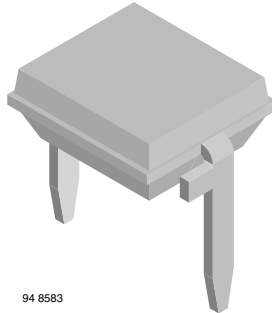


## Silicon PIN Photodiode



94 8583

### DESCRIPTION

BPW34 is a PIN photodiode with high speed and high radiant sensitivity in miniature, flat, top view, clear plastic package. It is sensitive to visible and near infrared radiation. BPW34S is packed in tubes, specifications like BPW34.

### FEATURES

- Package type: leaded
- Package form: top view
- Dimensions (L x W x H in mm): 5.4 x 4.3 x 3.2
- Radiant sensitive area (in mm<sup>2</sup>): 7.5
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity:  $\phi = \pm 65^\circ$
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



### Note

\*\* Please see document "Vishay Material Category Policy":  
[www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

### APPLICATIONS

- High speed photo detector

| PRODUCT SUMMARY |                      |              |                      |
|-----------------|----------------------|--------------|----------------------|
| COMPONENT       | $I_{ra}$ ( $\mu A$ ) | $\phi$ (deg) | $\lambda_{0.1}$ (nm) |
| BPW34           | 50                   | $\pm 65$     | 430 to 1100          |
| BPW34S          | 50                   | $\pm 65$     | 430 to 1100          |

### Note

- Test condition see table "Basic Characteristics"

| ORDERING INFORMATION |           |                              |              |
|----------------------|-----------|------------------------------|--------------|
| ORDERING CODE        | PACKAGING | REMARKS                      | PACKAGE FORM |
| BPW34                | Bulk      | MOQ: 3000 pcs, 3000 pcs/bulk | Top view     |
| BPW34S               | Tube      | MOQ: 1800 pcs, 45 pcs/tube   | Top view     |

### Note

- MOQ: minimum order quantity

| ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ C$ , unless otherwise specified) |  |            |               |            |
|---|--|------------|---------------|------------|
| PARAMETER   | TEST CONDITION                               | SYMBOL     | VALUE         | UNIT       |
| Reverse voltage   |  | $V_R$      | 60            | V          |
| Power dissipation   | $T_{amb} \leq 25^\circ C$                    | $P_V$      | 215           | mW         |
| Junction temperature  |  | $T_j$      | 100           | $^\circ C$ |
| Operating temperature range   |  | $T_{amb}$  | - 40 to + 100 | $^\circ C$ |
| Storage temperature range   |  | $T_{stg}$  | - 40 to + 100 | $^\circ C$ |
| Soldering temperature   | $t \leq 3$ s                                 | $T_{sd}$   | 260           | $^\circ C$ |
| Thermal resistance junction/ambient   | Connected with Cu wire, 0.14 mm <sup>2</sup> | $R_{thJA}$ | 350           | K/W        |

| <b>BASIC CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |                 |      |                     |      |                             |
|---|--|-----------------|------|---------------------|------|-----------------------------|
| PARAMETER   | TEST CONDITION   | SYMBOL          | MIN. | TYP.                | MAX. | UNIT                        |
| Breakdown voltage   | $I_R = 100\text{ }\mu\text{A}$ , $E = 0$                                     | $V_{(BR)}$      | 60   |                     |      | V                           |
| Reverse dark current  | $V_R = 10\text{ V}$ , $E = 0$  | $I_{ro}$        |      | 2                   | 30   | nA                          |
| Diode capacitance   | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$                            | $C_D$           |      | 70                  |      | pF                          |
|   | $V_R = 3\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$                            | $C_D$           |      | 25                  | 40   | pF                          |
| Open circuit voltage  | $E_e = 1\text{ mW/cm}^2$ , $\lambda = 950\text{ nm}$                         | $V_o$           |      | 350                 |      | mV                          |
| Temperature coefficient of $V_o$  | $E_e = 1\text{ mW/cm}^2$ , $\lambda = 950\text{ nm}$                         | $TK_{V_o}$      |      | -2.6                |      | mV/K                        |
| Short circuit current   | $E_A = 1\text{ klx}$   | $I_k$           |      | 70                  |      | $\mu\text{A}$               |
|   | $E_e = 1\text{ mW/cm}^2$ , $\lambda = 950\text{ nm}$                         | $I_k$           |      | 47                  |      | $\mu\text{A}$               |
| Temperature coefficient of $I_k$  | $E_e = 1\text{ mW/cm}^2$ , $\lambda = 950\text{ nm}$                         | $TK_{I_k}$      |      | 0.1                 |      | %/K                         |
| Reverse light current   | $E_A = 1\text{ klx}$ , $V_R = 5\text{ V}$                                    | $I_{ra}$        |      | 75                  |      | $\mu\text{A}$               |
|   | $E_e = 1\text{ mW/cm}^2$ , $\lambda = 950\text{ nm}$ ,<br>$V_R = 5\text{ V}$ | $I_{ra}$        | 40   | 50                  |      | $\mu\text{A}$               |
| Angle of half sensitivity   |  | $\phi$          |      | $\pm 65$            |      | deg                         |
| Wavelength of peak sensitivity  |  | $\lambda_p$     |      | 900                 |      | nm                          |
| Range of spectral bandwidth   |  | $\lambda_{0.1}$ |      | 430 to 1100         |      | nm                          |
| Noise equivalent power  | $V_R = 10\text{ V}$ , $\lambda = 950\text{ nm}$                              | NEP             |      | $4 \times 10^{-14}$ |      | $\text{W}/\sqrt{\text{Hz}}$ |
| Rise time   | $V_R = 10\text{ V}$ , $R_L = 1\text{ k}\Omega$ , $\lambda = 820\text{ nm}$   | $t_r$           |      | 100                 |      | ns                          |
| Fall time   | $V_R = 10\text{ V}$ , $R_L = 1\text{ k}\Omega$ , $\lambda = 820\text{ nm}$   | $t_f$           |      | 100                 |      | ns                          |

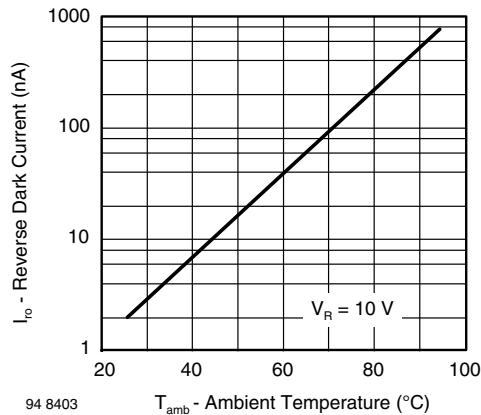
**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

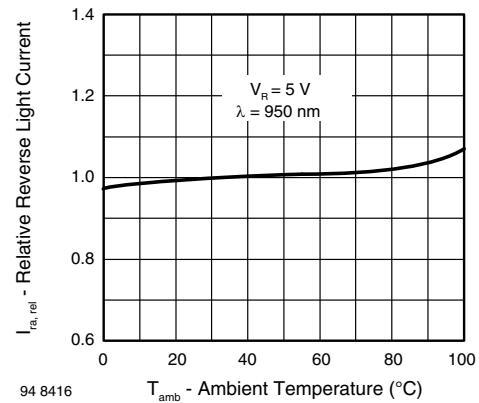


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

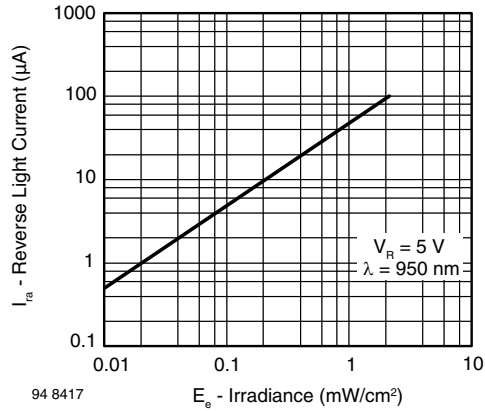


Fig. 3 - Reverse Light Current vs. Irradiance

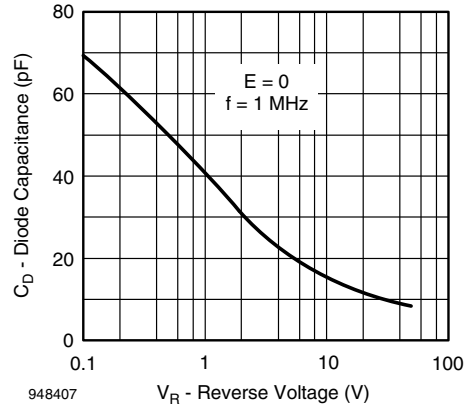


Fig. 6 - Diode Capacitance vs. Reverse Voltage

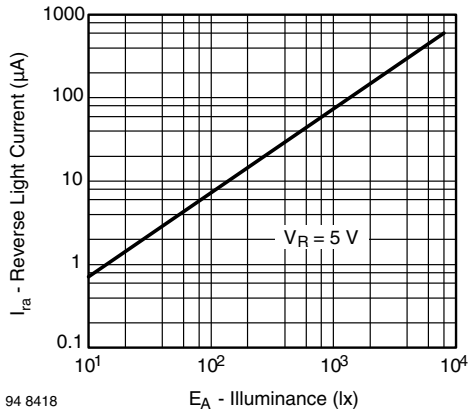


Fig. 4 - Reverse Light Current vs. Illuminance

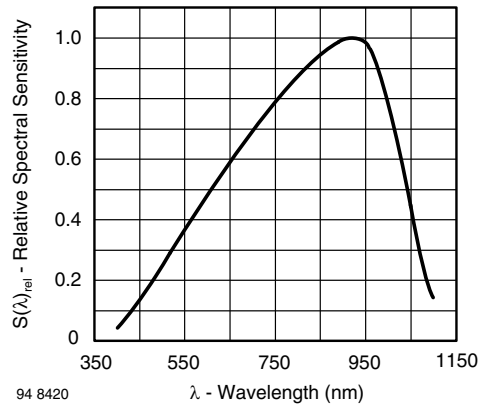


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

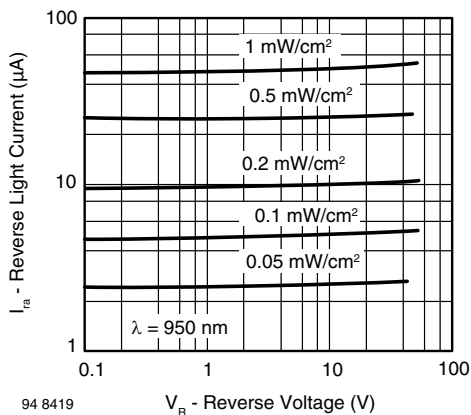


Fig. 5 - Reverse Light Current vs. Reverse Voltage

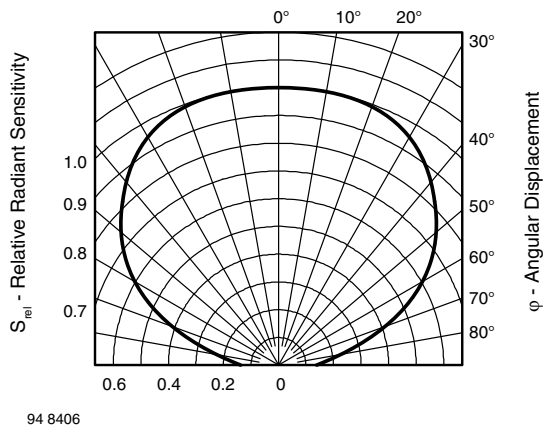
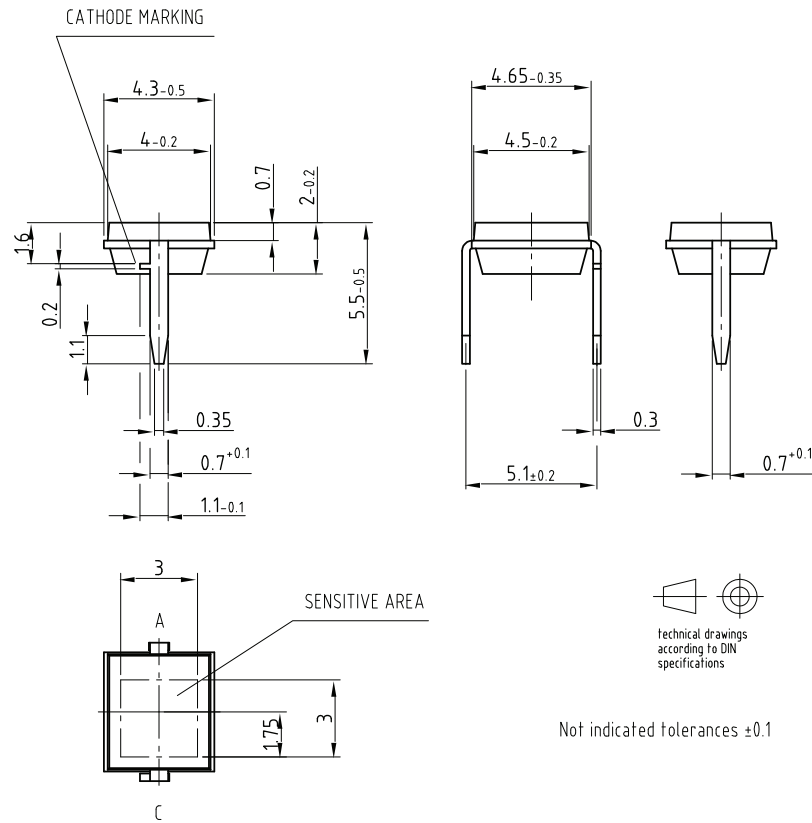


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement



**PACKAGE DIMENSIONS** in millimeters



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**TUBE PACKAGING DIMENSIONS** in millimeters

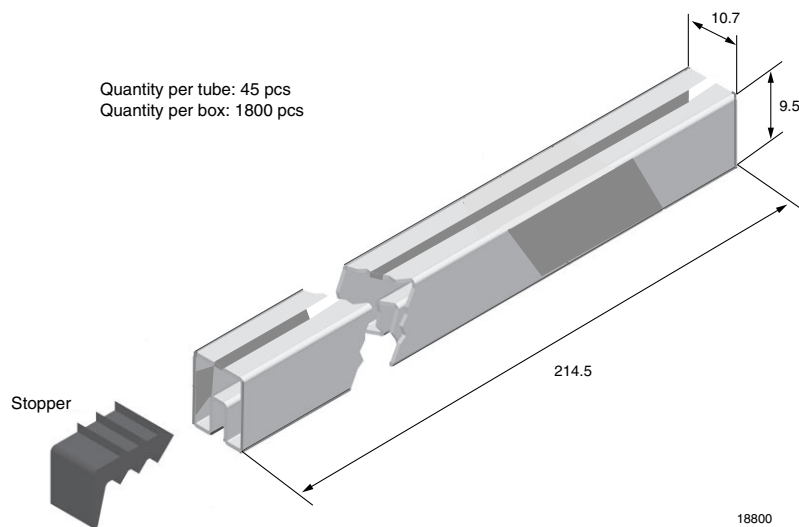


Fig. 9 - Drawing Proportions not scaled



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