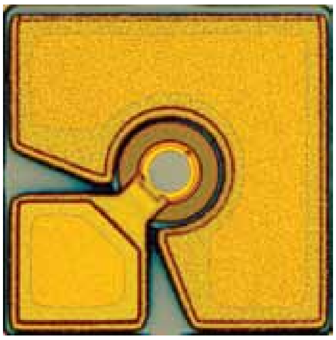
connector OPTICS

DATASHEET

25 Gbit/s p-i-n photodiode chips and photodiode array chips (850 nm)

Product code:

CO-D850-25-1	1x1 chip
CO-D850-25-4	1x4 array
CO-D850-25-12	1x12 array



Product Description

Our compact, top illuminated, low capacitance, high speed GaAs-based p-i-n photodiode (PD) chips and PD array chips are available as engineering samples and well suited for applications in 850 nm range optical data communications systems, optical interconnects, and general research and development. The PDs are available with a range of optical aperture diameters (15 to 50 µm) both as individual chips and as 1xN (N=1, 2, 4, 12) linear arrays allowing alignment to single mode or multimode fibers. The rugged PD chips may be wire or flip-chip bonded.

Features

- Up to 12 parallel channels
- More than 28 Gbit/s per channel
- High temperature stability
- A device-to-device pitch of 250 µm
- AR coating, suitable for wire or flip-chip bonding

Applications

- Active optical cables (AOCs), ROSA
- High-speed optical interconnections and links
- Infiniband, Radio-over-Fiber, Fibre Channel
- Short-reach 40/100 Gbit/s Ethernet
- Chip-to-chip interconnects

Optical and Electrical Characteristics

T_O = 25 °C unless otherwise stated

Parameter	Symbol	Unit	Value	Notes
Maximum data bit rate	G	Gbit/s	>25	
Operating wavelength	λ_{op}	nm	850±15	
Responsivity	R	A/W	0.4	
Active area diameter	d_{act}	µm	20, 25, 30, 35, 45	
Operating reverse voltage	V_{op}	V	3	
Dark current	I_d	nA	<1	V_{op}=-3 V
Reverse breakdown voltage	V_B	V	>20	I_d=1 µA
Capacitance	C	pF	0.08 – 0.20	d_{act}=20 – 45 µm V_{op}=-3 V
Modulation bandwidth	f_{3dB}	GHz	>15	V_{op}=-3 V
Rise / Fall time	t_R	ps	<20	20% – 80%

T_O - operating temperature

Absolute maximum ratings

Parameter	Symbol	Unit	Value
Input optical power	P_{max}	mW	2
Reverse voltage	V_{rv}	V	20
Operating temperature	T_o	°C	20 – 85
Storage temperature	T_{st}	°C	-40 – 100

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Mechanical dimensions

Parameter	Unit	Value
Length (single PD), L	µm	250
Length (1x4 PD array), L	µm	1000
Length (1x12 PD array), L	µm	3000
Width, W	µm	250
PD pitch	µm	250
Thickness, H	µm	150
Au-bond pads	µm	50x50

Possible design of 1x4 PD array: