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TECHNOLOGY GROUP

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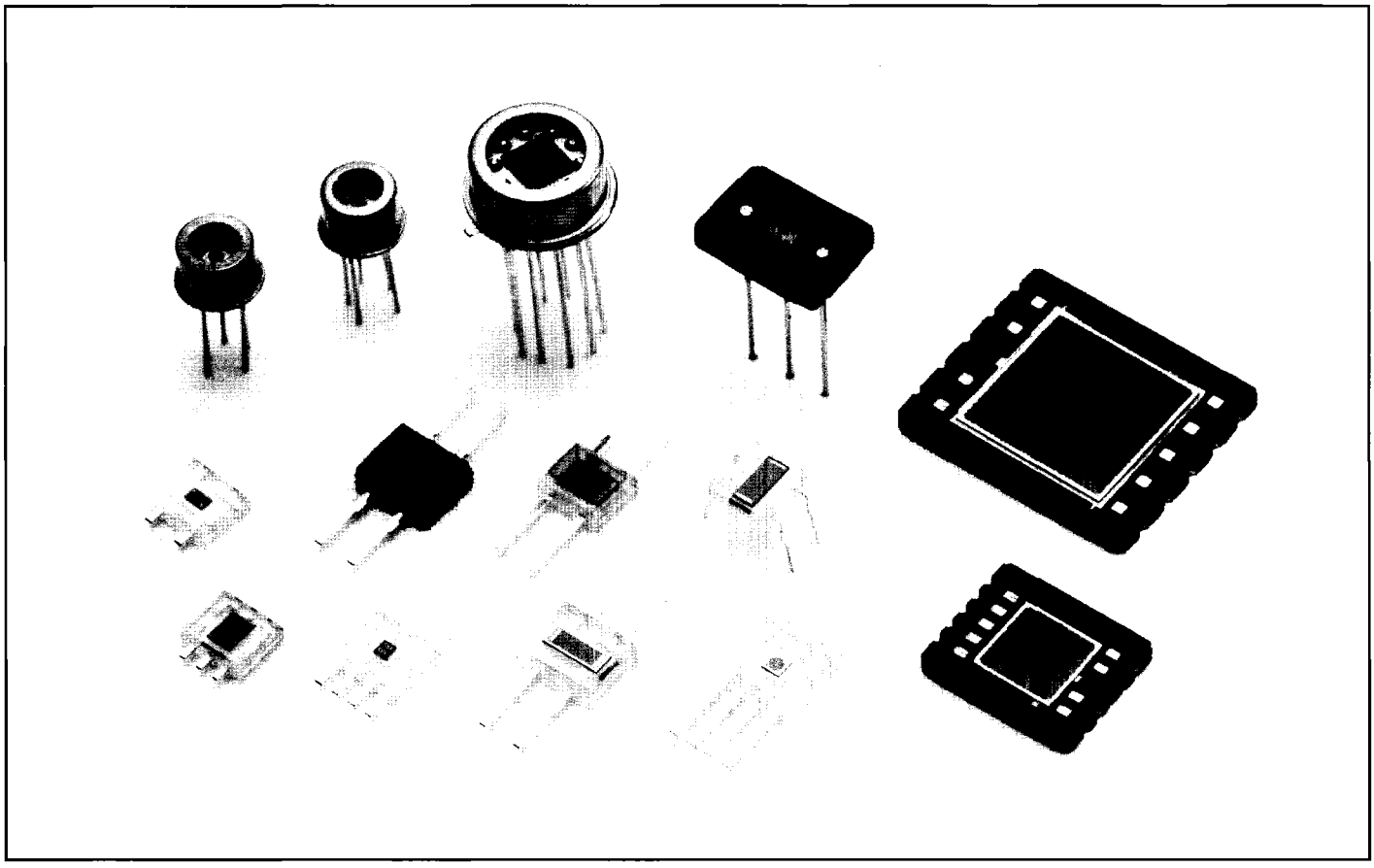
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Find the *Hamamatsu S2722-02* at our website: *Click HERE*

HAMAMATSU

MULTI-ELEMENT Si PHOTODIODES

A wide variety of configurations and performance. Custom devices are available on request.



FEATURES

- **High sensitivity**
- **Uniform sensitivity between elements**
- **Low crosstalk**

APPLICATIONS

- **Optical pickup of compact disc (CD), video disc (VD), and optical magnetic disc (MO)**
- **Laser beam alignment**
- **Synchronous trigger detection of polygon mirror in laser beam printer**
- **Auto-focus**
- **Position detection**
- **Exposure meter, etc.**

Hamamatsu manufactures various types of multi-element Si photodiodes to meet the growing demand in a wide range of applications. Featuring high sensitivity and low noise, these photodiodes also have achieved uniform sensitivity between elements and low crosstalk.

Custom-designed photodiodes (element configuration, number of elements, characteristics, and packaging) tailored to your specific needs are also available on request. Please feel free to contact your nearest Hamamatsu sales office.

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions.
Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. © 1999 Hamamatsu Photonics K.K.

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MULTI-ELEMENT Si PHOTODIODES

Type. No.	Features	Outlines (refer to page)	Window Material	Element Gap (μm)	Spectral Response Range Mark (P.4) (nm)	Peak Sensitivity Wavelength λp (nm)	Photo Sensitivity λ = λp Typ. (A/W)
Two-element Types (Plastic)							
S3060-02	For position detection, AF, visible light cut-off	❶ (P.6)	Resin	20	760 to 1100/A	960	0.58
S4204	For position detection, MO, anti-reflection coating	❷ (P.6)			320 to 1100/B		0.65
S2721-02	5 μm gap, for position detection, laser beam printer	❸ (P.6)		5	320 to 1060/C	900	0.56
S2722-02	50 μm gap, for position detection, laser beam printer			50			
S2545-02	For position detection, AF, visible light cut-off	❶ (P.6)		30	760 to 1100/A	960	0.58
S3096-02	For position detection, AF	❹ (P.6)			320 to 1100/D		
S6241	For position detection, MO	❺ (P.6)		15	320 to 1060/E	900	0.65
Two-element: Round-in-square Type (Plastic)							
S4364	For AE	❻ (P.6)	Visible light compensating filter	—	320 to 730/F	560	0.30
Two-element Type (Ceramic Case)							
S4531	For CD, VD, MO, laser beam axis alignment	⓭ (P.7)	Resin	350	320 to 1060/K	920	0.57
Four-element Types (Plastic)							
S2856	For CD, VD, MO	❼ (P.6)	Resin	10	320 to 1060/G	900	0.55
S6058					320 to 1000/H	800	
S2544		❽ (P.6)		20	320 to 1060/G	900	
S6242		❾ (P.6)		15			0.65
Four-element Types (Metal Case)							
S1651-03	For CD, VD, MO	⓫ (P.7)	Flat borosilicate	10	320 to 1060/M	900	0.57
S1557-03				20			
S4349	For laser beam axis alignment, low IR sensitivity	⓬ (P.7)	Quartz glass	100	190 to 1000/L	720	0.45
Four-element Types (Ceramic Case)							
S4521	Large photosensitive area, low IR sensitivity, for laser beam axis alignment	⓮ (P.7)	Flat borosilicate	30	320 to 1000/N	800	0.5
S5980	Spatial light transmission, CD VD, MO	⓯ (P.7)	Resin		320 to 1100/O	960	0.72
S5981		⓰ (P.8)					
Six-element Types (Plastic)							
S6344	For CD, VD	⓱ (P.7)	Resin	—	320 to 1060/I	920	0.65
S6795					320 to 1000/J	800	0.57

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(Ta=25 ℃)

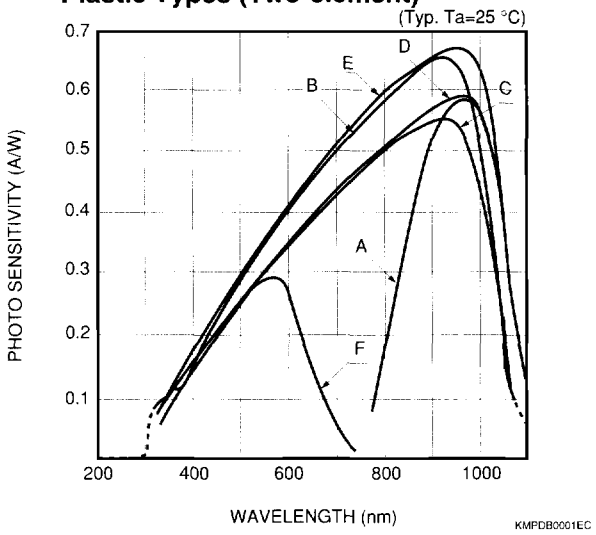
Dark Current Id V_R=10 V Per all elements Typ. (nA)	Dark Current Id V_R=10 V Per all elements Max. (nA)	Temperature Dependence of Id Typ. (Times/°C)	Terminal Capacitance Per all elements V_R=10 V, f=1 MHz Ct Typ. (pF)	Cut-off Frequency fc V_R=10 V, R_L=50 Ω, λ=830 nm Typ. (MHz)	NEP V_R=10 V Typ. (W/Hz$^{1/2}$)	Absolute Maximum Ratings: Reverse Voltage V_R Max. (V)	Absolute Maximum Ratings: Operating Temperature Topr (°C)	Absolute Maximum Ratings: Storage Temperature Tstg (°C)	Type No.
0.05	0.5	1.15	7	30	6.9×10^{-15}	20	−25 to +85	−40 to +100	S3060-02
0.1	1.0				8.7×10^{-15}				S4204
	2.0		10	50	7.2×10^{-15}				S2721-02
0.05	0.5			25	9.2×10^{-15}				S2722-02
									S2545-02
									S3096-02
0.05* C	1* C		2* C	40 C	6.2×10^{-15} C				S6241
0.003 A	0.03 A	1.12	400 B	—	3.3×10^{-15} A	10	−10 to +60	−20 to +70	S4364
0.1*	2*	1.15	2.5*	20	1.0×10^{-14}	30	−20 to +60	−20 to +70	S4531
0.04	0.2	1.15	5	100	6.5×10^{-15}	20	−25 to +85	−40 to +100	S2856
0.04 F	0.2 F		6 F	150 F	6.5×10^{-15} F				S6058
0.04	0.2		5	80	6.5×10^{-15}				S2544
0.1* C	2* C		4* C	40 C	8.7×10^{-15} C				S6242
0.03*	1*	1.15	1*	100	5.4×10^{-15}	20	−20 to +100	−55 to +125	S1651-03
0.02*				80	4.4×10^{-15}				S1557-03
0.01* C	0.2* C	1.12	25* C	20 C	4.0×10^{-15} C		−20 to +60	−55 to +80	S4349
0.15* C	3* C	1.15	100* C	20	1.4×10^{-14} C	30	−20 to +60	−20 to +80	S4521
0.3*	2*	1.15	10*	25	1.4×10^{-14}		−40 to +100	−40 to +125	S5980
0.6*	4*		35*	20	1.9×10^{-14}				S5981
0.2	2	1.15	1*	60	1.2×10^{-14}	20	−25 to +85	−40 to +100	S6344
0.1 C	1 C		1* C	200 C	9.9×10^{-15}				S6795

A V_R=1 V
B V_R=0 V, f=10 kHz
C V_R=5 V
D V_R=10 mV
E V_R=0 V
F V_R=3 V
*: Value per element.

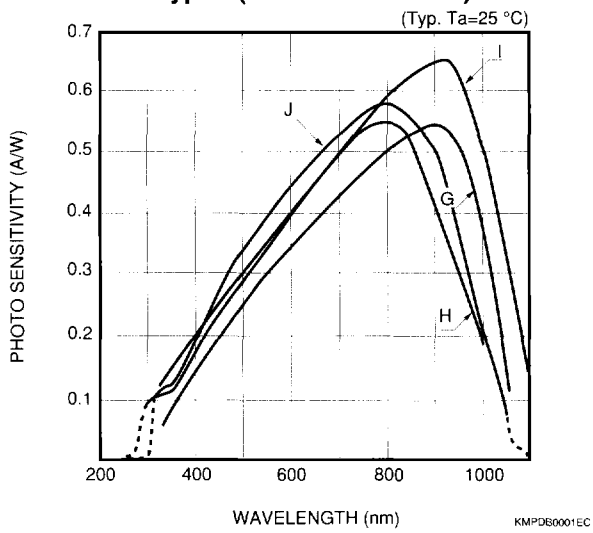
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Spectral Response

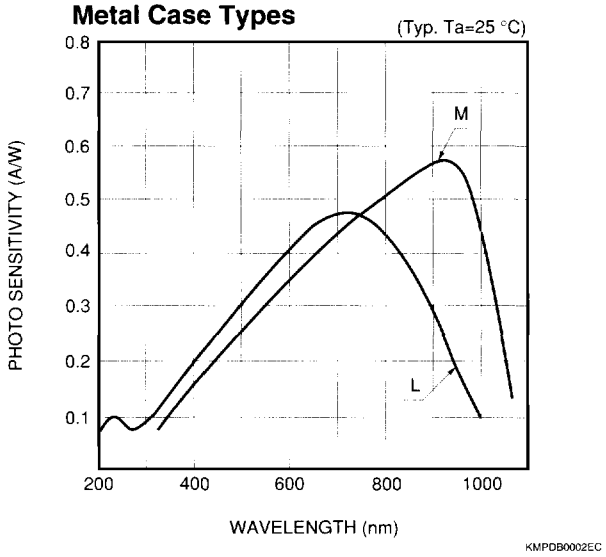
Plastic Types (Two-element)



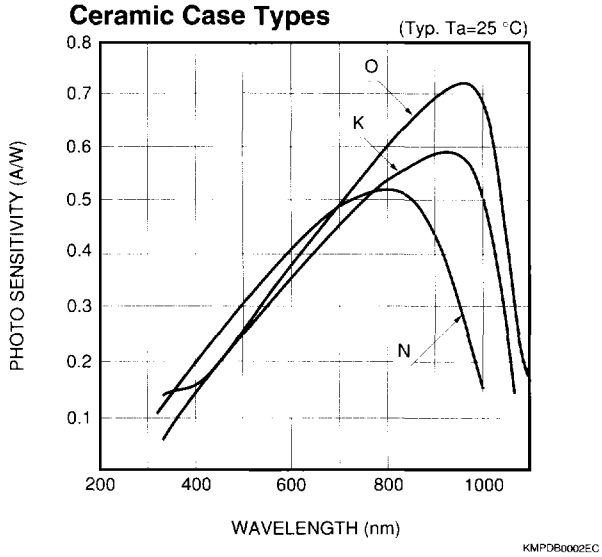
Plastic Types (Four/Six-element)



Metal Case Types

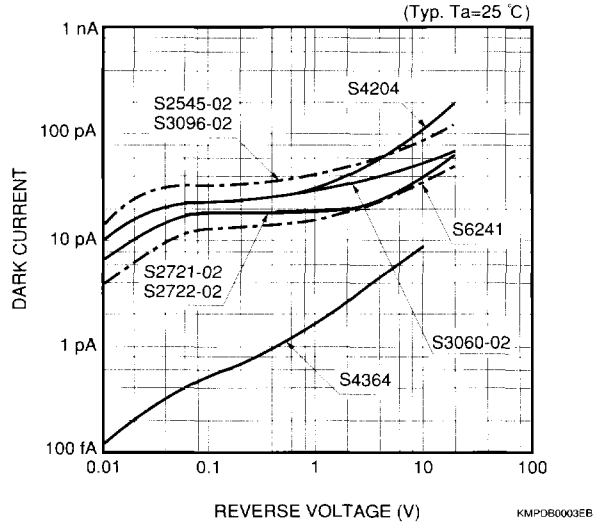


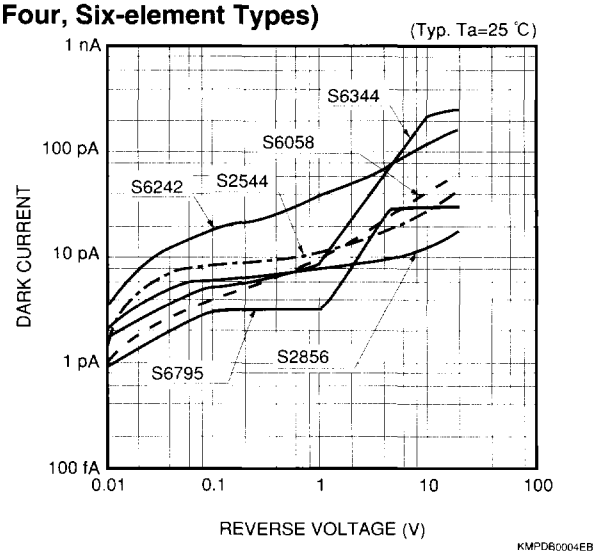
Ceramic Case Types



Dark Current vs. Reverse Voltage

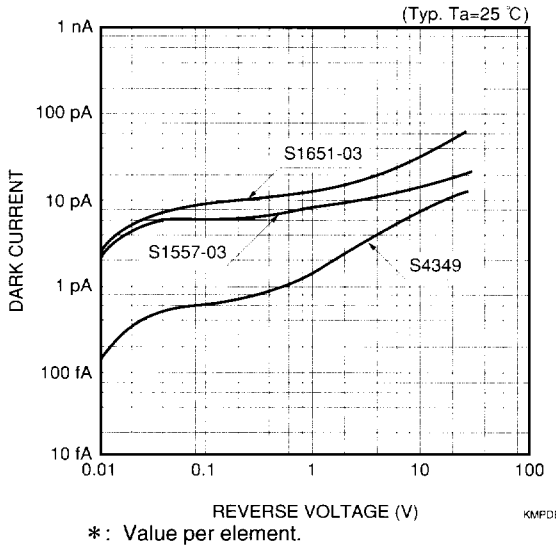
Plastic Mold Types (Left: Two-element Types. Right: Four, Six-element Types)



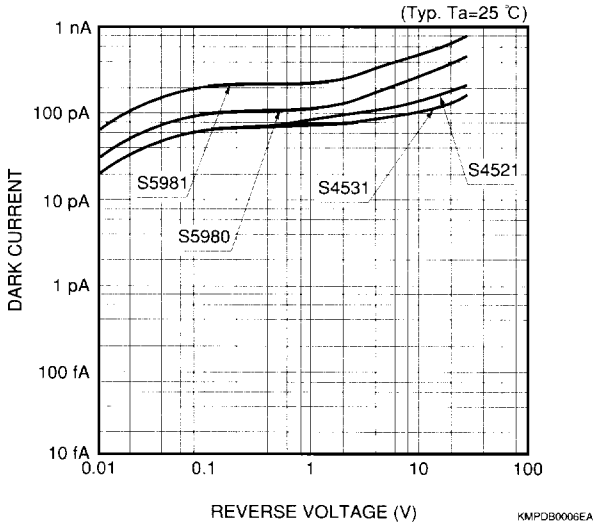


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Metal Case Types*



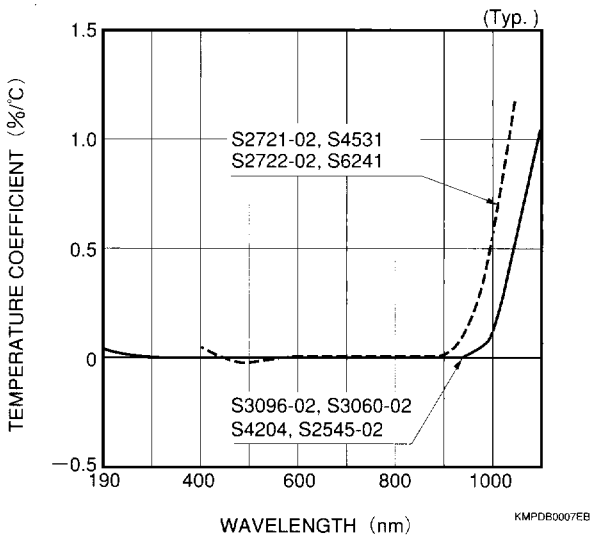
Ceramic Case Types*



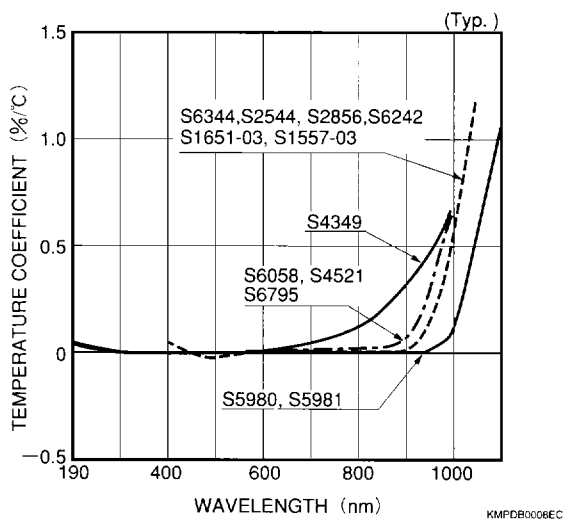
*: Value per element.
(The others are values per all elements.)

●Temperature Characteristics of Spectral Response

Two-element Types

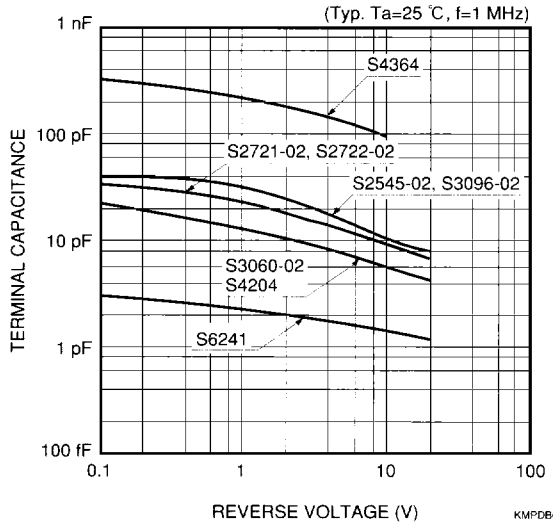


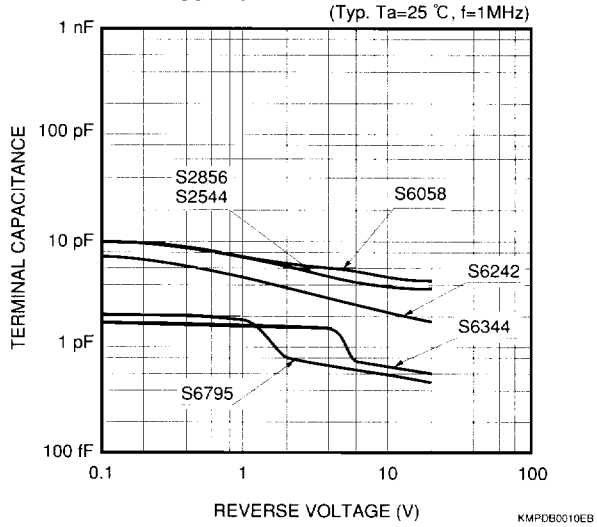
Four, Six-element Types



●Terminal Capacitance vs. Reverse Voltage

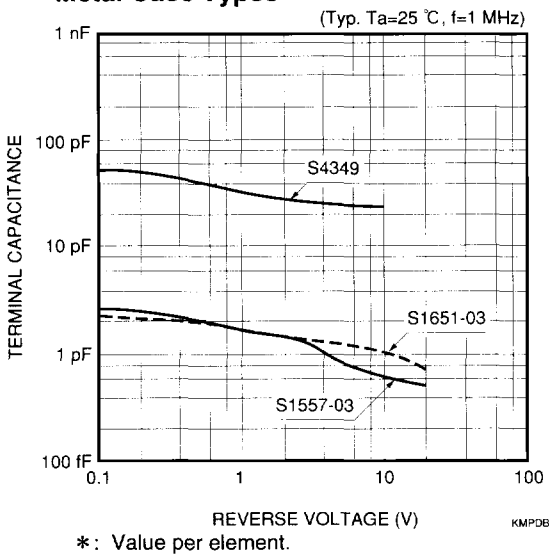
Plastic Types (Left: Two-element Types, Right: Four, Six-element Types)



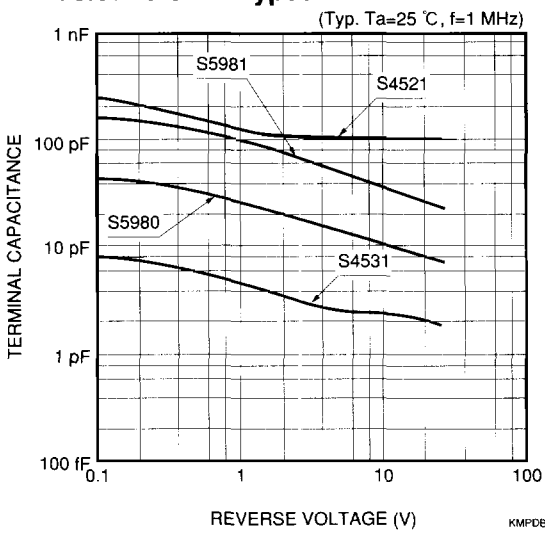


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Metal Case Types*



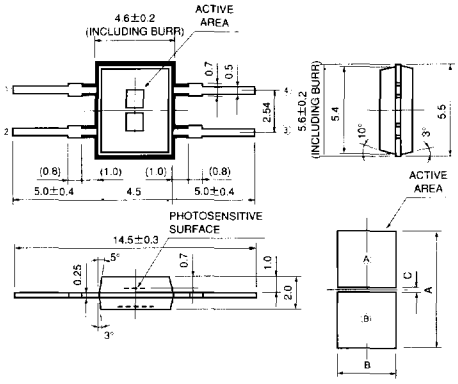
Ceramic Case Types*



*: Value per element.
(The others are values per all elements.)

Unit:mm

❶S3060-02,S2545-02



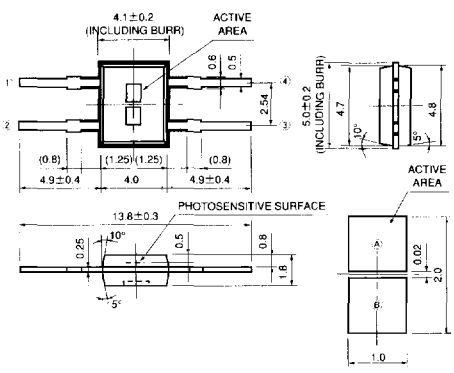
Pin Connection

①	Anode Ⓐ
②	Cathode Common
③	Anode Ⓑ
④	Cathode Common

	S3060-02	S2545-02
A	2.0	3.0
B	1.0	1.2
C	0.02	0.03

KMPDA0002EA

❷S4204

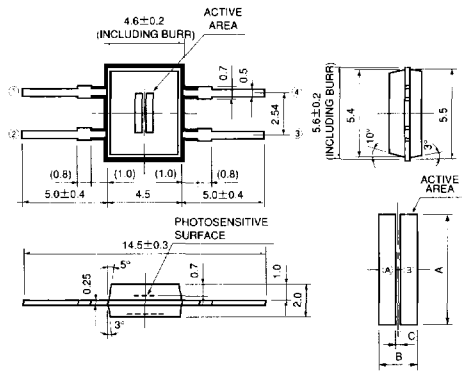


Pin Connection

①	Anode Ⓐ
②	Cathode Common
③	Anode Ⓑ
④	Cathode Common

KMPDA0006EA

❸S2721-02,S2722-02



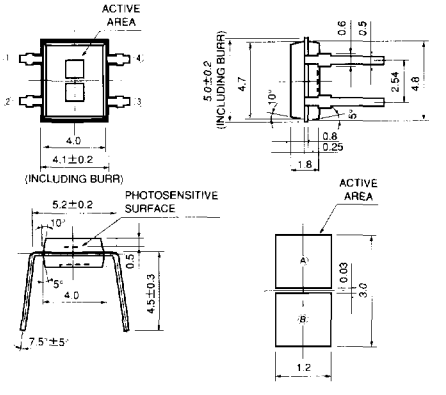
Pin Connection

①	Anode Ⓐ
②	Cathode Common
③	Anode Ⓑ
④	Cathode Common

	S2721-02	S2722-02
A	3.0	3.0
B	1.0	1.0
C	0.005	0.05

KMPDA0003EA

❹S3096-02

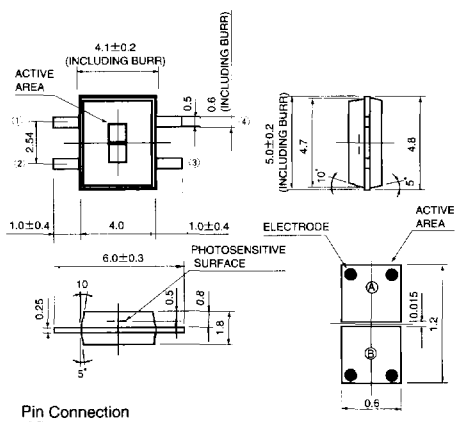


Pin Connection

①	Anode Ⓐ
②	Cathode Common
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④	Cathode Common

KMPDA0004EB

❺S6241

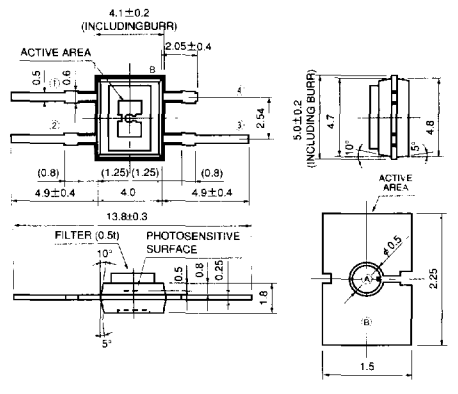


Pin Connection

①	Anode Ⓐ
②	Cathode Common
③	Anode Ⓑ
④	Cathode Common

KMPDA0051JA

❻S4364



Pin Connection

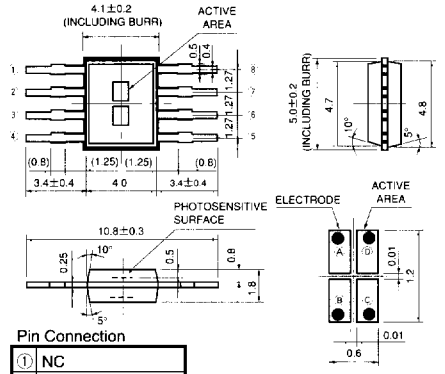
①	Anode Ⓑ
②	Cathode Common
③	Anode Ⓐ
④	Cathode Common

KMPDA0005EA

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Unit:mm

⑦S2856,S6058

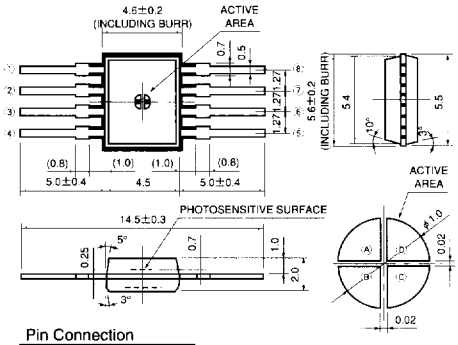


Pin Connection

①	NC
②	Anode Ⓐ
③	Anode Ⓑ
④	Cathode Common
⑤	NC
⑥	Anode Ⓒ
⑦	Anode Ⓓ
⑧	Cathode Common

KMPDA0007EA

⑧S2544

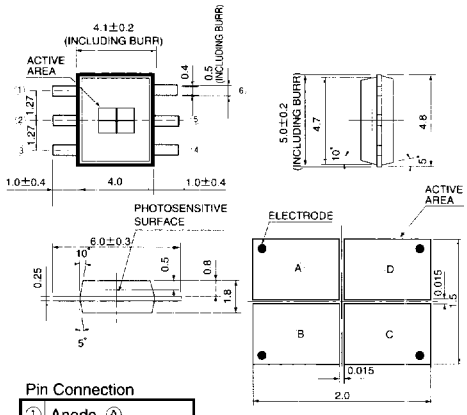


Pin Connection

①	NC
②	Anode Ⓐ
③	Anode Ⓑ
④	Cathode Common
⑤	NC
⑥	Anode Ⓒ
⑦	Anode Ⓓ
⑧	Cathode Common

KMPDA0009EA

⑨S6242

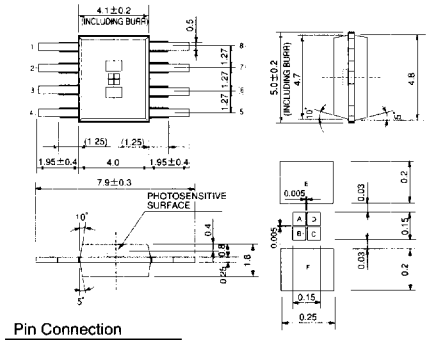


Pin Connection

①	Anode Ⓐ
②	Cathode Common
③	Anode Ⓑ
④	Anode Ⓒ
⑤	Cathode Common
⑥	Anode Ⓓ

KMPDA0052JA

⑩S6344,S6795

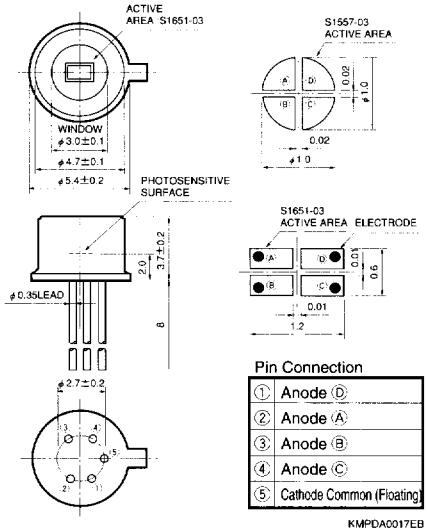


Pin Connection

①	Anode Ⓔ
②	Cathode Common
③	Anode Ⓐ
④	Anode Ⓑ
⑤	Anode Ⓕ
⑥	Cathode Common
⑦	Anode Ⓒ
⑧	Anode Ⓓ

KMPDA0050EA

⑪S1557-03,S1651-03

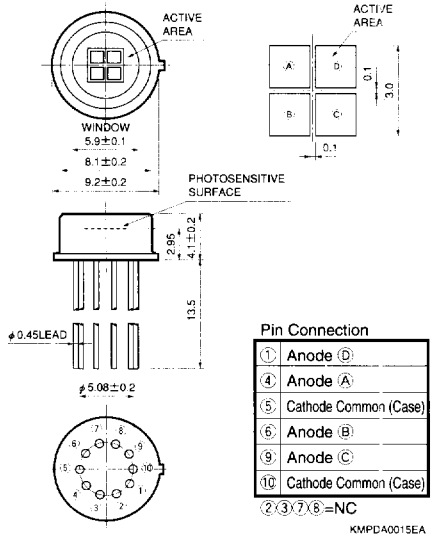


Pin Connection

①	Anode Ⓓ
②	Anode Ⓐ
③	Anode Ⓑ
④	Anode Ⓒ
⑤	Cathode Common (Floating)

KMPDA0017EB

⑫S4349



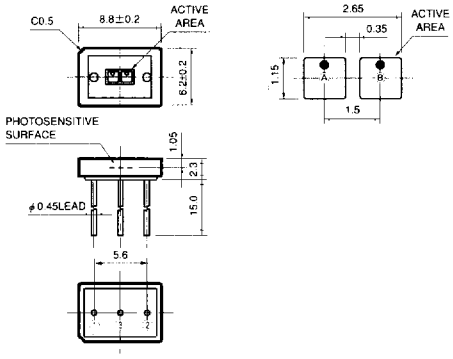
Pin Connection

①	Anode Ⓓ
④	Anode Ⓐ
⑤	Cathode Common (Case)
⑥	Anode Ⓑ
⑨	Anode Ⓒ
⑩	Cathode Common (Case)

②③⑦⑧=NC

KMPDA0015EA

⑬S4531

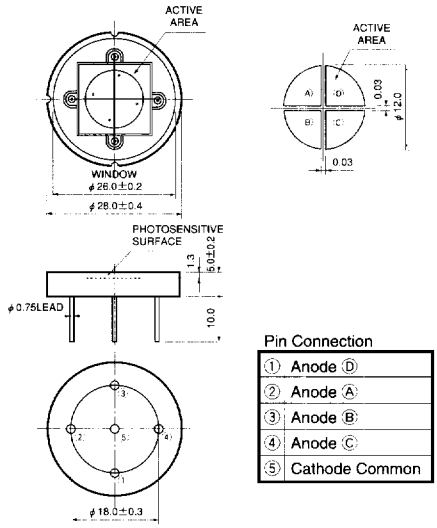


Pin Connection

①	Anode Ⓐ
②	Anode Ⓑ
③	Cathode Common

KMPDA0013EA

⑭S4521

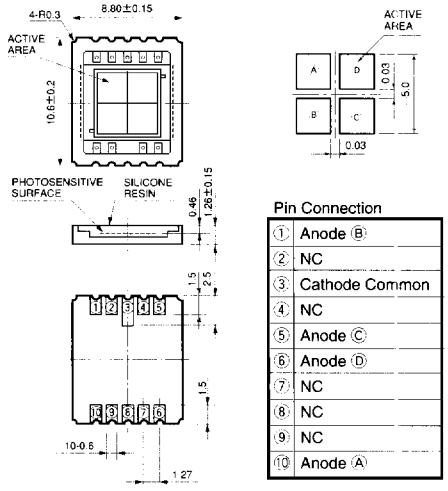


Pin Connection

①	Anode Ⓓ
②	Anode Ⓐ
③	Anode Ⓑ
④	Anode Ⓒ
⑤	Cathode Common

KMPDA0018EB

⑮S5980



The burr of 0.3 mm maximum on each side should be allowed.

Pin Connection

①	Anode Ⓑ
②	NC
③	Cathode Common
④	NC
⑤	Anode Ⓒ
⑥	Anode Ⓓ
⑦	NC
⑧	NC
⑨	NC
⑩	Anode Ⓐ

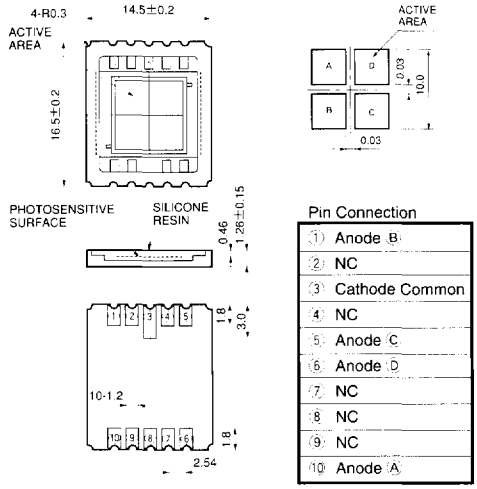
KPINA0036EB

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MULTI-ELEMENT Si PHOTODIODES

Unit:mm

⑯S5981



Pin Connection

①	Anode B
②	NC
③	Cathode Common
④	NC
⑤	Anode C
⑥	Anode D
⑦	NC
⑧	NC
⑨	NC
⑩	Anode A

The burr of 0.3 mm maximum on each side should be allowed.

KPINA0037EB

Element Number	Element Shape	Element Size (mm)	Element Gap (mm)	Metal Case Type No.	Ceramic Case Type No.	Plastic Mold Type No.	Plastic Mold Package	Plastic Mold Lead Shape
2		□1.15×2ch	0.35	—	S4531	—	—	—
		(0.6×1.2) /2ch	0.015	—	—	S6241	Transparent	Flat
		(1×2) /2ch	0.02	—	—	S3060-02	Visible light cut-off	Flat
						S4204	Transparent	
		(1.2×3) /2ch	0.03	—	—	S2545-02	Visible light cut-off	Flat
						S3096-02	Transparent	DIP
		(1×3) 2ch	0.005	—	—	S2721-02	Transparent	Flat
			0.05			S2722-02		
		(10×10) /2ch	0.03	—	S5870	—	—	—
		1.5×2.25, ϕ0.5	—	—	—	S4364	With visible light compensating fillter	Flat
4		(0.6×1.2) 4ch	0.01	S1651-03	—	S2856, S6058	Transparent	Flat
		ϕ1.0/4ch	0.02	S1557-03	—	S2544	Transparent	Flat
		(1.5×2) 4ch	0.015	—	—	S6242	Transparent	Flat
		(3×3) /4ch	0.1	S4349	—	—	—	—
		ϕ12.0/4ch	0.03	—	S4521	—	—	—
		(5×5) /4ch	0.03	—	S5980	—	—	—
		(10×10) /4ch	0.03	—	S5981	—	—	—
6		Center: □0.15/4ch Side: (0.2×0.25)×2ch	—	—	—	S6344, S6795	Transparent	Flat

HAMAMATSU

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