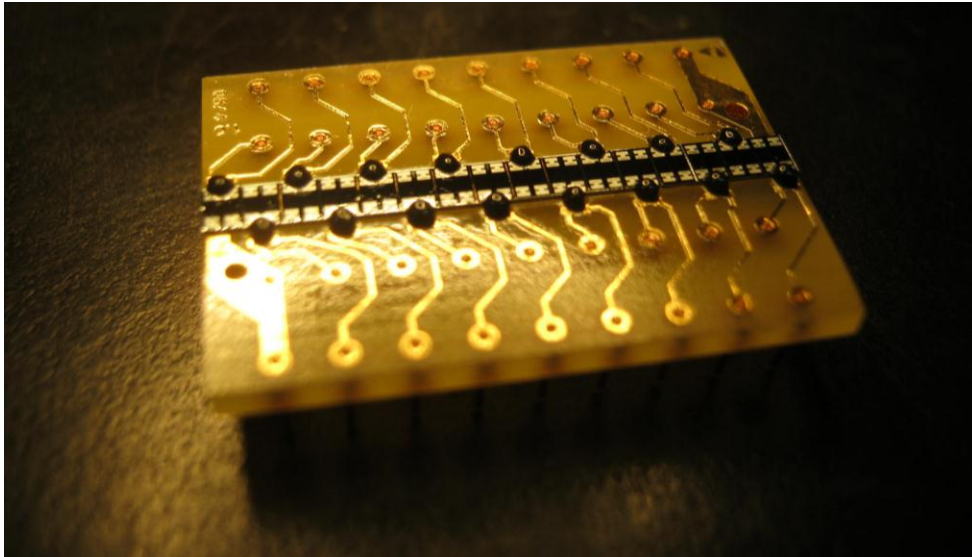


VTA0832H Series

Linear Photodiode Array (PDA) for X-ray Scanning



VTA0832H-L-NC-00-0

The VTA0832H series is a 32-channel High Resolution Photodiode Array (PDA). There are 16 dual-element photodiodes mounted directly on an FR-4 PCB. The pitch (sensor-to-sensor spacing of adjacent chips) for this series is 0.8 mm; other pitches are available as off the shelf or as custom devices.

A transparent coating material covers the photo-sensitive chip area while a globtop encapsulant protects the bond wires from damage and environmental influences. These parts are available with or without a scintillator material mounted over the photodiode active area to convert X-rays into visible photons of light. These devices can be used as single energy detectors with a range of available scintillator crystals.

Key Features

- Photodiodes with extremely low dark current
- High signal to noise ratio
- Scintillator crystals available on demand to convert incident X-rays into visible photons
- 32 channels at 0.8 mm pitch

Applications

- Luggage Scanning
- Food inspection
- Cargo/container screening
- Non-destructive testing
- Industrial inspection

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Linear Photodiode Array (PDA) for X-ray Scanning

Nomenclature

VTA0832H series part numbers are in the following format: **VTA0832H-W-XX-YY-Z**

W: Energy type (H-High, L-Low)

XX: Scintillator (NC-No scintillator, SC-With scintillator)

YY: Scintillator type (see *Scintillator Selection Guide* section below for all standard scintillator types)

Z: Photodiode type (0-Regular capacitance)

Scintillator Selection Guide*

High Energy Scintillator		Low Energy Scintillator	
Type no.	Characteristics	Type no.	Characteristics
VTA0832H-H-NC-00	No scintillator	VTA0832H-L-NC-00	No scintillator
VTA0832H-H-SC-01	CsI-Tl, 3 mm thick, segmented	VTA0832H-L-SC-03	Gd ₂ O ₂ S:Tb sheet, 310 µm thick, DRZ-High
VTA0832H-H-SC-05	Gd ₂ O ₂ S:Pr, 1.5 mm thick, segmented	VTA0832H-L-SC-08	Gd ₂ O ₂ S:Pr sheet, 200 µm thick

* Scintillators are available using other materials and geometries upon request.

Typical Scintillator Characteristics*

Parameter	SC-01	SC-05	SC-03	SC-08	Unit
Composition	CsI-Tl	Gd ₂ O ₂ S:Pr	Gd ₂ O ₂ S:Tb sheet	Gd ₂ O ₂ S:Pr sheet	
Emission peak	550	512	545	512	nm
Decay time (@ 1/e)	1	4	600	3	µs
Decay time to 10 % peak	5	7	1500	7	µs
Afterglow	0.500 (after 20 ms)	0.015 (after 100 ms)	-	0.020 (after 100 ms)	%
Density	4.51	7.33	7.33	7.33	gm/cm ³

* These characteristics are typical, specifications will vary from manufacturer.

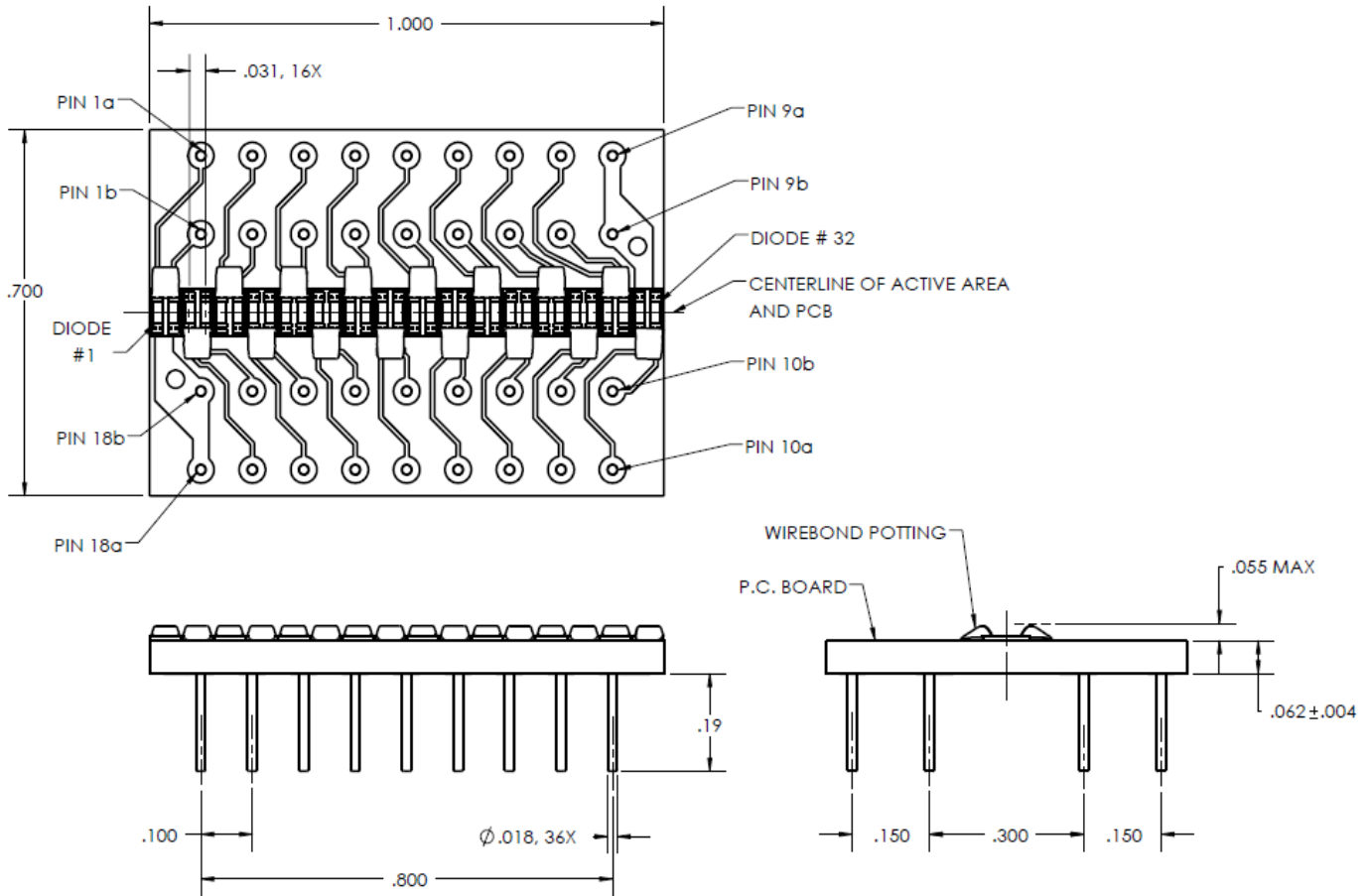
Electro-Optical Characteristics

			VTA0832H-W-XX-YY-0			
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V_F	25 ° C / 10 mA			1.2	V
Dark current	I_D	25 ° C / 0 lx -1 V applied			10	pA
Junction capacitance	C_J	25 ° C / 0 lx 0 V applied			100	pF
Breakdown voltage	V_{BR}	25 ° C / 0 lx	20			V
Responsivity @ 550 nm	λ_{550}	25 ° C ± 10 mV applied	0.30			
Peak spectral sensitivity	λ_{max}			900		nm
Spectral response	λ_{range}		400		1100	nm
Effective sensitive area (per element)	A		0.50			mm ²
Chip size (dual-element type)	l * w		2.31 x 1.56			mm ²
Element pitch			0.8			mm
Number of elements			32			element

Linear Photodiode Array (PDA) for X-ray Scanning

Physical Configuration

VTA0832H (Dimensions are in inches)



PIN#	Electrical Connection	PIN#	Electrical Connection	PIN#	Electrical Connection	PIN#	Electrical Connection
1a	Anode 1	6a	Anode 21	10a	Anode 31	15a	Anode 11
1b	Anode 2	6b	Anode 22	10b	Anode 32	15b	Anode 12
2a	Anode 5	7a	Anode 25	11a	Anode 27	16a	Anode 7
2b	Anode 6	7b	Anode 26	11b	Anode 28	16b	Anode 8
3a	Anode 9	8a	Anode 29	12a	Anode 23	17a	Anode 3
3b	Anode 10	8b	Anode 30	12b	Anode 24	17b	Anode 4
4a	Anode 13	9a	Common Cathode	13a	Anode 19	18a	Common Cathode
4b	Anode 14			13b	Anode 20		
5a	Anode 17	9b	Common Cathode	14a	Anode 15	18b	Common Cathode
5b	Anode 18			14b	Anode 16		

VTA0832H Series

Linear Photodiode Array (PDA) for X-ray Scanning

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.

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.

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