

# Si PIN photodiode S1722-02, S1723-05

Large area, high-speed PIN photodiodes for UV to near IR photometry



S1722-02 and S1723-05 are high-speed Si PIN photodiodes having a large active area of  $\phi 4.1$  mm (S1722-02) or  $10 \times 10$  mm (S1723-05). Using quartz glass as the light input window, these photodiodes deliver high sensitivity extending to the far UV region and are suitable for optical power meters.

## Features

- Quartz glass window
- High UV sensitivity
- Large active area  
S1722-02:  $\phi 4.1$  mm  
S1723-05:  $10 \times 10$  mm
- High-speed response  
S1722-02: 60 MHz ( $V_R=100$  V)  
S1723-05: 15 MHz ( $V_R=30$  V)

## Applications

- Optical power meter
- Radiation detector

### General ratings / Absolute maximum ratings

| Type No. | Dimensional outline/<br>Window material *1 | Package<br>(mm) | Active area size<br>(mm) | Effective active area<br>(mm <sup>2</sup> ) | Absolute maximum ratings             |                                |                                            |                                          |
|----------|--------------------------------------------|-----------------|--------------------------|---------------------------------------------|--------------------------------------|--------------------------------|--------------------------------------------|------------------------------------------|
|          |                                            |                 |                          |                                             | Reverse voltage<br>$V_R$ Max.<br>(V) | Power dissipation<br>P<br>(mW) | Operating temperature<br>$T_{opr}$<br>(°C) | Storage temperature<br>$T_{stg}$<br>(°C) |
| S1722-02 | ①/Q                                        | TO-8            | $\phi 4.1$               | 13.2                                        | 120                                  | 50                             | -20 to +60                                 | -55 to +80                               |
| S1723-05 | ②/Q                                        | Ceramic         | $10 \times 10$           | 100                                         | 50                                   | 100                            |                                            | -20 to +80                               |

### Electrical and optical characteristics (Typ. $T_a=25$ °C, unless otherwise noted)

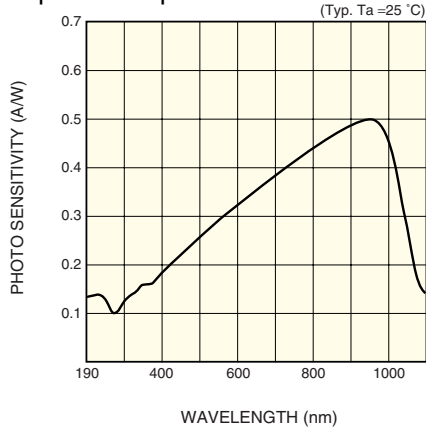
| Type No. | Spectral response range<br>$\lambda$<br>(nm) | Peak sensitivity wavelength<br>$\lambda_p$<br>(nm) | Photo sensitivity<br>S<br>(A/W) |                       | Dark current<br>$I_D$ Max.<br>(nA) | Temp. coefficient of $I_D$<br>$T_{CID}$<br>(times/°C) | Cut-off frequency<br>$f_c$<br>(MHz) | Terminal capacitance<br>$C_t$<br>(pF) | NEP<br>(W/Hz <sup>1/2</sup> ) |
|----------|----------------------------------------------|----------------------------------------------------|---------------------------------|-----------------------|------------------------------------|-------------------------------------------------------|-------------------------------------|---------------------------------------|-------------------------------|
|          |                                              |                                                    | $\lambda_p$                     | He-Ne Laser<br>633 nm |                                    |                                                       |                                     |                                       |                               |
| S1722-02 | 190 to 1100                                  | 960                                                | 0.5                             | 0.33                  | 30 *2                              | 1.15                                                  | 60 *2                               | 10 *2                                 | $1.1 \times 10^{-14}$ *2      |
| S1723-05 |                                              |                                                    |                                 |                       | 10 *3                              |                                                       | 15 *3                               | 100 *3                                | $2.3 \times 10^{-14}$ *3      |

\*1: Window material Q: Quartz glass

\*2:  $V_R=100$  V

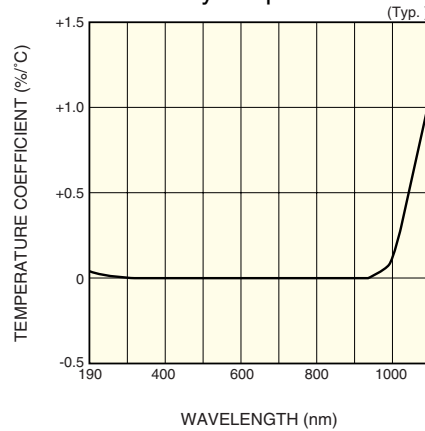
\*3:  $V_R=30$  V

■ Spectral response



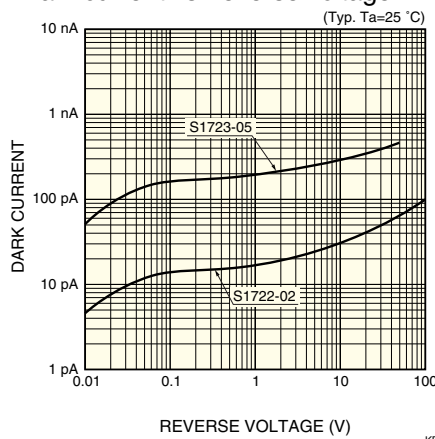
KPINB0181EA

■ Photo sensitivity temperature characteristic



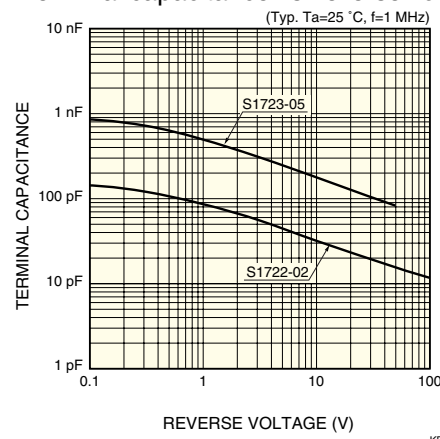
KPINB0182EA

■ Dark current vs. reverse voltage



KPINB0183EA

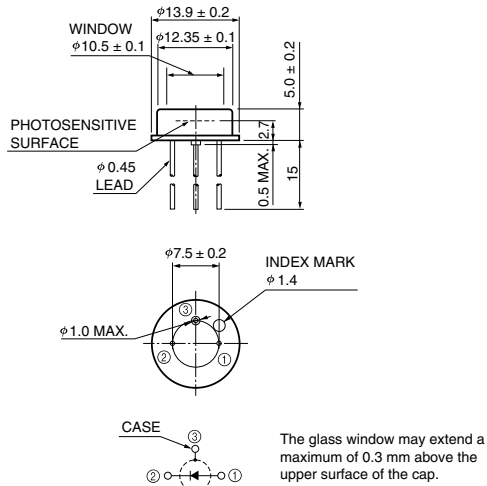
■ Terminal capacitance vs. reverse voltage



KPINB0184EA

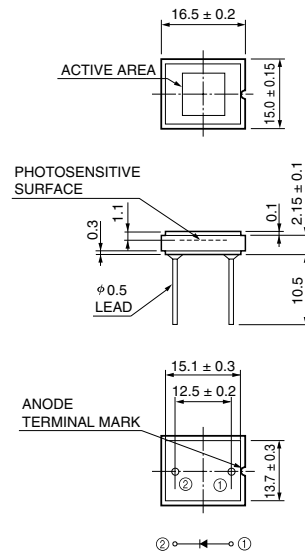
■ Dimensional outlines (unit: mm)

① S1722-02



KPINA0027EC

② S1723-05



KPINA0077EA