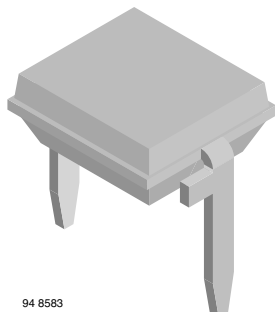


## Silicon PIN Photodiode, RoHS Compliant



### 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:  $\phi = \pm 65^\circ$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### 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.

### APPLICATIONS

- High speed photo detector

### PRODUCT SUMMARY

| COMPONENT | $I_{ra}$ (μA) | $\phi$ (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

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

#### Note

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

| BASIC CHARACTERISTICS            |                                                                 |                 |      |                     |      |                       |
|----------------------------------|-----------------------------------------------------------------|-----------------|------|---------------------|------|-----------------------|
| PARAMETER                        | TEST CONDITION                                                  | SYMBOL          | MIN. | TYP.                | MAX. | UNIT                  |
| Breakdown voltage                | $I_R = 100 \mu A, E = 0$                                        | $V_{(BR)}$      | 60   |                     |      | V                     |
| Reverse dark current             | $V_R = 10 V, E = 0$                                             | $I_{ro}$        |      | 2                   | 30   | nA                    |
| Diode capacitance                | $V_R = 0 V, f = 1 \text{ MHz}, E = 0$                           | $C_D$           |      | 70                  |      | pF                    |
|                                  | $V_R = 3 V, f = 1 \text{ MHz}, E = 0$                           | $C_D$           |      | 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                  |      | $\mu A$               |
|                                  | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$             | $I_k$           |      | 47                  |      | $\mu A$               |
| 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            | $E_A = 1 \text{ klx}, V_R = 5 V$                                | $I_{ra}$        |      | 75                  |      | $\mu A$               |
|                                  | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_R = 5 V$  | $I_{ra}$        | 40   | 50                  |      | $\mu A$               |
| 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           | $V_R = 10 V, \lambda = 950 \text{ nm}$                          | NEP             |      | $4 \times 10^{-14}$ |      | W/ $\sqrt{\text{Hz}}$ |
| Rise time                        | $V_R = 10 V, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$ | $t_r$           |      | 100                 |      | ns                    |
| Fall time                        | $V_R = 10 V, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$ | $t_f$           |      | 100                 |      | ns                    |

**Note**

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

**BASIC CHARACTERISTICS**

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

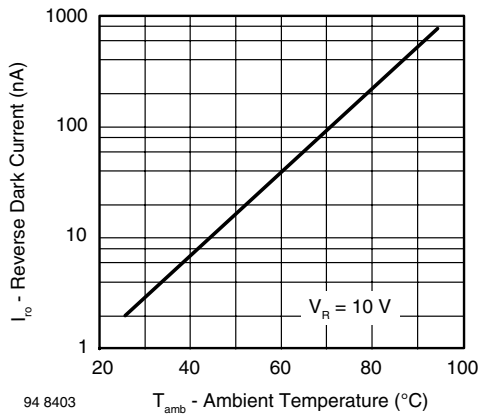


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

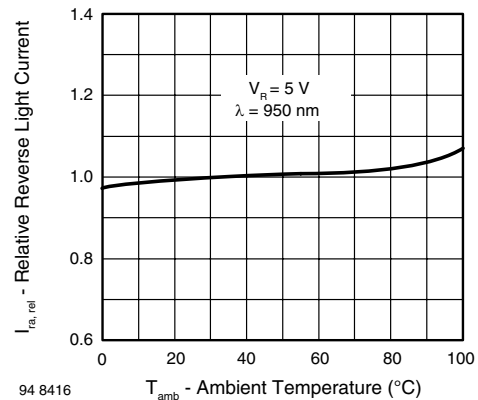


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

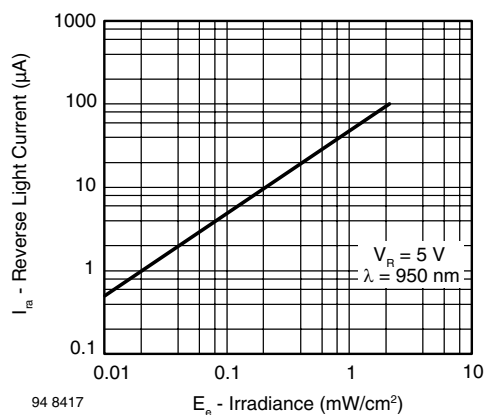


Fig. 3 - Reverse Light Current vs. Irradiance

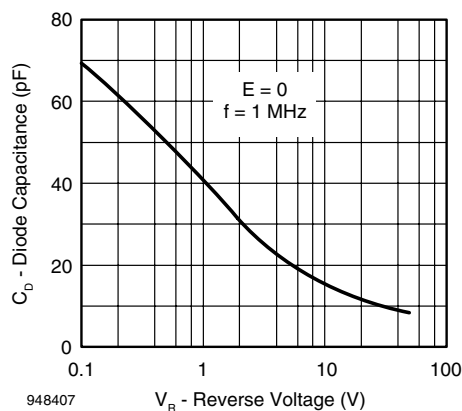


Fig. 6 - Diode Capacitance vs. Reverse Voltage

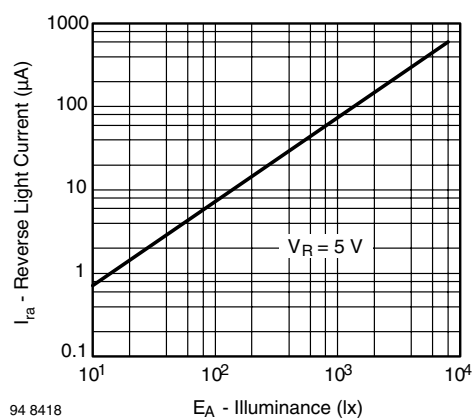


Fig. 4 - Reverse Light Current vs. Illuminance

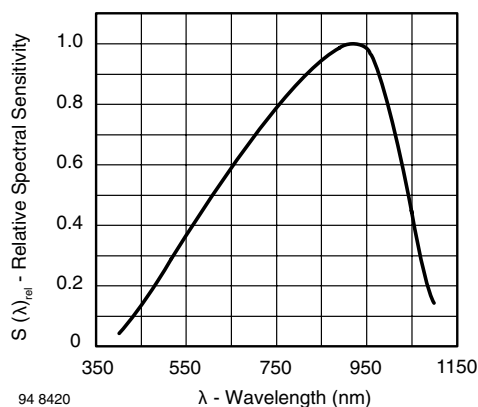


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

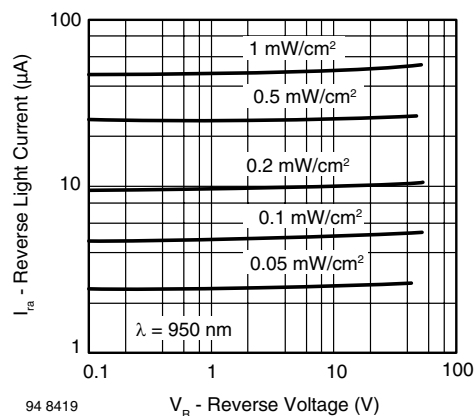


Fig. 5 - Reverse Light Current vs. Reverse Voltage

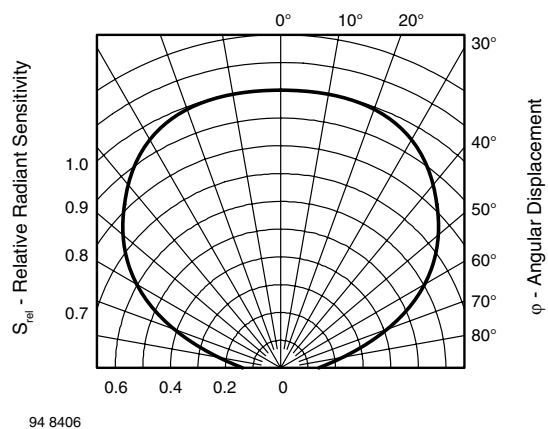
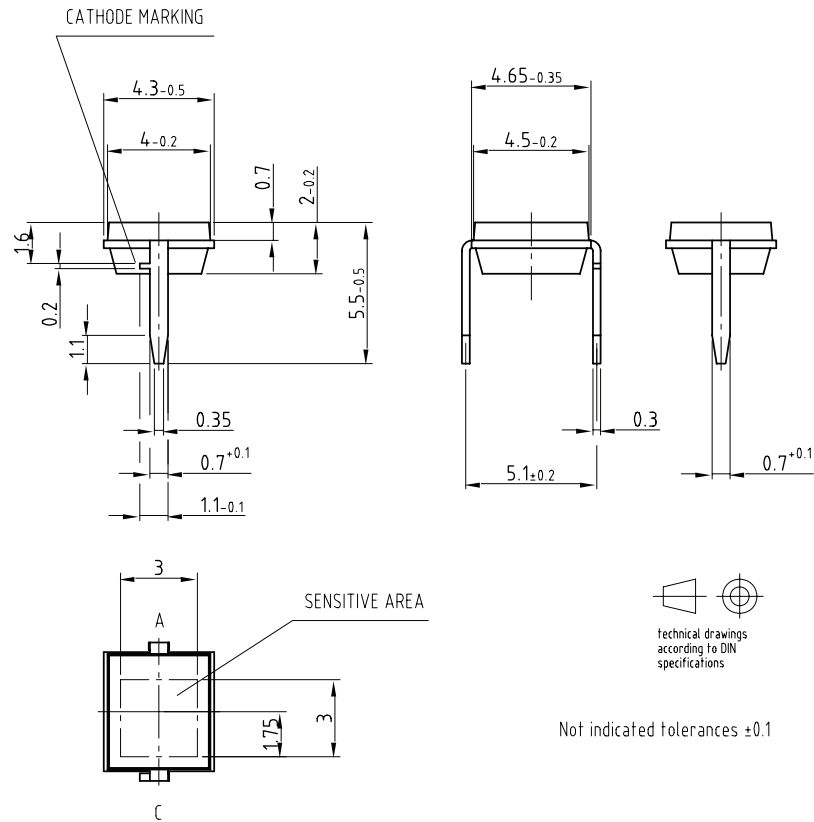


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement



**PACKAGE DIMENSIONS** in millimeters



Drawing-No.: 6.544-5315.01-4  
Issue: 1; 19.10.07  
96 12186

**TUBE PACKAGING DIMENSIONS** in millimeters

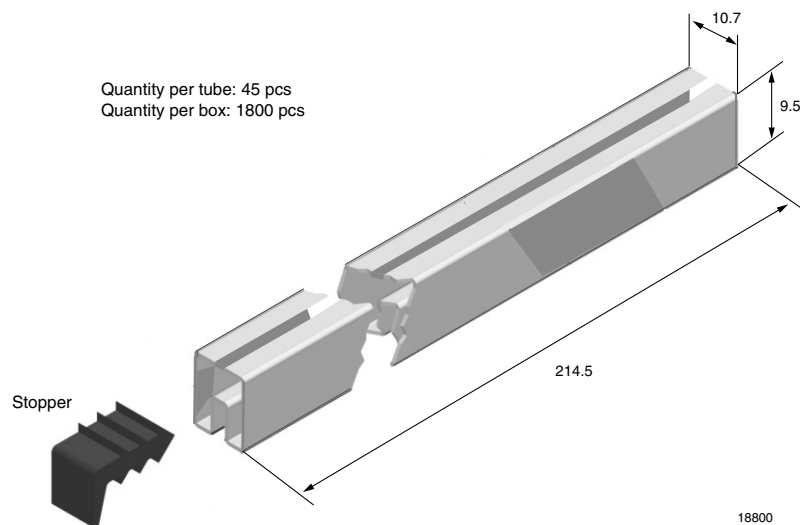


Fig. 9 - Drawing Proportions not scaled



### Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.