



RB9241 2-Input Dual Polarization Hybrid Mixer PLC

KEY FEATURES

- *integrated PBS's*
- *small size*
- *C & L Band variants*
- *variant with no PBS also available*
- *passive part — no tuning or temperature stabilization required*
- *extended temperature range (-5°C to 75°C)*
- *Telcordia GR-1221 qualified*
- *RoHS 6/6 compliant*

This dual-input device comprises one signal input and one local oscillator input. These signals are both split into TE (X) and TM (Y) orthogonal polarized light by inline polarization beam splitters (PBS). These are then allowed to interfere via two inline mixer sections, comprising splitters and couplers. They are then finally split to generate 4 output signal pairs, XI, XQ, YI, and YQ where X/Y is polarization and I/Q is phase.

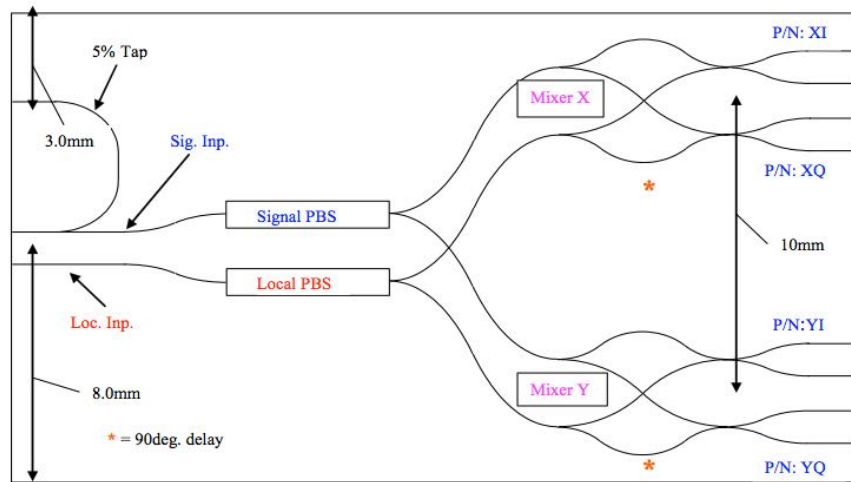
The **Kaiam Hybrid Mixer PLC** is intended for use in Coherent Receivers for 100Gbps optical transmission systems. It has no control electronics and consumes no electrical power. The rugged design contains no moving parts, and the optical performance is guaranteed for applications from -5°C to 75°C.

The **Hybrid Mixer PLC** is qualified in accordance with:

- Telcordia GR-1221
- RoHS 6/6 compliant



SCHEMATIC DIAGRAM



OPTICAL SPECIFICATIONS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Operating wavelength range	C-Band	1525		1567	nm
Insertion Loss	Signal input (*)	10.5	11.0	12	dB
Insertion Loss	Local Oscillator input (*)	10.5	11.0	12	dB
Excess Loss (Signal)	For Signal input to X or Y (*)	1.5	2	3	dB
Excess Loss (Local)	For Local Oscillator input to X or Y (*)	1.5	2	3	dB
I/Q Phase angle	For all wavelengths, polarizations and operating temperatures	85	90	95	Deg.
I/Q Phase angle variation	Over device lifetime	-2		+2	Deg.
P/N output balance	Between any pair of P/N outputs (for any input or polarization)	-0.7		+0.7	dB
I/Q split ratio	Ratio of the total power of I/Q groups of outputs (for any input or polarization)	-0.7		+0.7	dB
X/Y split ratio	Ratio of the total power of X/Y groups of outputs (for any input)	-0.7		+0.7	dB
Output power uniformity	Max. – Min power for all 8 outputs			+1.2	dB
Skew P/N	For any output pair			1.0	ps
Skew I/Q	For any output pair on the same mixer			2.0	ps
Skew X/Y	For any output pair on either mixer			5.0	ps
Polarization Extinction Ratio	For either PBS		18		dB
Directivity	From one input port to any other input port	50			dB
Tap Monitor (Signal)	Tap of input of signal	3		5	%
Return Loss	From any input port	-40			dB
Waveguide Pitch	For inputs and outputs		250		um

OPERATING CONDITIONS

PARAMETER	CONDITIONS	MIN	MAX	UNITS
Temperature		-5	75	°C
Humidity	non-condensing	0	90	% R.H.

STORAGE CONDITIONS

PARAMETER	CONDITIONS	MIN	MAX	UNITS
Temperature		-40	85	°C
Humidity	non-condensing	0	90	% R.H.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	CONDITIONS	MIN	MAX	UNITS
Optical Power	at input port		17	dBm

PHYSICAL DIMENSIONS

PARAMETER	PART NUMBER	MIN	TYP	MAX	UNITS
Length	RB9241-08706		25.0		mm
Width			16.0		mm

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