

ICS PINARY25G1-20GSG

25Gbps 1260/1620nm Top Illuminated MESA InGaAs PIN Diode

PRODUCT DESCRIPTION:

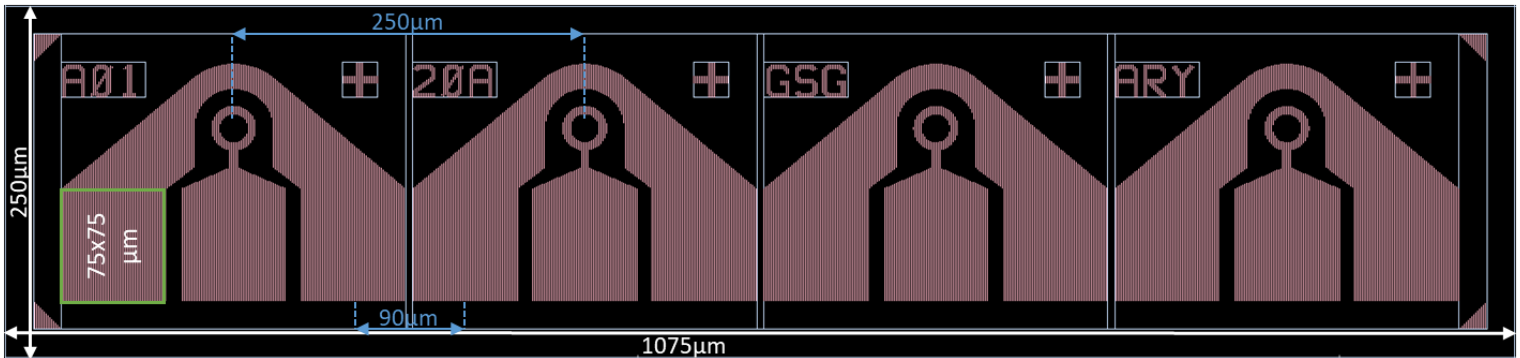
The PINARY25G1-20GSG is a top illuminated MESA InGaAs PIN diode array chip in GSG configuration with 100 μm pitch. The device has a 20 μm aperture with 250 μm device pitch. The device is optimised for single mode fibre at wavelength ranges from 1260nm to 1620nm for optical receiver applications with data rates up to 25Gbps. The device features extremely low capacitance and low dark currents and a large bandwidth at low reverse bias.

The chip pad metallisation layout is optimized for easy wire-bonding to most common TIAs.

Electrical and Optical Characteristics (temperature = 25°C):

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Dark Current	I_D	$V_{\text{bias}} = -5\text{V}$	-	2	5	nA
Responsivity	R	$\lambda = 1.31\mu\text{m}$	0.7	0.75	-	A/W
		$\lambda = 1.55\mu\text{m}$	0.65	0.7	-	A/W
Forward Voltage	V_{FWD}	$I = 1.0\text{mA}$	-	0.6	0.8	V
Reverse Breakdown	V_{BR}	$I_D = 1.0\mu\text{A}$	-	-35	-45	V
Capacitance	C	$V_{\text{bias}} = -2.5\text{V}$	85	95	110	fF
3dB-Cut-Off Frequency	F_C	$V_{\text{bias}} = -2.5\text{V}$	-	16	-	GHz
ESD rating	V_{ESD}	HBM	500	-	-	V
Operating Temperature	T_{OP}	$T_{\text{room}} = 25^\circ\text{C}$	-40	-	+85	$^\circ\text{C}$

Chip layout:



20µm window device with Ground-Signal-Ground (GSG) layout

Device dimensions:

Parameter	Min.	Typ.	Max.	Unit
Optical window diameter	19	20	21	µm
Die Size	1060x240	1070x250	1080x260	µm ²
Device Pitch	248	250	248	µm
Pad Size (Anode)	73x73	75x75	77x77	µm ²
Pad Size (Cathode)	73x73	75x75	77x77	µm ²
Die thickness	140	150	160	µm

*Custom layout dimensions and die thickness are also available.

Revision history:

Date	Revision	Comment
22/02/2018	1.0	Initial release
01/06/2018	2.0	Changed cut off frequency
26/11/2018	3.0	Changed cut off (removed 5v)
30/01/2019	4.0	Changed minimum temp. from -25C to -40C