# CNC7H001

## Optoisolator

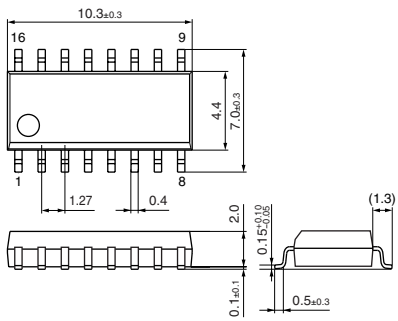
### ■ Features

- Housed in a surface mount package alternative to mini-flat package of 1.27 mm pitch
- Double molded package
- 2.5 kV isolation voltage
- UL approved (File No. E79920)

### ■ Applications

- Suited for interface circuits requiring high density mounting of parts, especially hybrid ICs and programmable controllers
- Signal transfer between circuits with different potentials and with impedances

Unit: mm

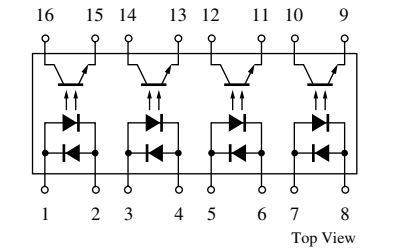



1, 3, 5, 7 : Anode/Cathode
2, 4, 6, 8 : Cathode/Anode
9, 11, 13, 15 : Emitter
10, 12, 14, 16: Collector
PCTFG116-001 Package

### ■ Absolute Maximum Ratings $T_a = 25°C$

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input (light emitting diode) | Forward current (DC) | $I_F$ | ±50 | mA |
| | Pulse forward current *1 | $I_{FP}$ | ±1 | A |
| | Power dissipation *2 | $P_D$ | 75 | mW/ch |
| Output (photo transistor) | Collector current | $I_C$ | 50 | mA |
| | Collector-emitter voltage | $V_{CEO}$ | 80 | V |
| | Emitter-collector voltage | $V_{ECO}$ | 7 | V |
| | Collector power dissipation *3 | $P_C$ | 120 | mW/ch |
| Isolation voltage, input to output *4 | | $V_{ISO}$ | 2 500 | V[rms] |
| Operating ambient temperature | | $T_{opr}$ | −30 to +100 | °C |
| Storage temperature | | $T_{stg}$ | −55 to +125 | °C |

Pin Connection




Note) ∗1: Pulse repetition rate = 100 pps. Pulse wide ≤ 100 µs
∗2: Above 25°C ambient temperature, derate dissipation at the rate of 0.75 mW/°C.
∗3: Above 25°C ambient temperature, derate dissipation at the rate of 1.2 mW/°C.
∗4: AC voltage (t = 1.0 min., RH < 60%)

## ■ Electrical Characteristics $T_a = 25°C \pm 3°C$

| Parameter | | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Input diode | Forward voltage | $V_F$ | $I_F = \pm 50$ mA | | 1.35 | 1.5 | V |
| | Capacitance | $C_t$ | $V_R = 0$ V, f = 1 MHz | | 15 | | pF |
| Output transistor | Collector-emitter dark current | $I_{CEO}$ | $V_{CE} = 20$ V | | 5 | 100 | nA |
| | Collector-emitter voltage | $V_{CEO}$ | $I_C = 100$ µA | 80 | | | V |
| | Emitter-collector voltage | $V_{ECO}$ | $I_E = 10$ µA | 7 | | | V |
| | Collector capacitance | $C_C$ | $V_{CE} = 10$ V, f = 1 MHz | | 10 | | pF |
| Coupled | Current transfer ratio *1 | CTR | $V_{CE} = 5$ V, $I_F = \pm 5$ mA | 100 | | 600 | % |
| | Capacitance | $C_{ISO}$ | f = 1 MHz | | 0.6 | | pF |
| | Resistance | $R_{ISO}$ | $V_{ISO} = 500$ V | $10^{11}$ | | | Ω |
| | Rise time *2 | $t_r$ | $V_{CC} = 10$ V, $I_C = 2$ mA | | 4 | | µs |
| | Fall time *3 | $t_f$ | $R_L = 100$ Ω | | 3 | | |
| | Saturation voltage | $V_{CE(sat)}$ | $I_F = \pm 20$ mA, $I_C = 1$ mA | | 0.1 | 0.2 | V |
| | Collector current ratio *4 | $I_{C(Ratio)}$ | $V_{CE} = 5$ V, $I_F = \pm 5$ mA | 0.33 | 1 | 3.0 | — |

Note) ∗1: CTR = $I_C / I_F \times 100\%$

∗2: Rise time is defined as the time required for the collector current to rise from 10% to 90% of peak value.

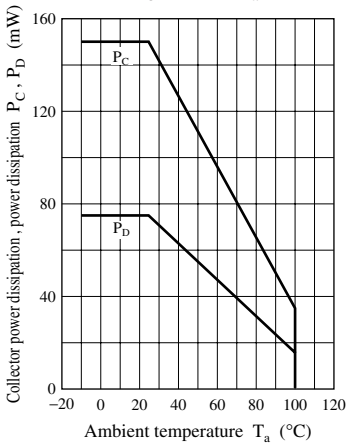
∗3: Fall time is defined as the time required for the collector current to decrease from 90% to 10% of peak value.

∗4: $$I_{C(Ratio)} = \frac{I_{C2}\ (I_F = I_{F2},\ V_{CE} = 5\ V)}{I_{C1}\ (I_F = I_{F1},\ V_{CE} = 5\ V)}$$

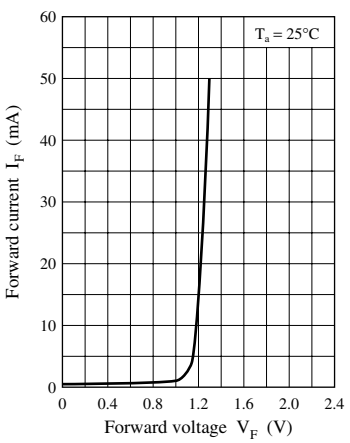
Input and output are practiced by electricity.

The device is designed be disregarded radiation.

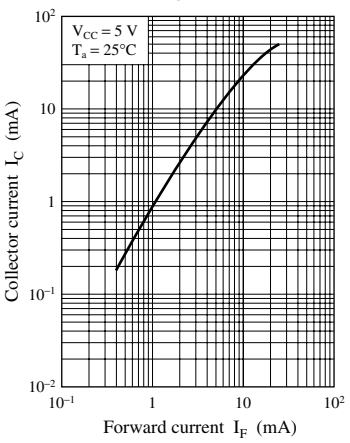
$P_C$ , $P_D$ — $T_a$



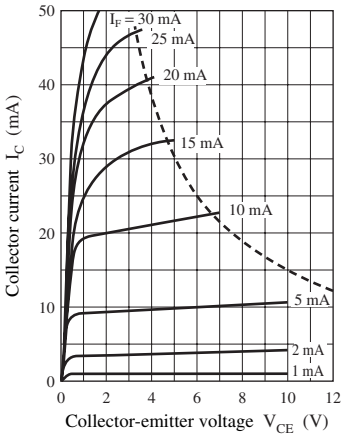

$I_F$ — $V_F$



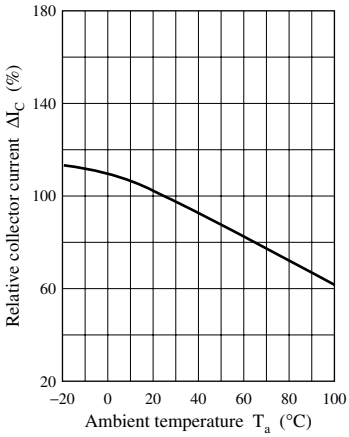

$I_C$ — $I_F$



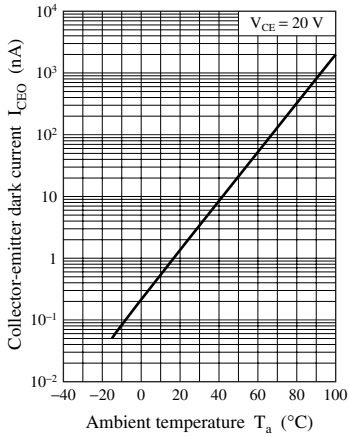
$I_C$ — $V_{CE}$



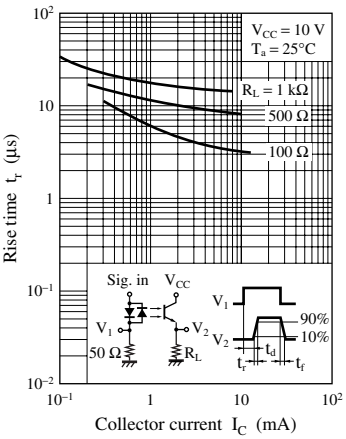

$\Delta I_C$ — $T_a$



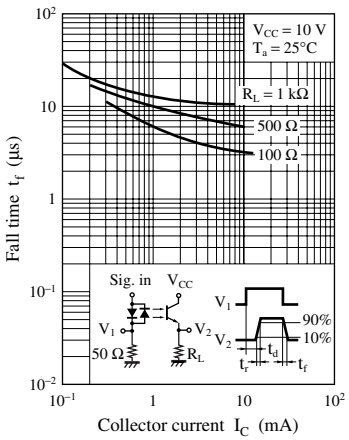

$I_{CEO}$ — $T_a$



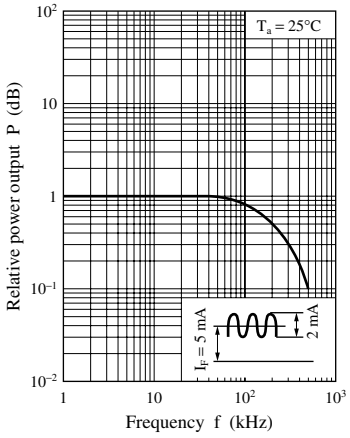

$t_r$ — $I_C$




$t_f$ — $I_C$




Frequency characteristics



# ⚠ Caution for Safety

## ⚠ DANGER

■ Gallium arsenide material (GaAs) is used in this product.

Therefore, do not burn, destroy, cut, crush, or chemically decompose the product, since gallium arsenide material in powder or vapor form is harmful to human health.

Observe the relevant laws and regulations when disposing of the products. Do not mix them with ordinary industrial waste or household refuse when disposing of GaAs-containing products.

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