



43 Gbit/s Dual Balanced Receiver

Product code: QPRV1000A

The dual balanced receiver module QPRV is a small form-factor, optical front-end for 40 Gb/s DQPSK applications. It has a bend-insensitive ribbon fiber optical interface and a co-planar RF interface. The receiver contains four waveguide-integrated pin-photodiodes (PDs) and two linear transimpedance amplifiers (TIAs) delivering a typical differential output swing of 800 mVpp. The transimpedance of each TIA is manually adjustable to meet linearity specifications over a large optical input power range. For both the in-phase and quadrature inputs the receiver offers peak level monitors for convenient feedback to the demodulator phase control circuitry.

Features

- Dual balanced receiver for 40 Gb/s DQPSK
- Ribbon fiber optical interface
- AC coupled co-planar RF interface
- Linear differential output swing of 800 mV
- Peak level monitors for both I and Q inputs

Applications

- 40 Gb/s DQPSK communication systems
- Transponder and line card designs



u²t photonics

u²t photonics AG
Berlin, Germany
Phone: +49-30-726-113-500
E-mail: sales@u2t.de

www.u2t.com

Please check our website
for the contact details of our
regional sales partners



Operation Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating case temperature range	T_{case}		0		+75	°C
Operating wavelength range	λ		1520		1620	nm
Average optical input power	P_{opt}	44.6 Gb/s RZ-DQPSK per port 1)	-10		0	dBm
Relative humidity	RH	non condensing	5		85	%
Photodiode bias voltage	V_{PD1}, V_{PD2}		+3.05	+3.3	+3.8	V
Amplifier supply voltage	V_{CC}		+3.135	+3.3	+3.465	V

Notes: 1) Operation over stated range requires input power dependent adjustment of transimpedance.

Optical and Electrical Specifications 1)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
3dB cut-off frequency	f_{3dB}	2)	18			GHz
Photodiode responsivity	R	Optimum polarization	0.5	0.6	0.75	A/W
Polarization depent loss	PDL			0.4	0.6	dB
Optical return loss	ORL		27			dB
Overload power	P_{max}	44.6 Gb/s RZ-DQPSK, per port	0			dBm
Differential output voltage swing (ac-coupled)	$V_{out, diff}$		350	800		mV
Optical skew (I+/I- & Q+/Q-)	τ_D			1	2	ps
Total power consumption	P_{con}			0.5	0.65	W

Notes: 1) $V_{PD1} = V_{PD2} = 3.3V$, $V_{CC} = +3.3V$, $\lambda = 1550nm$, $T_{case} = 25^{\circ}C$.

2) Measurement with an Agilent 860330A 50 GHz Lightwave component analyzer

Block Diagram

