

ON1517HH – (A)

- ・本資料に記載の品番は、従来品番です。
- ・ The part number mentioned in this datasheet is conventional part number.

■ 概要

ON1517HH– (A) は、発光素子に高効率の GaAs 赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を 1 チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンブ内蔵形で小形、高信頼性。
 - 位置検知精度が高い。
 - オープンコレクタ出力。
 - 接続端子は小形コネクタを使用。
 - 光照射時に出力トランジスタが ON, OFF する。
- ON1517HH– (A): 投光 OFF タイプ

■ 用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC 工作機械のリミット位置検知
- 回転数、回転速度検知
- X – Y テーブルの位置検知
- エンコーダ

Outline

The ON1517HH– (A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an in-tegrated photodiode and signal processing circuit.

Features

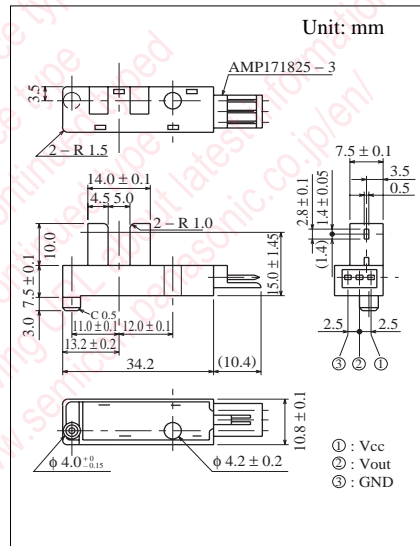
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- ON1517HH – (A): Normally OFF type

Use

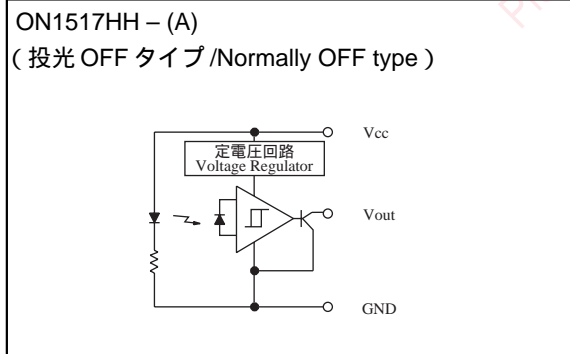
- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X – Y table
- Encoder

■ 絶対最大定格 Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

| Item | symbol | Value | Unit |
|--------|-------------------------------|---------------------|--------------|
| 電源電圧 | Supply Voltage | V_{CC} | 6 V |
| 出力電圧 | Output Voltage | $V_{O(\text{Max})}$ | 30 V |
| 出力電流 | Output Current | $I_{O(\text{Max})}$ | 20 mA |
| コレクタ損失 | Collector Power Dissipation | P_C | 200 mW |
| 動作周囲温度 | Operating Ambient Temperature | T_{opr} | 0 ~ +65 °C |
| 保存温度 | Storage Temperature | T_{stg} | -10 ~ +75 °C |



■ ピン接続図 Pin Connections



ホトセンサユニット(透過形) Photosensor Units (Transmittive Type)

■ 電気的特性 Electrical Characteristics ($T_a = 25^\circ\text{C}$)

| Item | symbol | Condition | Min | typ | Max | Unit |
|-----------------------------------|-----------|--|------|------|------|------|
| 電源電圧 Supply Voltage | V_{CC} | | 4.75 | 5.00 | 5.25 | V |
| 消費電流 Current Consumption | I_{CCH} | 物体検知時(物体非検知時) Object at Detection (Object at Non Detection) | | | 35 | mA |
| | I_{CCL} | 物体非検知時(物体非検知時) Object at Detection (Object at Non Detection) | | | 35 | mA |
| “H”出力電圧 “H”Output Voltage | V_{OH} | { 物体非検知時(物体非検知時) $V_{CC} = 5\text{ V}, R_L = 10\text{ k}\Omega$ Object at Detection (Object at Non Detection) $V_{CC} = 5\text{ V}, R_L = 10\text{ k}\Omega$ | 4.0 | | | V |
| “L”出力電圧 “L”Output Voltage | V_{OH} | { 物体非検知時(物体非検知時) $V_{CC} = 5\text{ V}, I_O = 10\text{ mA}$ Object at Detection (Object at Non Detection) $V_{CC} = 5\text{ V}, I_O = 10\text{ mA}$ | | 0.2 | 0.4 | V |
| 応答周波数 Response Characteristics | f^* | | 3000 | | | Hz |

注 投光ONタイプの特性を示す。()内は投光OFFタイプを示す。

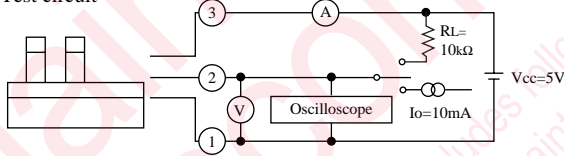
Note Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

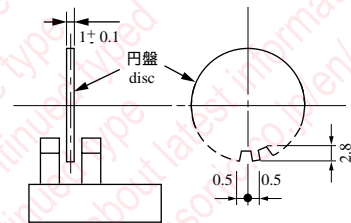
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円盤を回転させ測定を行う。
Measured by rotating disc in the figure.

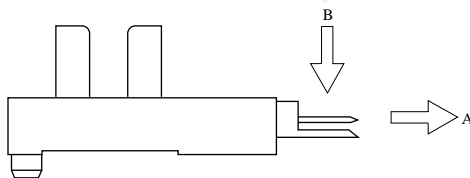


■ 端子強度 Electrical Characteris

| Item | 試験方法 | | Test Method | | 備考 | Remarks |
|---------------------------|----------------|-----------------|-----------------------------------|--|---|---------|
| 端子強度 Terminal Strength | 引張り Pulling | 方向 Direction | 下図A方向 Figure below A direction | | 電気特性および箔ハゲなど異常なきこと After each test, electrical characteristics are normal and Cu foil does not come off. | |
| | | 荷重 Load | 2 kg/1回 2 kg/1 time | | | |
| | 時間 Time | 5秒 5 seconds | | | | |
| | 押し Pushing | 方向 Direction | 下図B方向 Figure below B direction | | | |
| | | 荷重 Load | 1 kg/1回 1 kg/1 time | | | |
| | | 時間 Time | 5秒 5 seconds | | | |

試験方法

Test Method

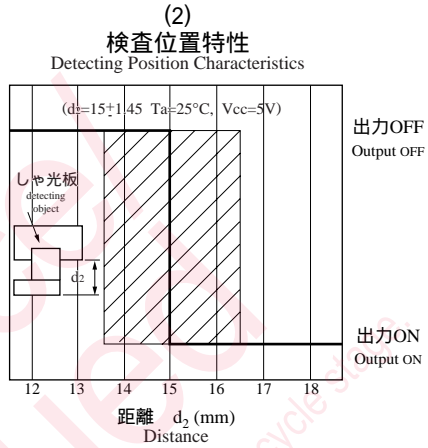
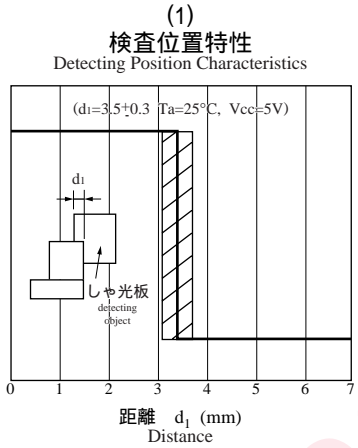


■ ご使用上の注意 Handling caution

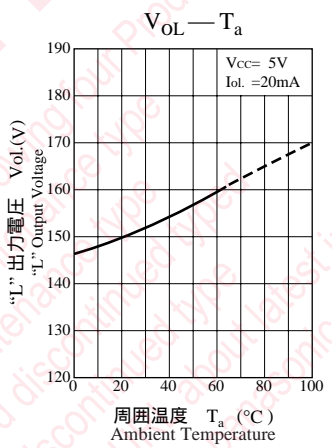
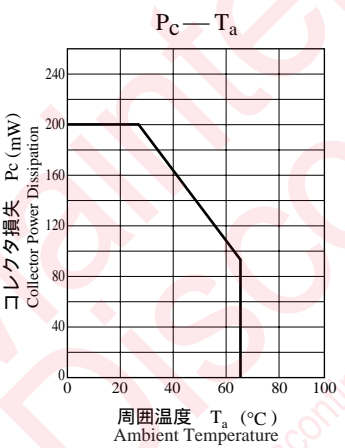
- 1 洗浄の際、薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2 取付の時のビス締め強度は6kg/cm以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm.

ホトセンサユニット(透過形) Photosensor Units (Transmittive Type)

ON1517HH– (A) [投光OFFタイプ]
Normally OFF type



共通特性図
Common characteristics



Caution for Safety

 **DANGER**

■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

Request for your special attention and precautions in using the technical information and semiconductors described in this book

- (1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.
- (2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products, and no license is granted under any intellectual property right or other right owned by our company or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.
- (3) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (4) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment.
 - Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.
- (7) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.

- If you have any inquiries or questions about this book or our semiconductor products, please contact one of our sales offices listed on the back or Semiconductor Company's Department.