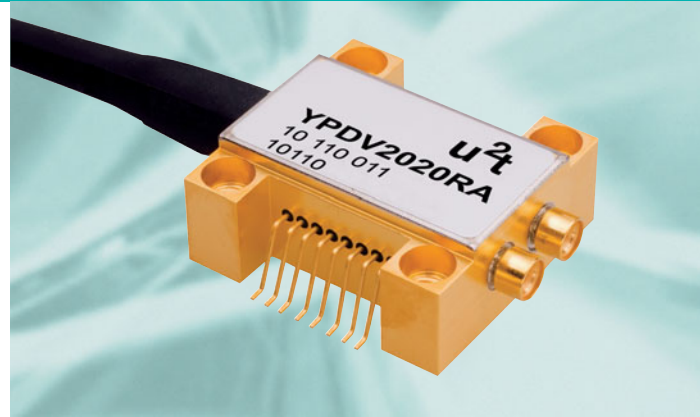


50 GHz SMD Photodetector

Product Code: YPDV2020R(A)



Product Description

The photodetector modules YPDV 2020R contains the well-established waveguide-integrated pin-photodiode (PD). They are designed to exhibit optimized frequency performance in both, power and phase. A linear response up to an optical input power of 13 dBm is a unique feature of these modules. Due to the unique on-chip integrated bias network and skilful rf packaging the pulse response shows very low ringing. The devices are therefore best choice for all 43 Gbit/s applications where optimum performance is required. The excellent high power behavior enables to directly drive e.g. following decision circuits. Different types of rf connectors are available upon request. AC coupling can be optionally provided by integrated blocking capacitor.

Features

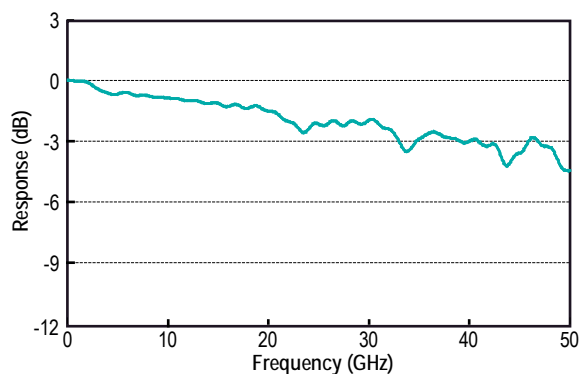
- Very high bandwidth
- High responsivity
- S, C, and L band operation
- Hermetic SMD package with Anritsu V Connector® or GPPO™ Connector
- AC- or DC- coupled output

Applications

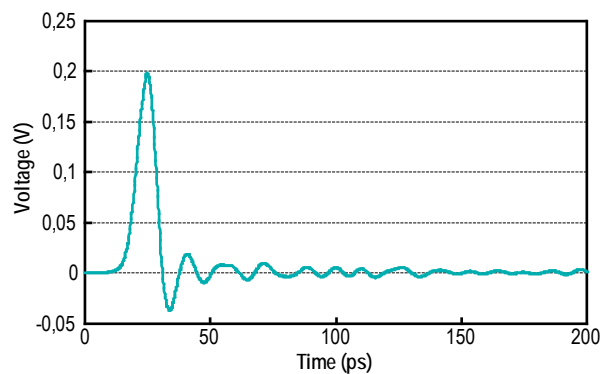
- 43 Gbit/s FEC communication systems (OC-768)
- Transponder and line card designs

Typical Performance

Frequency Response



Pulse Response



Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	T _{stg}	Non condensing	-40		+85	°C
Photo diode reverse voltage	V _{PD}				3.5	V
Maximum average optical input power	P _{opt}	NRZ			16	dBm
Maximum output peak voltage	V _{Peak}				1.5	V
Electro static discharge	V _{ESD}	C= 100 pF, R= 1.5 kΩ HBM	-250		250	V
Fiber bend radius			16			mm

Operation Conditions

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating case temperature range	T _{case}		0		+75	°C
Relative humidity range	RH	Non condensing	5		85	%
Operating wavelength range	λ		1480		1620	nm
Average optical input power range	P _{opt}		-20		13	dBm
Photodiode reverse voltage	V _{PD}		2.0	2.8	3.3	V

Optical and Electrical Specifications 1)

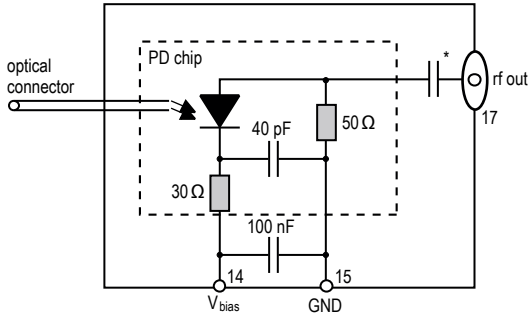
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photodiode DC responsivity @ 1550 nm	R	optimum polarization	0.5	0.6		A/W
Polarization dependent loss	PDL			0.3	0.5	dB
Optical return loss	ORL		27	30		dB
3dB cut-off frequency	f _{3dB}	2)	30	35		GHz
Output reflection coefficient	S ₂₂	0.05 - 50 GHz		-8		dB
Photodiode dark current	I _{dark}	T _{case} = 25°C		5		nA
Pulse width		3)		12		ps

Notes: 1) λ = 1550 nm, V_{bias} = 2.8 V, T = 25°C

2) Measured using Agilent 86030A 50GHz Lightwave component analyzer

3) Measured using Tektronix oscilloscope with 50 GHz sampling head

Block Diagram

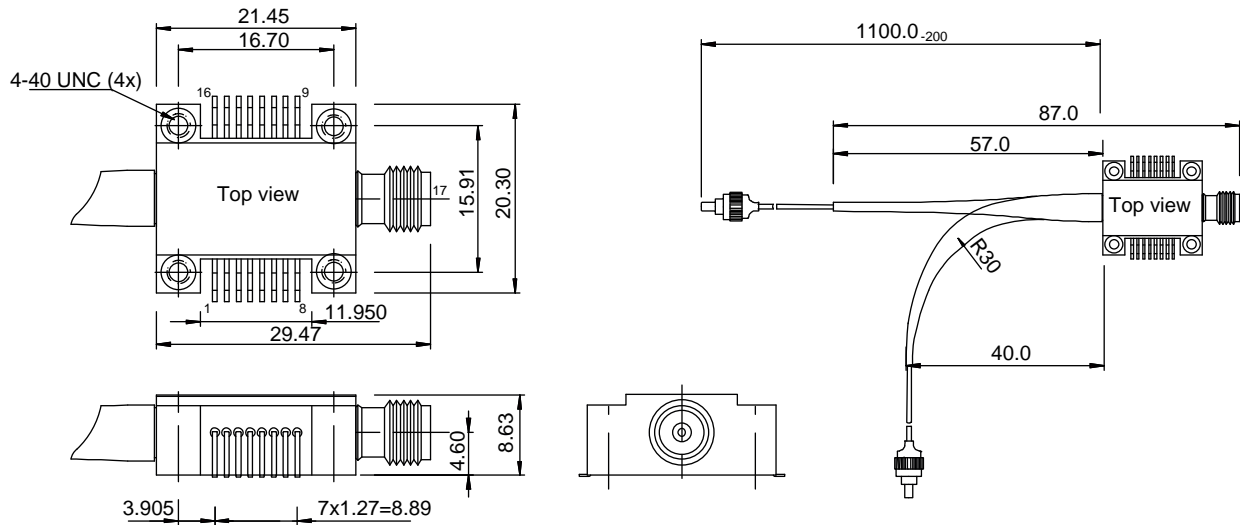


* optional blocking capacitor

Pin Description

Pin#	Symbol	Description
1,3,7,12	N/C	Not connected
2,4,5,6,11,13,15	GND	Ground
7,8,9,10	RFU	Reserved for future use - please do not connect
14	V _{PD}	Photodiode supply; typ. +2.8 V
17	OUT	Rf output, V or GPPO connector

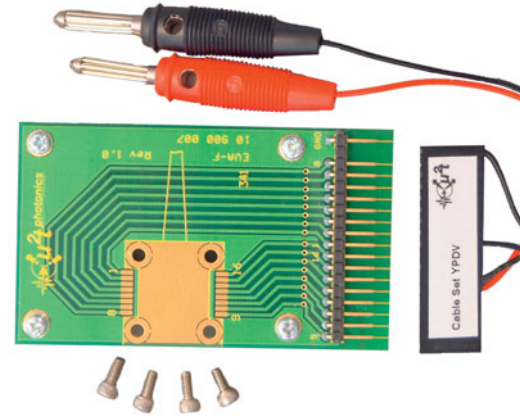
Mechanical Dimensions



All dimensions in mm.

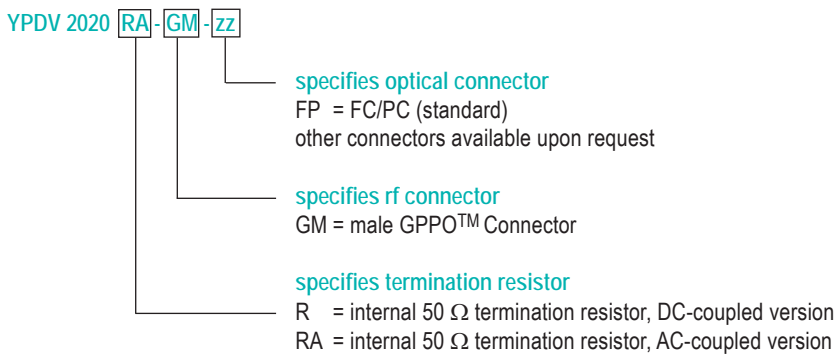
Accessories

The u2t Evaluation Kit EVA-YPDV serves as an easy-to-use utility to characterize the u2t photodetector YPDV2020R under laboratory conditions. The kit consists of a PCB (printed circuit board), a DC cable set and 4 socket head screws 4-40 UNC (see picture).



Ordering Information

Please use the following table to select your required configuration of the photodetector.



For the Evaluation kit please use the following code.



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