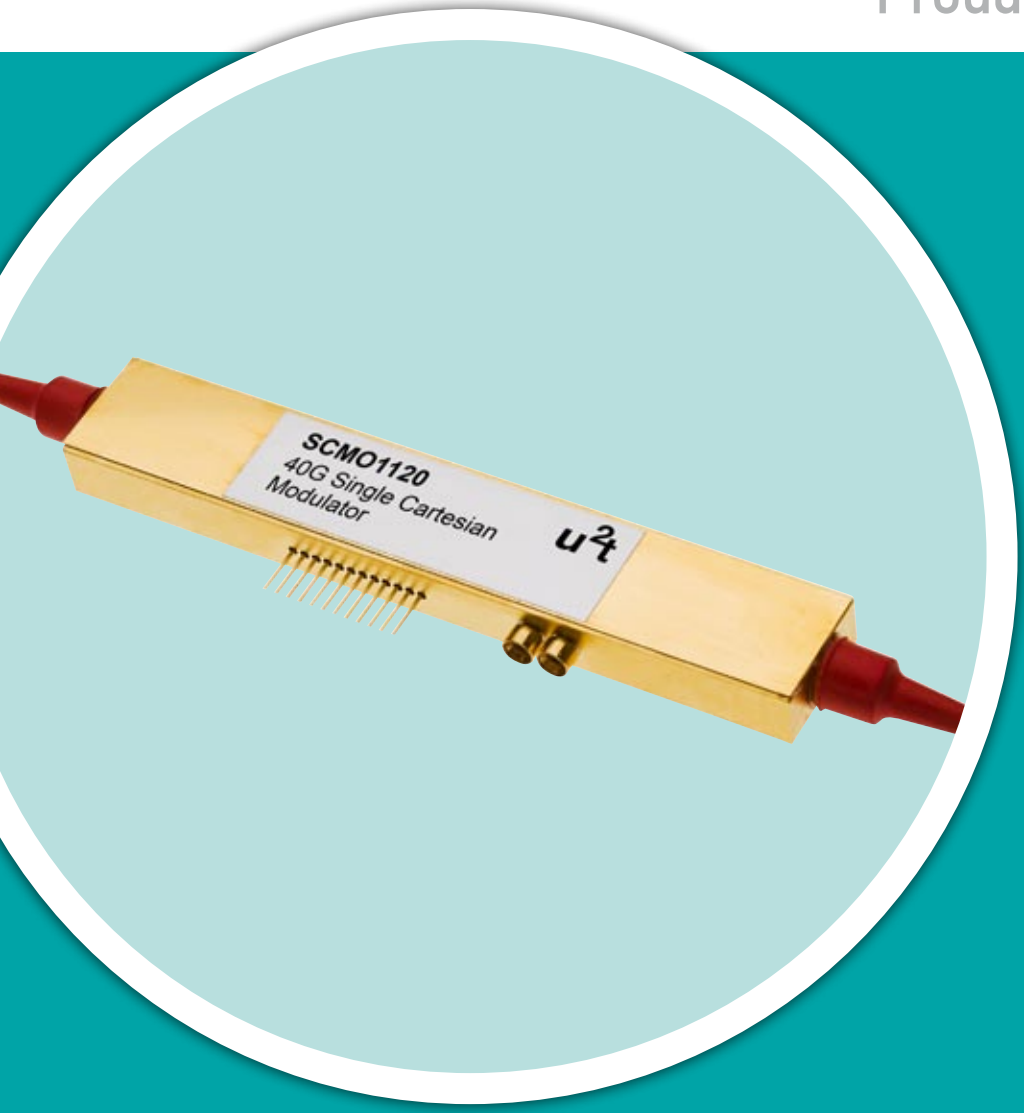
GaAs Broadband Cartesian QPSK Optical Modulator

Product code: SCMO1120



Features

- Incorporates two Mach-Zehnder modulators in parallel
- Enables complete control of the optical intensity and phase
- Flat frequency response over 20 GHz
- Low drive voltage V_π = 3.0 V

Applications

- Broadband digital communications (40 Gbit/s)
- QPSK and DQPSK transmission
- Suitable for 8-PSK and QAM transmission

The SCMO1120 is a low loss, high integrity Cartesian optical modulator (so called because it can control the optical intensity and phase to reach any point in the complex plane) based on gallium arsenide designed for general-purpose applications over the frequency range DC-20 GHz. The die is fabricated using well proven and exercised high volume gallium arsenide processes used in the telecommunications industry that offers market leading performance optimized for optical applications.

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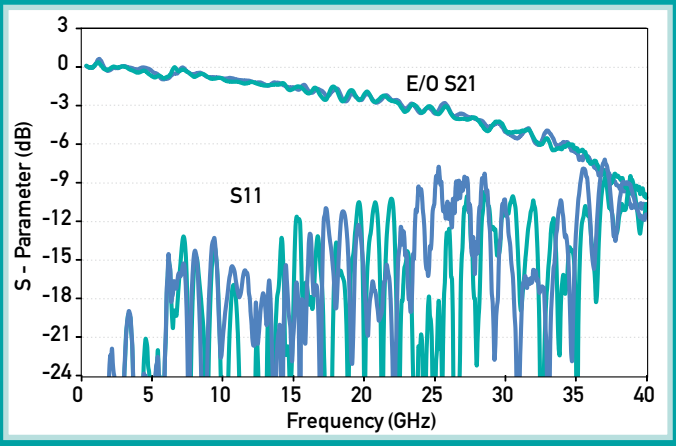
Operation Conditions

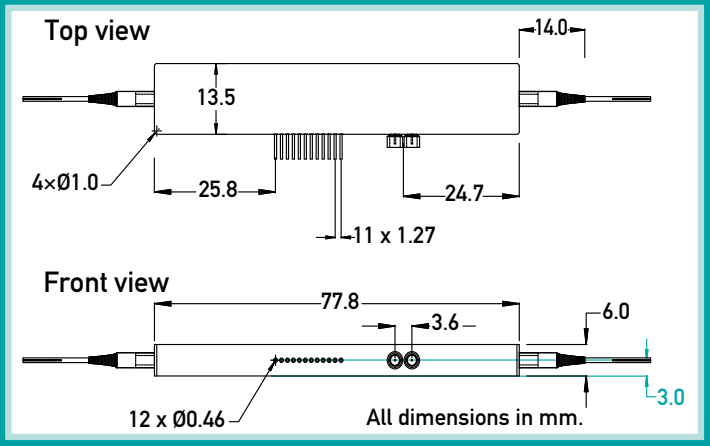
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating case temperature range	T_{case}		0		+70	°C
Relative humidity range	RH	Non condensing	5		85	%
Operating wavelength range	λ		1520		1580	nm
Substrate bias voltage	V_{sub}		8	10	15	V
Child MZM Quadrature Control Bias Voltage 1&2	V_{QCC1-2}		-7		7	V
Parent MZM Quadrature Control Bias Voltage	V_{QCP}		-7		7	V
Max optical input power (CW)	P_{opt}				20	dBm
Max RF input power	P_{in}				21	dBm

Optical and Electrical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Optical insertion loss	IL	Room temperature		7	8.5	dB
Half wave drive voltage	V_{π}	to 20 Gbit/s		3.0	3.2	V
Electrical to optical response	E/O S_{21}	S_{21}, 3 dB point	18	20		GHz
Extinction ratio	ER	Low frequency	18	20		dB

Typical Performance and Mechanical Dimensions





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