

10Gb/s Avalanche Photodiode(APD) Chip-on-Carrier

CAC1029S

Features

- Very High reliability
- Low dark current : typ. 1nA@0.9V_{br}
- High sensitivity
- Chip-on-Carrier

Applications

- 10Gb/s optical receiver
- Long-haul networks
- Datacom and telecom
- 10G EPON

Absolute Maximum Ratings

Parameters	Symbol	Rating	Unit
Reverse voltage	V _R	V _{br}	V
Reverse current	I _R	4	mA
Optical Input Power	L _p	4	dBm
Operating temperature range	T _{OPR}	-40 to +85	°C
Storage temperature range	T _{STG}	-40 to +85	°C

Electro-Optical Characteristics (Typical values are at 25 °C)

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Optical Wavelength Range	λ	-	1250		1650	nm
Dark current	I _D	V _R =0.9V _{br}	-	1	20	nA
Total capacitance	C	f=1MHz, V _R =0.9V _{br}	-	0.2	0.25	pF
Responsivity ¹⁾	R	M=1, λ =1550nm	0.7	0.8	-	A/W
Breakdown voltage	V _{br}	I _D =100μA, T=25 °C	26	32	38	V
Temperature coefficient	γ	ΔVB/ΔT	-	50	-	mV/°C
Cut-off frequency	f _{-3dB}	M=10	7	8	-	GHz
Sensitivity ²⁾	Sen	ER=6dB, 10.3Gbps, 10 ⁻³ BER	-	-31.5	-	dBm

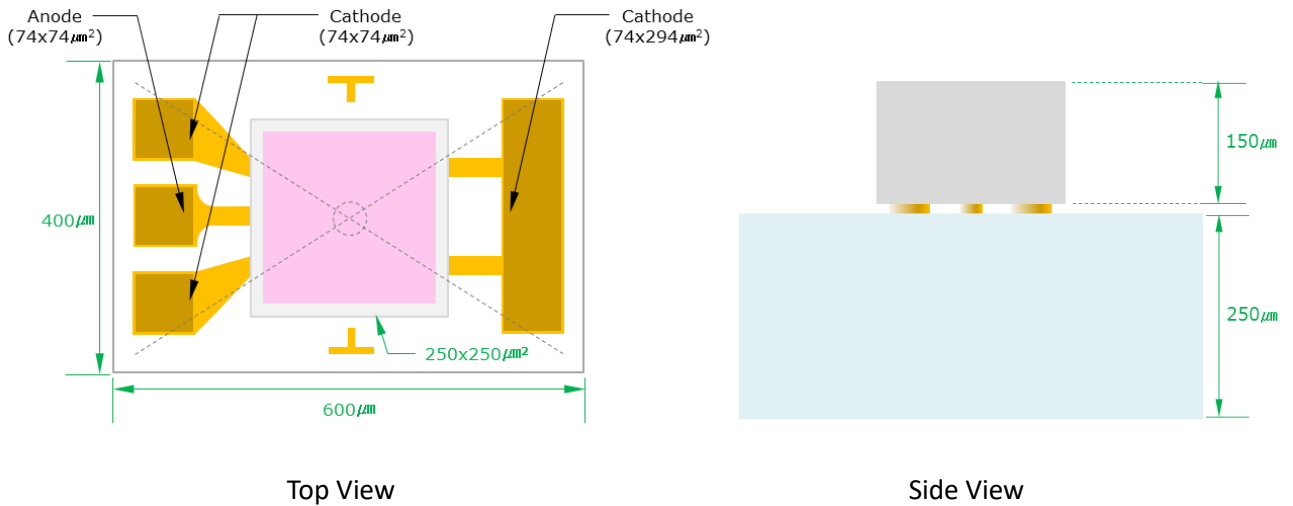
1) The responsivity is the calculated value. The unity gain voltage cannot be measured for this APD

2) Sensitivity is measured when the APD chip is coupled with TIA.

Dimensions

Parameters	Symbol	Test Condition	Unit
PD active diameter	D	29	μm
Chip size	S_p	250x250	μm^2
Chip thickness	T_c	150 ± 15	μm
Carrier size	S_{sub}	600 x 400	μm^2
Carrier thickness	T_{sub}	250 ± 25	μm

Chip on Carrier Layout



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Specifications described here are subject to change without notice