

PHOTODETECTORS

| パッケージ<br>Package | 品名<br>Part name | 電気的光学的特性/Electro-optical characteristics                         |                              |      |          |            |                                  |           |                                |          |       |       | 絶対最大定格/Absolute maximum ratings  |                              |   |   |   | 標準梱包<br>数量<br>Standard<br>qty.<br>/Reel | WEB  |   |
|------------------|-----------------|--|------------------------------|------|----------|------------|----------------------------------|-----------|--------------------------------|----------|-------|-------|--|------------------------------|---|---|---|---|------|---|
|                  |                 | ピーク感度波長<br>Peak sensitivity<br>wavelength<br>$\lambda_p$<br>Typ. | 光電流<br>Photocurrent<br>$I_c$ |      |          |            | 暗電流<br>Dark current<br>$I_{CEO}$ |           | 応答速度<br>Response time<br>tr/ta |          |       |       | 指向半値角<br>Half-intensity<br>angle<br>$2\theta_{1/2}$<br>( $\theta_x/\theta_y$ ) | 指向特性<br>Spatial distribution | コレクタ・エミッタ間電圧<br>Collector-emitter<br>voltage<br>$V_{CEO}$ | コレクタ電流<br>Collector<br>current<br>$I_c$ | 動作温度<br>Operating<br>temperature<br>$T_{opr}$ |   |      | 保存温度<br>Storage<br>temperature<br>$T_{stg}$ |
|                  |                 |  | Min.                         | Typ. | $V_{CE}$ | $E_e^{*2}$ | Max.                             | $V_{CEO}$ | Typ.                           | $V_{CE}$ | $R_L$ | $I_c$ |  |                              |   |   |   |   |      |   |
| 単位 (Units)       |                 | nm   | mA                           |      |          |            | $\mu A$                          |           | $\mu s$                        |          |       |       | deg.   | -                            | V   | mA                                      | °C  | °C                                      | pcs. |   |

PHOTO TRANSISTORS

|  |                                     |                   |      |      |   |   |     |    |           |    |     |   |           |   |    |    |         |          |       |   |
|--|-------------------------------------|-------------------|------|------|---|---|-----|----|-----------|----|-----|---|-----------|---|----|----|---------|----------|-------|---|
| <br>7.81mg  | TPS1105WA                           | 850               | 4.8  | 11.0 | 5 | 5 | 0.1 | 10 | 1.8 / 2.6 | 10 | 100 | 2 | 40 / 40   |    | 12 | 20 | -40~+85 | -40~+100 | 2,000 |   |
| <br>7.81mg  | TPS1195WB                           | 900 <sup>#1</sup> | 4.8  | 8.0  | 5 | 5 | 0.1 | 10 | 1.8 / 2.6 | 10 | 100 | 2 | 40 / 40   |    | 12 | 20 | -40~+85 | -40~+100 | 2,000 |   |
| <br>2.84mg  | VTPS1102HA                          | 850               | 0.9  | 2.0  | 5 | 5 | 0.1 | 10 | 1.8 / 2.6 | 10 | 100 | 2 | 130 / 120 |   | 12 | 20 | -40~+85 | -40~+100 | 4,000 |  |
| <br>2.84mg | VTPS1192HB                          | 900 <sup>#1</sup> | 0.45 | 1.3  | 5 | 5 | 0.1 | 10 | 1.8 / 2.6 | 10 | 100 | 2 | 130 / 120 |   | 12 | 20 | -40~+85 | -40~+100 | 4,000 |   |
| <br>6.6mg | TPS1191RB-2<br>(reverse mount type) | 900 <sup>#1</sup> | 0.7  | 1.0  | 5 | 5 | 0.1 | 10 | 1.8 / 2.6 | 10 | 100 | 2 | 110 / 120 |  | 30 | 20 | -40~+85 | -40~+100 | 3,000 |   |

※製品画像は代表的なものです/The pictures illustrate representative products.

※1 可視光カット(700nm以下)/Visible radiation cut filter under 700 nm

※2 光源色温度は2,856Kの標準タングステンランプを使用/A standard tungsten lamp with a color temperature of 2,856 K is used

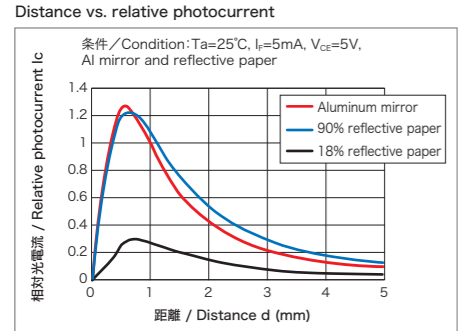
OPTICAL SENSORS

Ta=25°C

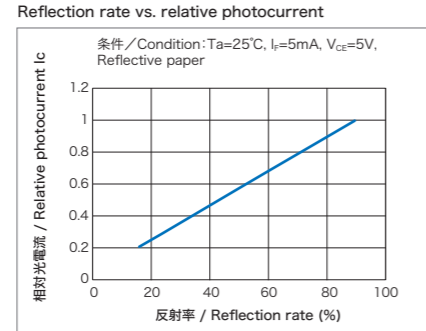
| パッケージ<br>Package   | 品名<br>Part name | 電気的光学的特性/Electro-optical characteristics    |   |   |   |   |                               |     |  |     |     |      |                          |      |                           | 絶対最大定格/Absolute maximum ratings |   |      |                                    |      |  |      |  |      |                                | 標準梱包<br>数量<br>Standard<br>qty.<br>/Reel | WEB |                                  |                                |          |       |   |
|--|-----------------|---|---|---|---|---|-------------------------------|-----|--|-----|-----|------|--------------------------|------|---------------------------|---------------------------------|---|------|------------------------------------|------|--|------|--|------|--------------------------------|---|-----|----------------------------------|--------------------------------|----------|-------|---|
|  |                 | LED   |   |   | Photo transistor  |   | 結合特性/Coupling characteristics |     |  |     |     |      | 応答速度<br>Response<br>time |      | 順電流<br>Forward<br>current |                                 | 順電流低減率<br>Forward current<br>reduction rate |      | パルス順電流<br>Pulse<br>forward current |      | パルス順電流低減率<br>Pulse forward current<br>reduction rate |      | コレクタ・<br>エミッタ間電圧<br>Collector-emitter<br>voltage |      | コレクタ電流<br>Collector<br>current |   |     | 動作温度<br>Operating<br>temperature | 保存温度<br>Storage<br>temperature |          |       |   |
|  |                 | 順電圧<br>Forward<br>voltage<br>V <sub>F</sub> | ピーク発光波長<br>Peak<br>wavelength<br>λ <sub>p</sub> | 暗電流<br>Dark current<br>I <sub>CEO</sub> | ピーク感度波長<br>Peak sensitivity<br>wavelength<br>λ <sub>p</sub> | 光電流<br>Photocurrent<br>※1<br>I <sub>c</sub> |                               |     | 漏れ電流<br>Leakage current<br>※2<br>I <sub>LEAK</sub> |     |     | Typ. |                          | Typ. |                           | Typ.                            |   | Typ. |                                    | Typ. |  | Typ. |  | Typ. |                                |   |     | Typ.                             | Typ.                           |          |       |   |
| L3.6 x W1.9 x H1.1<br> 15mg | KUA0121C        | 0.9   | 1.1   | 1.5                                     | 940   | 0.1   | 10                            | 920 | 130  | 300 | 735 | 5    | 5                        | 2    | 5                         | 5                               | 10/10                                       | 10   | 100                                | 5    | 20   | 0.20 | 25   | 300  | 3.6                            | 25                                      | 20  | 10                               | -40~+100                       | -40~+120 | 2,500 |  |

※製品画像は代表的なものです/The pictures illustrate representative products.  
 ※1 検知距離 1mm/d=1mm ※2 反射物無し/No reflector ※3 I<sub>FRM</sub>の測定条件/Pulse width≤0.1ms, Duty≤1/100  
 ※4 Ta=85°C以上で使用される場合は、暗電流(I<sub>CEO</sub>)の増加をご考慮の上ご使用ください。/Please pay careful attention to the rise of dark current (I<sub>CEO</sub>) when using at Ta=85°C or more.

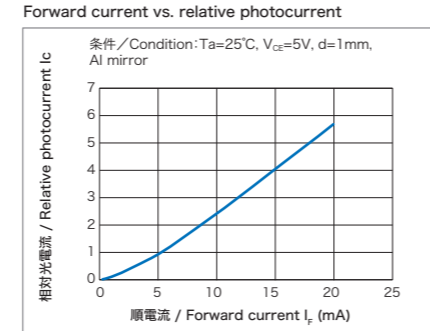
距離 - 相対光電流 特性



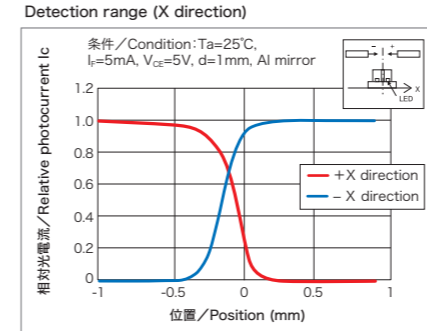
反射率 - 相対光電流 特性



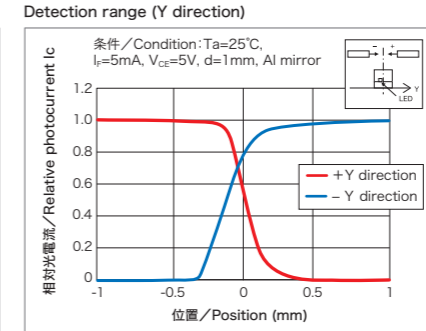
順電流 - 相対光電流 特性



検知範囲 特性 (X方向)



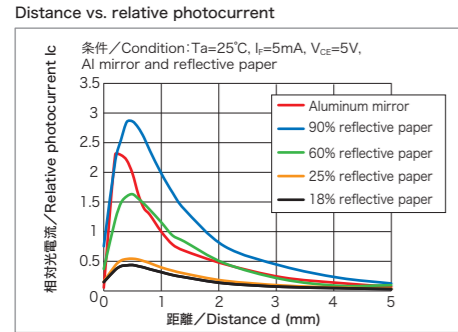
検知範囲 特性 (Y方向)



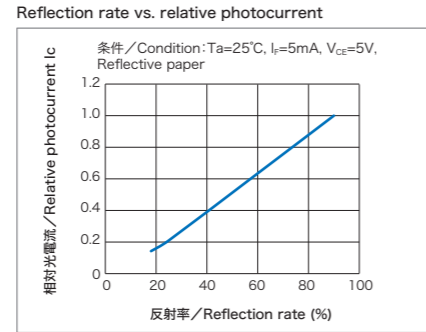
| パッケージ<br>Package  | 品名<br>Part name | 電気的光学的特性/Electro-optical characteristics    |   |   |   |   |                               |     |  |     |     |      |                          |      |                           | 絶対最大定格/Absolute maximum ratings |   |      |                                    |      |  |      |  |      |                                | 標準梱包<br>数量<br>Standard<br>qty.<br>/Reel | WEB |                                  |                                |          |       |   |
|---|-----------------|---|---|---|---|---|-------------------------------|-----|--|-----|-----|------|--------------------------|------|---------------------------|---------------------------------|---|------|------------------------------------|------|--|------|--|------|--------------------------------|---|-----|----------------------------------|--------------------------------|----------|-------|---|
|   |                 | LED   |   |   | Photo transistor  |   | 結合特性/Coupling characteristics |     |  |     |     |      | 応答速度<br>Response<br>time |      | 順電流<br>Forward<br>current |                                 | 順電流低減率<br>Forward current<br>reduction rate |      | パルス順電流<br>Pulse<br>forward current |      | パルス順電流低減率<br>Pulse forward current<br>reduction rate |      | コレクタ・<br>エミッタ間電圧<br>Collector-emitter<br>voltage |      | コレクタ電流<br>Collector<br>current |   |     | 動作温度<br>Operating<br>temperature | 保存温度<br>Storage<br>temperature |          |       |   |
|   |                 | 順電圧<br>Forward<br>voltage<br>V <sub>F</sub> | ピーク発光波長<br>Peak<br>wavelength<br>λ <sub>p</sub> | 暗電流<br>Dark current<br>I <sub>CEO</sub> | ピーク感度波長<br>Peak sensitivity<br>wavelength<br>λ <sub>p</sub> | 光電流<br>Photocurrent<br>※1<br>I <sub>c</sub> |                               |     | 漏れ電流<br>Leakage current<br>※2<br>I <sub>LEAK</sub> |     |     | Typ. |                          | Typ. |                           | Typ.                            |   | Typ. |                                    | Typ. |  | Typ. |  | Typ. |                                |   |     | Typ.                             | Typ.                           |          |       |   |
| L3.1 x W1.9 x H1.1<br> 9mg | KU163C          | 0.9   | 1.1   | 1.5                                     | 940   | 0.1   | 10                            | 850 | 115  | 200 | 425 | 5    | 5                        | 2    | 5                         | 5                               | 10/10                                       | 10   | 100                                | 5    | 20   | 0.17 | 25   | 300  | 4                              | 25                                      | 20  | 20                               | -30~+85                        | -40~+100 | 2,500 |  |

※製品画像は代表的なものです/The pictures illustrate representative products.  
 ※1 検知距離 1mm/d=1mm ※2 反射物無し/No reflector ※3 I<sub>FRM</sub>の測定条件/Pulse width≤0.1ms, Duty≤1/100

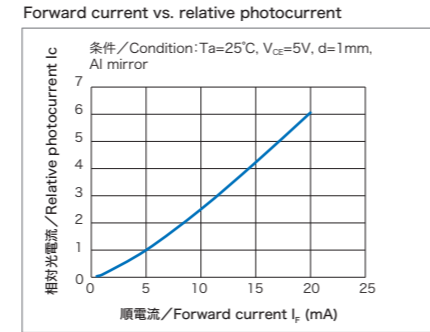
距離 - 相対光電流 特性



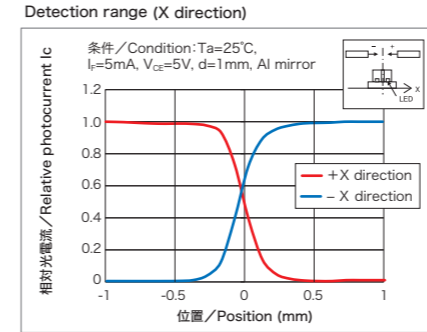
反射率 - 相対光電流 特性



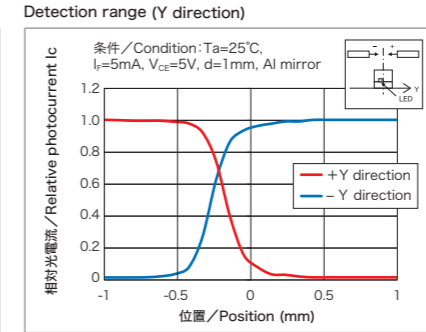
順電流 - 相対光電流 特性



検知範囲 特性 (X方向)



検知範囲 特性 (Y方向)



赤外LEDとフォトトランジスタを超小型パッケージにまとめた面実装タイプの反射センサです。カメラのレンズ系制御、フィルム検出、テープエンド検出、DVDやBDのピックアップ制御・ディスク検出など、物体検出、制御一般にご使用になれます。

This surface mount reflective sensor integrates an IR LED and a phototransistor in an ultra-compact package. This device can be used for substance detection or controllers in general, including camera lens system controllers, film detectors, tape-end detectors, DVD and Blu-ray Disc pick-up controllers and disc detectors, etc.