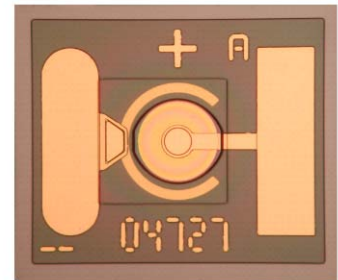


# PDCS85F-XS PON PHOTODIODE WITH INTEGRATED OPTICAL FILTER

PDCS85F-XS is a bottom illuminated photodiode featuring an integrated shortpass / longpass or bandpass optical filter. The chip has a large optical aperture of 85  $\mu\text{m}$  and is optimized for digital and analog applications up to 5 Gb/s. The integrated optical filter is designed for Passive Optical Network (PON) applications meeting ITU-T G.983.1 (APON), ITU-T G.983.3 (BPON and GPON) as well as IEEE 802.3ah (EPON) specifications. The photodiode has a pad metallization optimized for wire-bonding or flip-chip soldering with the pads ideally positioned to enable easy and direct bonding to any TIA layout.



## BENEFITS

- Volume production
- Bottom illuminated
- Optimized for digital and analog applications
- Integrated optical filter

## FEATURES

- InGaAs photodiode with integrated optical thin-film filter
- Available with longpass, shortpass or bandpass filter meeting EPON / GPON specifications
- High responsivity of 0.9 A/W
- Operation in both analog and digital receivers
- Large bandwidth up to 5 Gb/s
- Large active area: 85  $\mu\text{m}$
- Low capacitance: 380 fF
- Operating temperature range: -40 to 85  $^{\circ}\text{C}$
- Available as bare die chip or flip-chip mounted on a substrate

## APPLICATIONS

- Analog or digital receivers in ONT/ONU di- and triplexers

[DATA SHEET](#)

**CHARACTERISTICS (T = 25° C)**

Parameter		Sym	U <sub>R</sub>	Min	Typ	Max	Unit
Responsivity shortpass filter	$\lambda = 1310 \text{ nm}$	R	2.5 V	0.7	0.8		A/W
Responsivity longpass filter	$\lambda = 1550 \text{ nm}$			0.8	0.9		
Responsivity bandpass filter #1	$\lambda = 1490 \text{ nm}$			0.8	0.9		
Responsivity bandpass filter #2	$\lambda = 1555 \text{ nm}$			0.8	0.9		
Optical isolation shortpass filter	$\lambda = 1550 \text{ nm}$			20	25		dB
Optical isolation longpass filter	$\lambda = 1310 \text{ nm}$			20	25		
Optical isolation bandpass filter #1	$\lambda = 1555 \text{ nm}$			20	25		
Optical isolation bandpass filter #2	$\lambda = 1490 \text{ nm}$			20	25		
Dark current	T = 25 °C T = 85 °C	I <sub>D</sub>	5 V		5	12 250	nA
Bandwidth		B	2.5V	4			GHz
Total capacitance		C	5 V		380		fF

**DIMENSIONS**

Parameter	Min	Typ	Max	Unit
Aperture		85		$\mu\text{m}$
Chip length	340	350	360	$\mu\text{m}$
Chip width	290	300	310	$\mu\text{m}$
Chip thickness	145	150	155	$\mu\text{m}$

For more information  
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