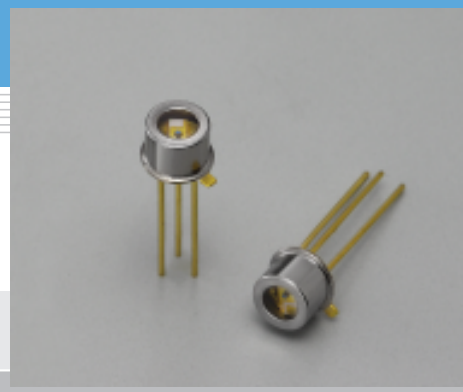


# GaAs PIN photodiode G8522 series

## High-speed response at low reverse voltage



G8522 series are high-speed PIN photodiodes developed for optical communications and are capable of GHz (gigahertz) operation even at a low reverse voltage (2 V or less). Please contact our sales office with your specific needs.

### Features

- High-speed response at low reverse voltage  
G8522-01: 3 GHz Min. ( $V_R=2$  V)  
G8522-02: 1.9 GHz Min. ( $V_R=2$  V)  
G8522-03: 1.5 GHz Min. ( $V_R=2$  V)
- Low noise, low dark current
- Low terminal capacitance

### Applications

- Optical fiber communications
- Fiber channels
- Gigabit Ethernet

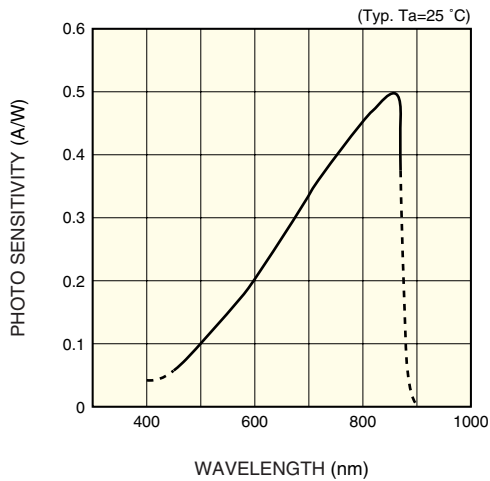
### ■ Absolute maximum ratings ( $T_a=25$ °C)

| Parameter             | Symbol     | Value       | Unit |
|-----------------------|------------|-------------|------|
| Reverse voltage       | $V_R$ Max. | 30          | V    |
| Operating temperature | $T_{opr}$  | -40 to +85  | °C   |
| Storage temperature   | $T_{stg}$  | -55 to +125 | °C   |

### ■ Electrical and optical characteristics ( $T_a=25$ °C)

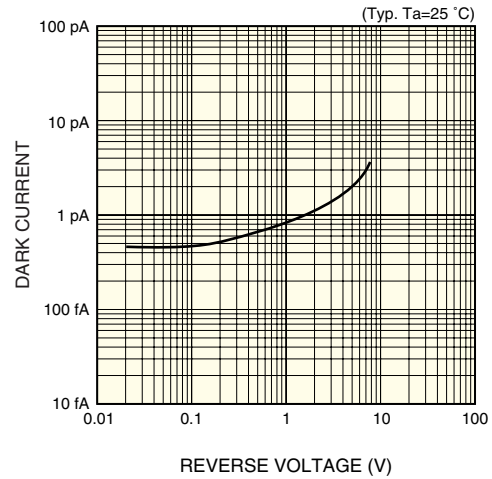
| Parameter                   | Symbol      | Condition                                        | G8522-01 |            |      | G8522-02 |            |      | G8522-03 |            |      | Unit |
|-----------------------------|-------------|--------------------------------------------------|----------|------------|------|----------|------------|------|----------|------------|------|------|
|                             |             |                                                  | Min.     | Typ.       | Max. | Min.     | Typ.       | Max. | Min.     | Typ.       | Max. |      |
| Active area size            | -           |                                                  | -        | φ40        | -    | -        | φ80        | -    | -        | φ120       | -    | μm   |
| Spectral response range     | $\lambda$   |                                                  | -        | 470 to 870 | -    | -        | 470 to 870 | -    | -        | 470 to 870 | -    | nm   |
| Peak sensitivity wavelength | $\lambda_p$ |                                                  | -        | 850        | -    | -        | 850        | -    | -        | 850        | -    | nm   |
| Photo sensitivity           | S           | $\lambda=850$ nm                                 | 0.45     | 0.5        | -    | 0.45     | 0.5        | -    | 0.45     | 0.5        | -    | A/W  |
| Dark current                | $I_D$       | $V_R=5$ V                                        | -        | 2          | 50   | -        | 8          | 200  | -        | 20         | 500  | pA   |
| Terminal capacitance        | $C_t$       | $V_R=2$ V, $f=1$ MHz                             | -        | 0.3        | 0.45 | -        | 0.45       | 0.65 | -        | 0.8        | 1.2  | pF   |
| Cut-off frequency           | $f_c$       | $V_R=2$ V, $R_L=50$ Ω<br>$\lambda=850$ nm, -3 dB | 3        | -          | -    | 1.9      | -          | -    | 1.5      | -          | -    | GHz  |

## ■ Spectral response



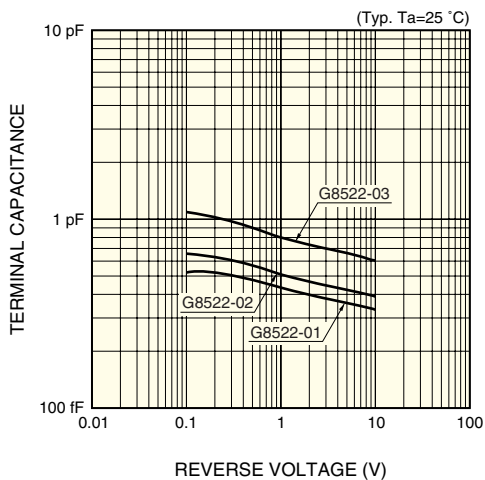
KGPD80044EA

## ■ Dark current vs. reverse voltage



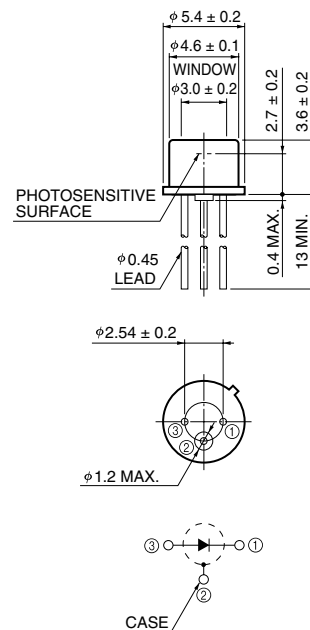
KGPD80045EA

## ■ Terminal capacitance vs. reverse voltage



KGPD80046EA

## ■ Dimensional outline (unit: mm)



KGPD40015EA

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