HAMAMATSU
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InAsSb photovoltaic detector arrays

P15742 series

Low crosstalk IR detector arrays (up to 5 µm band) 16-element / 46-element arrays

The P15742 series is one-dimensional InAsSb photovoltaic detector array in a ceramic DIP (dual inline package). They have a back-illuminated structure that achieves low crosstalk. These are environmentally friendly infrared detectors that do not use lead, mercury, or cadmium, which are substances restricted by the RoHS Directive.

Features

- **High sensitivity**
- **Low crosstalk**
- **RoHS compliant (lead, mercury, cadmium free)**

Applications

- **Infrared spectrophotometry**
- **Temperature measurement**
- **Remote sensing**

Structure

Parameter	P15742-016DS	P15742-046DS	Unit
Number of elements	16	46	-
Element size	0.45 × 0.7	0.2 × 0.7	mm
Element pitch	0.5	0.25	mm
Window material	Sapphire		-
Package	18-pin ceramic DIP	48-pin ceramic DIP	-

Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R		1	V
Operating temperature	Topr	No dew condensation*1	-20 to +70	°C
Storage temperature	Tstg	No dew condensation*1	-20 to +80	°C

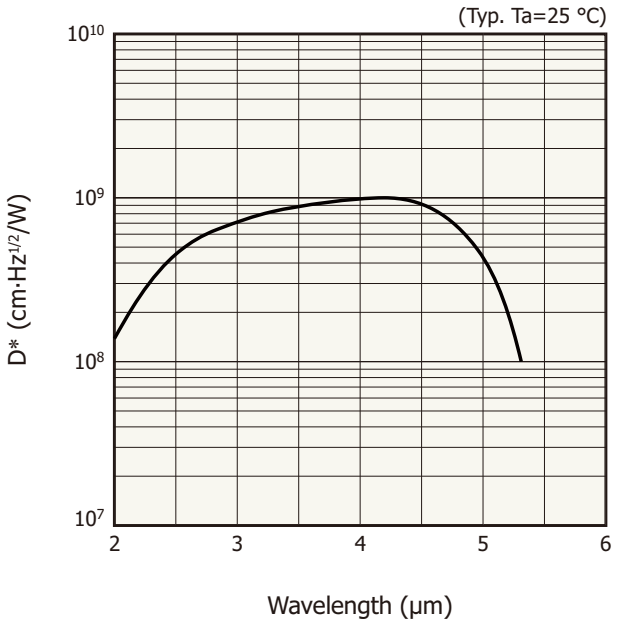
*1: When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C, per element)

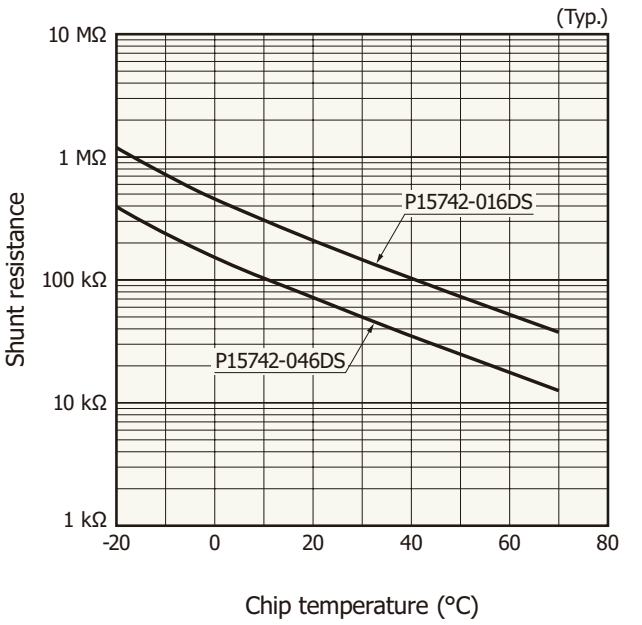
Parameter	Symbol	Condition	P15742-016DS			P15742-046DS			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak sensitivity wavelength	λp		-	4.1	-	-	4.1	-	µm
Cutoff wavelength	λc		5	5.3	-	5	5.3	-	µm
Photosensitivity	S	λ=λp	5	6.5	-	11.6	14.6	-	mA/W
Shunt resistance	Rsh	V_R=10 mV	70	180	-	24	60	-	kΩ
Detectivity	D*	(λp, 1200, 1)	8×10^8	1×10^9	-	8×10^8	1×10^9	-	cm·Hz$^{1/2}$/W
Rise time	tr	V_R=0 V, R_L=50 Ω 10 to 90%, λ=1.55 µm	-	15	-	-	15	-	ns
Terminal capacitance	Ct	V_R=0 V, f=1 MHz	-	40	-	-	50	-	pF
Noise equivalent power	NEP	λ=λp	-	5.6×10^{-11}	7×10^{-11}	-	4.2×10^{-11}	5.3×10^{-11}	W/Hz$^{1/2}$

Note: Uniform irradiation on the entire photosensitive area

Spectral response

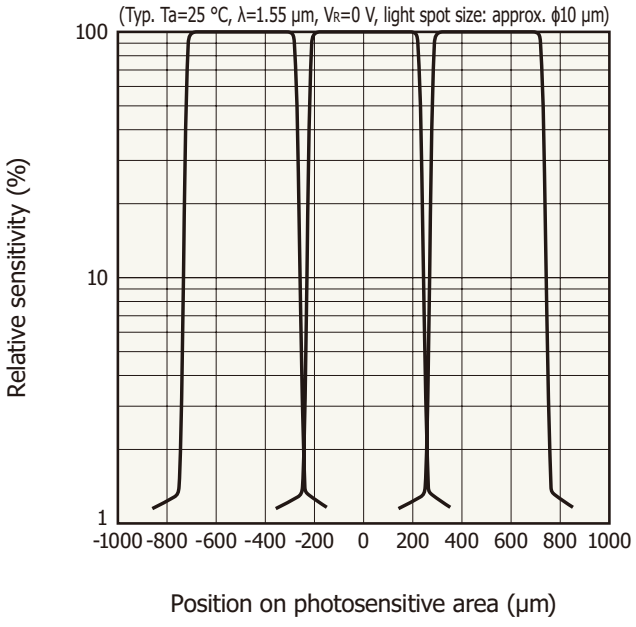


Shunt resistance vs. chip temperature

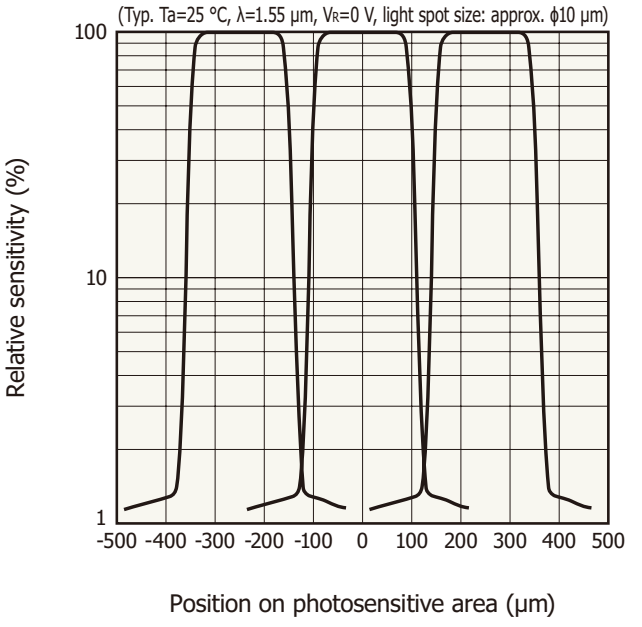


Crosstalk characteristics

P15742-016DS

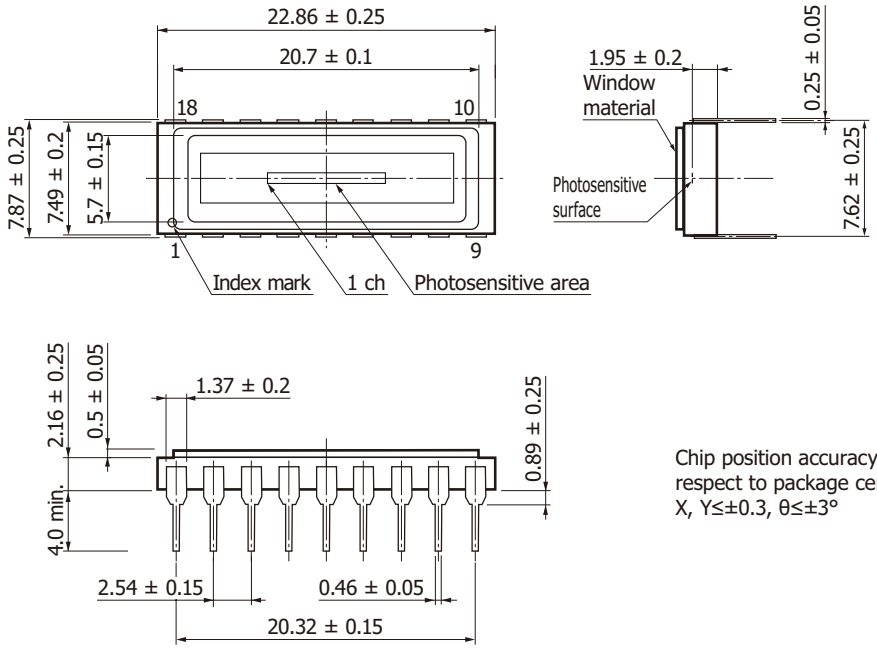


P15742-046DS



Dimensional outlines (unit: mm)

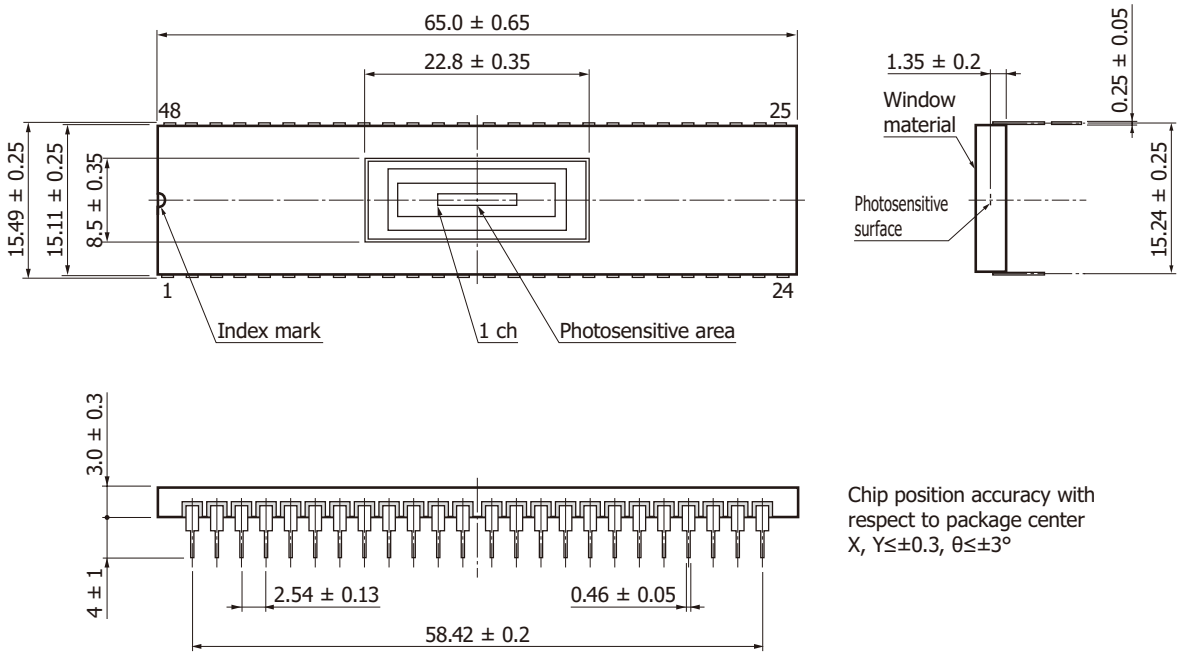
P15742-016DS



Chip position accuracy with respect to package center
X, Y≤±0.3, θ≤±3°

KIRDA0270EA

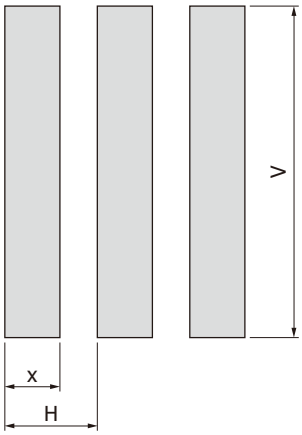
P15742-046DS



Chip position accuracy with respect to package center
X, Y≤±0.3, θ≤±3°

KIRDA0271EA

Details of photosensitive area (unit: mm)



Number of elements	x	H	V
16	0.45	0.5	0.7
46	0.2	0.25	

KIRDC0131EA

Pin connections

Pin no.	P15742-016DS	P15742-046DS	Pin no.	P15742-016DS	P15742-046DS
1	KC	KC	25		KC
2	2	2	26		45
3	4	4	27		43
4	6	6	28		41
5	8	8	29		39
6	10	10	30		37
7	12	12	31		35
8	14	14	32		33
9	16	16	33		31
10	KC	18	34		29
11	15	20	35		27
12	13	22	36		25
13	11	24	37		23
14	9	26	38		21
15	7	28	39		19
16	5	30	40		17
17	3	32	41		15
18	1	34	42		13
19		36	43		11
20		38	44		9
21		40	45		7
22		42	46		5
23		44	47		3
24		46	48		1

Note: KC: cathode (common), other than cathode: anode

Recommended soldering conditions

Solder temperature: 260°C (5 s or less, once)
Solder the leads at a point at leat 1.5mm away from the package body.

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions
· Disclaimer
· Safety consideration / Opto-semiconductor products
· Precautions / Compound opto-semiconductors (photosensors, light emitters)

■ Catalogs
· Selection guide / Infrared detectors
· Technical note / Compound opto-semiconductor photosensors

Information described in this material is current as of July 2026.
Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.
The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.
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