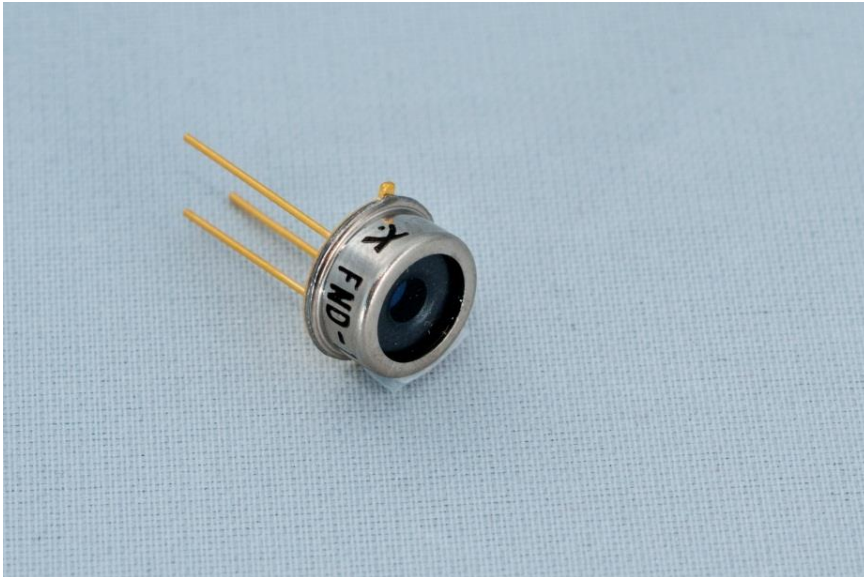


FND-100 series Ultra-Fast Photodiode



Overview

The FND-100 series devices are high quality, large area, high speed, N-type Si PIN photodiodes in hermetically sealed TO-5 package designed for the 400 to 1100 nm wavelength region.

The FND-100QH has a quartz window, extending the photodiode's UV response down to 200 nm. Along with a fast rise and fall time of <math><1\text{ ns}</math>, the high responsivity and low NEP makes this diode ideal for many fast pulse instrumentation applications.

Key Features and Benefits

- Large Active Area
- Wide Spectral Range
- Low NEP
- High Responsivity
- Ultra-Fast Rise and Fall Time
- Isolated Photodiode Chip

Applications

- Laser detection systems
- Laser power control systems
- Fast pulse detection in semiconductor inspection systems
- Instrumentation
- High speed switching

Ultra-Fast Photodiodes

Table 1 – Electro-Optical Characteristics

Operating data and specifications at 23°C – typical performance at 90V voltage bias

Parameter	Symbol	Minimum	Typical	Maximum	Units
Active area			5.1		mm ²
Spectral range FND-100QH FND-100GH		200 400		1150 1150	nm
Responsivity at 850nm (QH/GH) at 254nm (QH only)	R	0.5 0.045	0.6		A/W
Bandwidth 50 Ω load			350		MHz
Rise time, R _L = 50 Ω	t _r		<1		ns
Operating voltage	V _{op}	0		100	V
Breakdown voltage ¹	V _{br}	125	150		V
Capacitance	C _d		8.5	10	pF
Dark current	I _d		10	25	nA
Series resistance			20		Ω
Noise Current	i _n		60	90	fA/√Hz
Noise equivalent power (850 nm, 10 MHz, 1)	NEP		0.10	0.18	pW/√Hz
Operating Temperature QH GH	T _o	-40 -40		70 125	°C
Package Style	TO-5				
Field of View ² : Nominal field of view α /2 Nominal field of view α' /2 (See Figure 3)	FoV		0 74		Degrees

Note 1: Breakdown voltage measured at 100µA dark current

Note 2: α/2 angle limited by internal aperture

FND-100 series

Ultra-Fast Photodiodes

Figure 1 – Typical Spectral Response

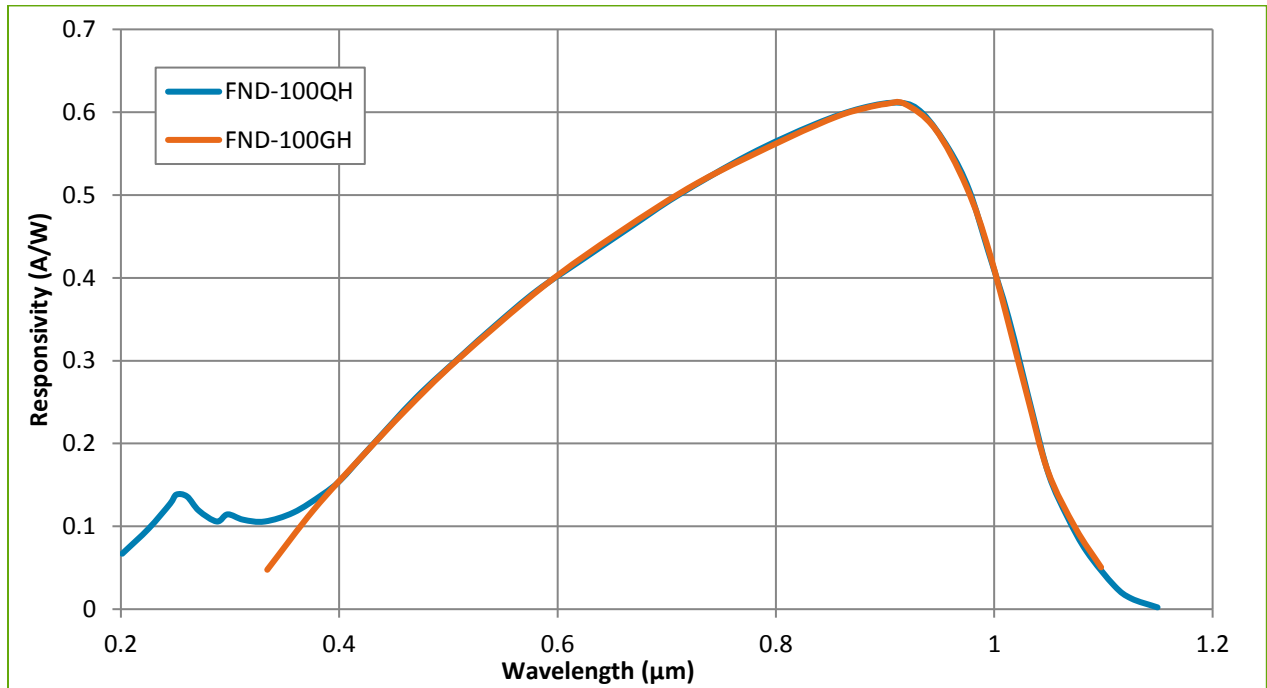
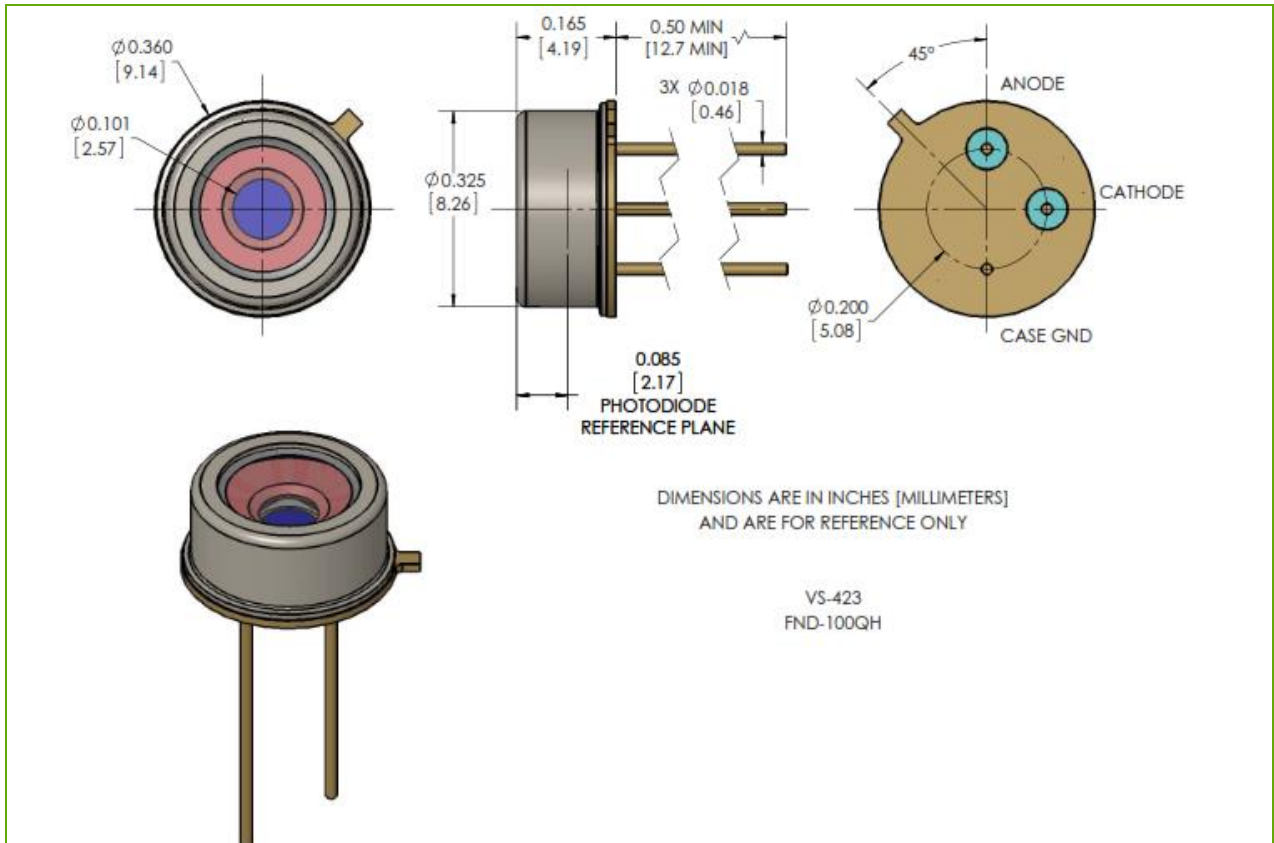


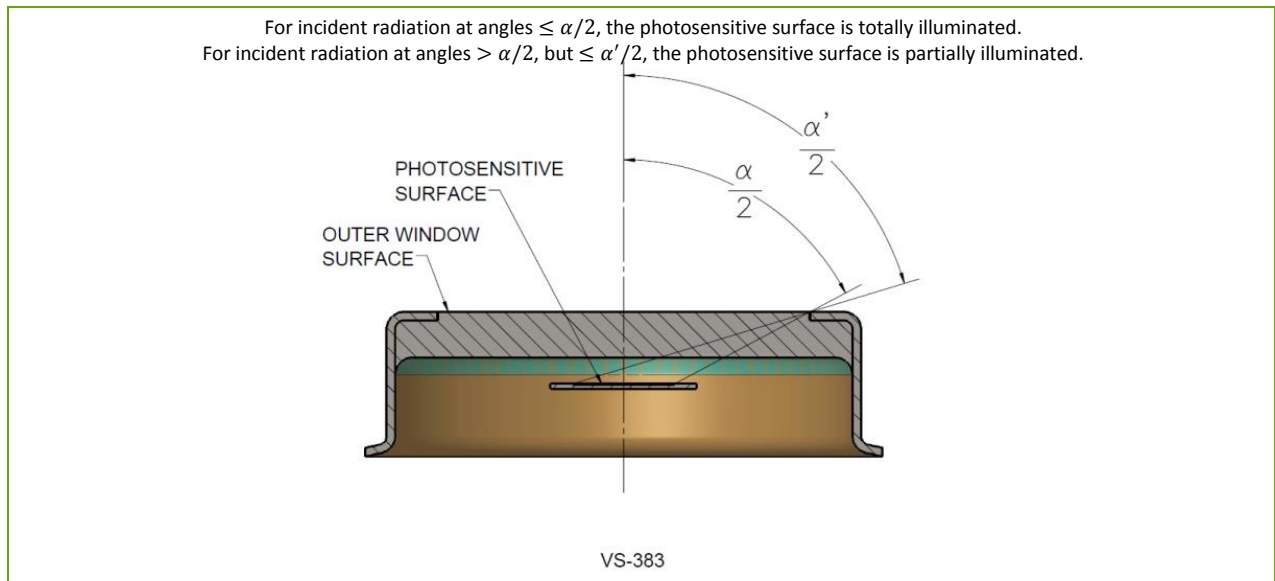
Figure 2 – Mechanical Data and PIN Configurations



FND-100 series

Ultra-Fast Photodiodes

Figure 3 – Approximate field of view



RoHS Compliance

The FND-100QH Ultra-Fast photodiode is designed and built to be fully compliant with the European Union Directive 2011/65/EU – Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic equipment.



Warranty

A standard 12-month warranty following shipment applies. Any warranty is null and void if the photodiode window has been opened.

About Excelitas Technologies

Excelitas Technologies is a global technology leader focused on delivering innovative, customized solutions to meet the lighting, detection and other high-performance technology needs of OEM customers.

Excelitas has a long and rich history of serving our OEM customer base with optoelectronic sensors and modules for more than 45 years beginning with PerkinElmer, EG&G, and RCA. The constant throughout has been our innovation and commitment to delivering the highest quality solutions to our customers worldwide.

From analytical instrumentation to clinical diagnostics, medical, industrial, safety and security, and aerospace and defense applications, Excelitas Technologies is committed to enabling our customers' success in their specialty end-markets. Excelitas Technologies has approximately 3,000 employees in North America, Europe and Asia, serving customers across the world.

Excelitas Technologies
22001 Dumberry Road
Vaudreuil-Dorion, Quebec
Canada J7V 8P7
Telephone: (+1) 450 424 3300
Toll-free: (+1) 800 775 6786
Fax: (+1) 450 424 3345
detection@excelitas.com

**Excelitas Technologies
GmbH & Co. KG**
Wenzel-Jaksch-Str. 31
D-65199 Wiesbaden
Germany
Telephone: (+49) 611 492 430
Fax: (+49) 611 492 165
detection.europe@excelitas.com

Excelitas Technologies Singapore, Pte. Ltd.
8 Tractor Road
Singapore 627969
Telephone: (+65) 6775 2022 (Main number)
Telephone: (+65) 6770 4366 (Customer Service)
Fax: (+65) 6778-1752
detection.asia@excelitas.com

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