

CNB2003

Reflective photosensor

■ Features

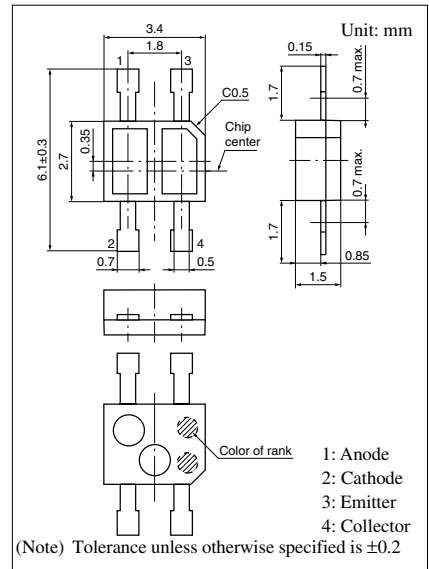
- Reflow-compatible reflective photosensor
- Ultraminiature, thin type: 2.7 mm × 3.4 mm (height: 1.5 mm)

■ Applications

- Object sensing, non-contact point SW

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| | Parameter | Symbol | Rating | Unit |
|------------------------------|--------------------------------|-----------|-------------|------------------|
| Input (Light emitting diode) | Reverse voltage (DC) | V_R | 6 | V |
| | Forward current (DC) | I_F | 50 | mA |
| | Power dissipation *1 | P_D | 75 | mW |
| Output (Photo transistor) | Collector current | I_C | 30 | mA |
| | Collector to emitter voltage | V_{CEO} | 35 | V |
| | Emitter to collector voltage | V_{ECO} | 6 | V |
| | Collector power dissipation *2 | P_C | 75 | mW |
| Temperature | Operating ambient temperature | T_{opr} | -25 to +85 | $^\circ\text{C}$ |
| | Storage temperature | T_{stg} | -40 to +100 | $^\circ\text{C}$ |



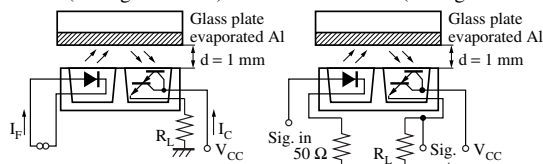
Note) *1: Input power derating ratio is 1.0 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$.

*2: Output power derating ratio is 1.0 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$.

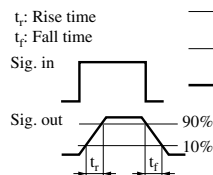
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| | Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--------------------------|---|---------------|--|---|-----|------|---------------|
| Input characteristics | Forward voltage (DC) | V_F | $I_F = 20 \text{ mA}$ | | 1.2 | 1.4 | V |
| | Reverse current (DC) | I_R | $V_R = 3 \text{ V}$ | | | 10 | μA |
| Output characteristics | Collector cutoff current | I_{CEO} | $V_{CE} = 10 \text{ V}$ | | | 1.0 | μA |
| Transfer characteristics | Collector current *1 | I_C | $V_{CC} = 2 \text{ V}, I_F = 4 \text{ mA}, R_L = 100 \Omega, d = 1 \text{ mm}$ | 0.52 | | 15.0 | mA |
| | Leakage current | I_D | $V_{CC} = 2 \text{ V}, I_F = 4 \text{ mA}, R_L = 100 \Omega$ | | | 5.0 | μA |
| | Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_F = 4 \text{ mA}, I_C = 0.5 \text{ mA}$ | | | 1.2 | V |
| | Response time *2 | | t_r | $V_{CC} = 2 \text{ V}, I_C = 10 \text{ mA}$ | | 120 | |
| t_f | | | $R_L = 100 \Omega$ | | 115 | | |

Note) *1: Output current (I_C) measurement method (see figure below) *2: Response time measurement circuit (see figure below)

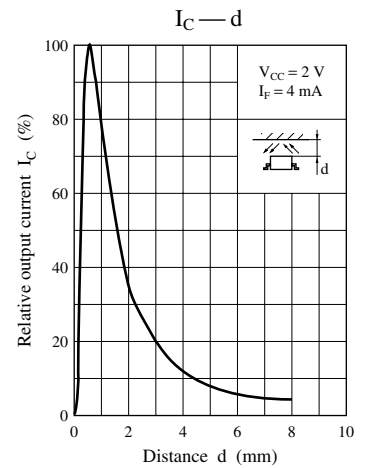
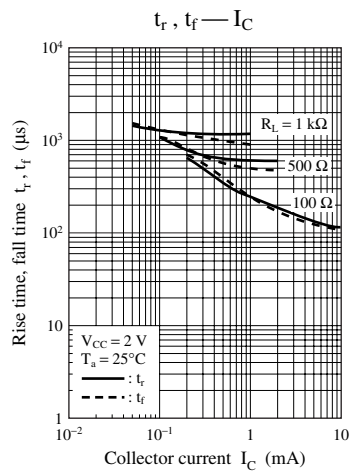
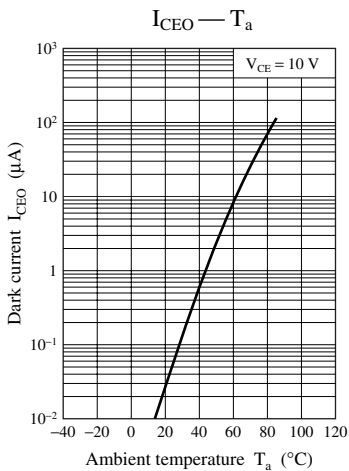
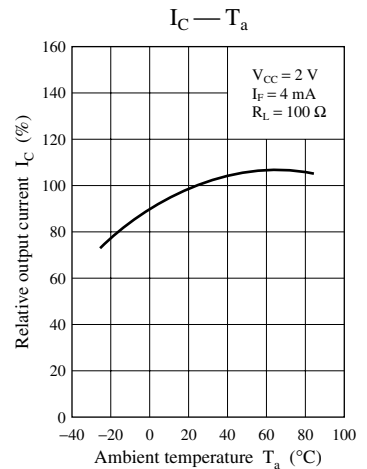
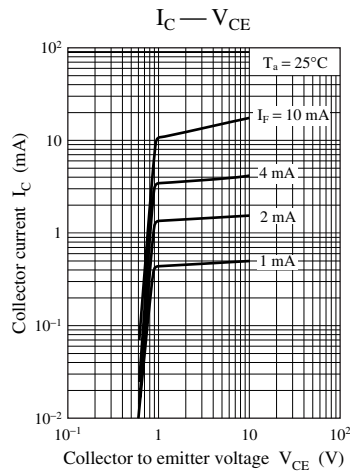
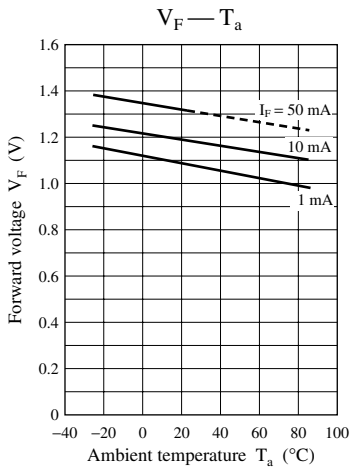
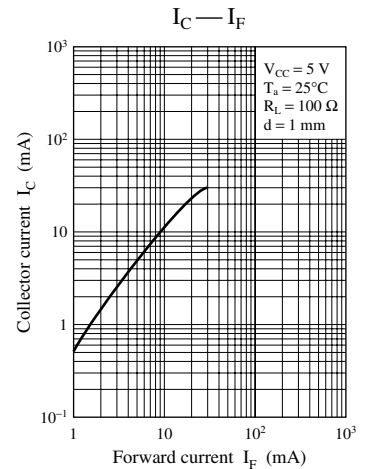
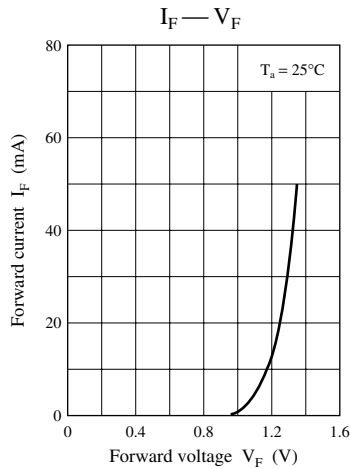
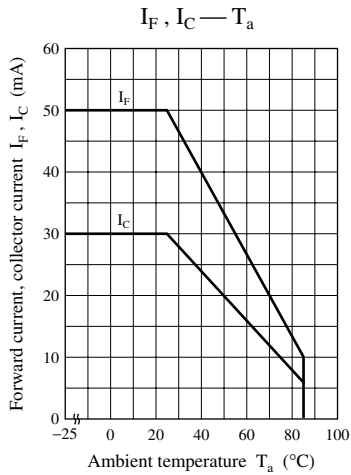


Input and output are handled electrically
This product is not designed to withstand radiation



Color indication of classifications

| Class | I_C (mA) | Color |
|-------|---------------|------------|
| Q | 0.52 to 1.94 | Orange |
| R | 1.45 to 5.40 | White |
| S | 4.00 to 15.00 | Light blue |



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