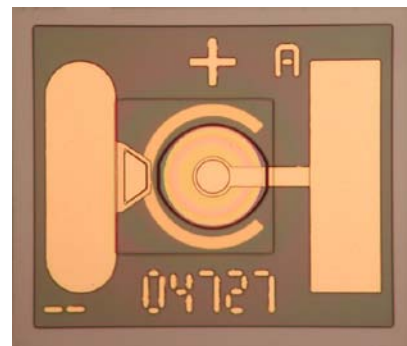


# APD85B-XS 2.5 Gb/s LONG WAVELENGTH APD

APD85B-XS is a bottom-illuminated, high speed avalanche photodiode chip with a dual pad layout and an optical aperture of 85  $\mu\text{m}$ . The APD is optimized for single-mode Gigabit Passive Optical Networks (GPON) and 2.7 Gb/s SONET/SDH telecom applications. A key feature of this innovative APD is low excess noise, enabling receiver sensitivities of -35 dBm for 2.5 Gb/s NRZ signals when used with an appropriate TIA.



## BENEFITS

- Enables a receiver sensitivity of -35 dBm with commercially available TIAs
- Small chip footprint

## FEATURES

- High gain-bandwidth
- Large optical aperture of 85  $\mu\text{m}$
- Low operating bias: 23 V
- Low temperature dependence: 24 mV/°C
- Operating temperature range: -40 to 85 °C

## APPLICATIONS

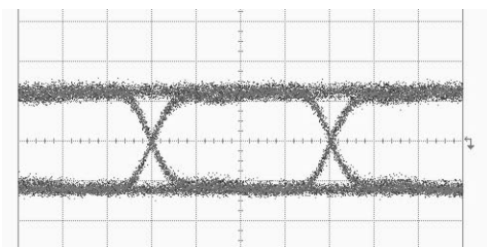
- 2.5 Gb/s GPON
- 2.7 Gb/s SONET / SDH

**DATA SHEET**

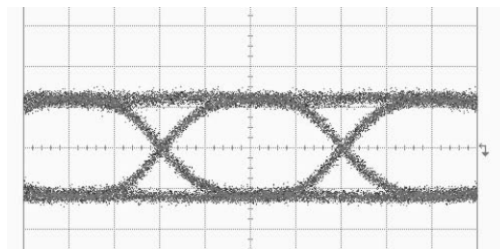
This bottom-illuminated APD features a large 85  $\mu\text{m}$  aperture for relaxed optical alignment, can be operated at a low bias voltage of only 23 V and has an excellent gain-bandwidth product of 50 GHz. The pad metallization is optimized for wire-bonding with the pads positioned to enable easy and direct bonding to most common TIA layouts. In addition, the small chip footprint saves valuable space in small packages such as TO-46.

## CHARACTERISTICS (T = 25 °C)

Parameter	M	Sym	Min	Typ	Max	Unit
Breakdown voltage $I_R = 20 \mu\text{A}$	n.a.	$V_{BR}$	22	25	28	V
Responsivity $\lambda = 1550 \text{ nm}$	1	R		0.9		A/W
Dark current	10	$I_D$		80	160	nA
Rise- / Faltime (10% - 90%, $R_L = 50 \Omega$ )	10	$T_{R,F}$		70	100	ps
O/E bandwidth	10	B	4	5		GHz
Total capacitance	10	C		600	660	fF



2.5 Gb/s Eye Diagram @ M = 10



5 Gb/s Eye Diagram @ M = 10

## 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	$\mu\text{m}$



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