

# 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

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

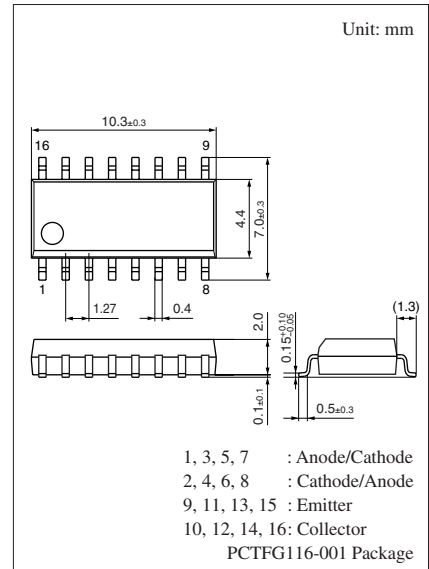
Parameter		Symbol	Rating	Unit
Input (light emitting diode)	Forward current (DC)	$I_F$	$\pm 50$	mA
	Pulse forward current *1	$I_{FP}$	$\pm 1$	A
	Power dissipation *2	$P_D$	75	mW/ch
Output (photo transistor)	Collector current	$I_C$	50	mA
	Collector-emitter voltage	$V_{CEO}$	80	V
	Emitter-collector voltage	$V_{ECO}$	7	V
	Collector power dissipation *3	$P_C$	120	mW/ch
Isolation voltage, input to output *4	$V_{ISO}$	2500	V[rms]	
Operating ambient temperature	$T_{opr}$	-30 to +100	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$	

Note) \*1: Pulse repetition rate = 100 pps. Pulse wide  $\leq 100 \mu\text{s}$

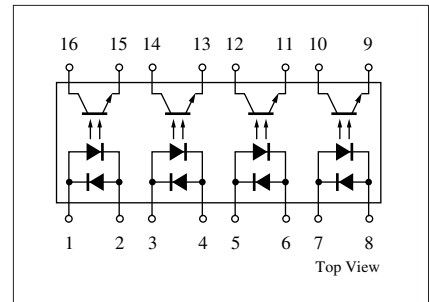
\*2: Above  $25^\circ\text{C}$  ambient temperature, derate dissipation at the rate of  $0.75 \text{ mW}/^\circ\text{C}$ .

\*3: Above  $25^\circ\text{C}$  ambient temperature, derate dissipation at the rate of  $1.2 \text{ mW}/^\circ\text{C}$ .

\*4: AC voltage ( $t = 1.0 \text{ min.}$ ,  $\text{RH} < 60\%$ )



### Pin Connection



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

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

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

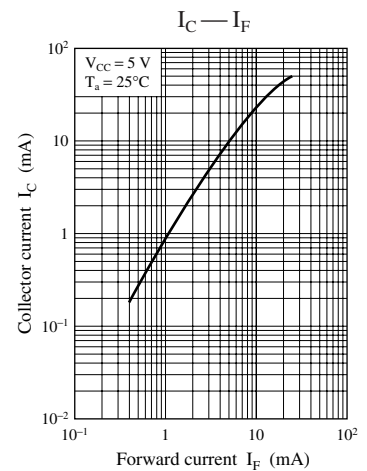
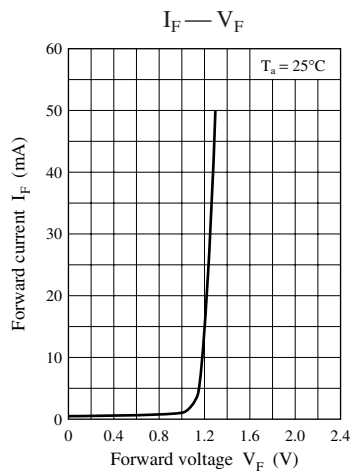
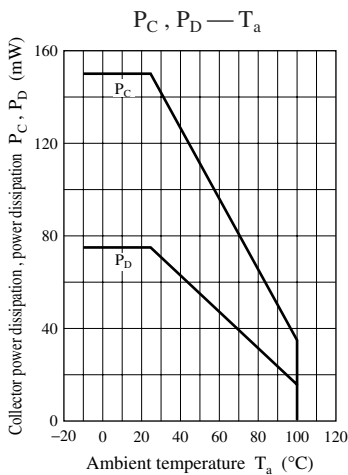
\*2: Rise time is defined as the time required for the collector current to rise from 10% to 90% of peak value.

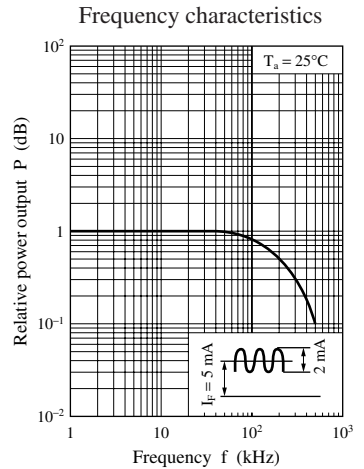
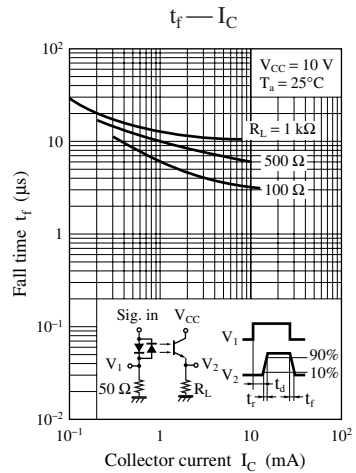
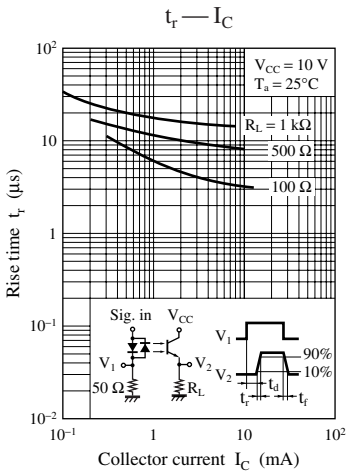
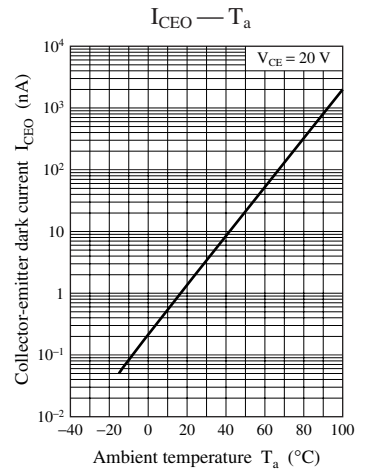
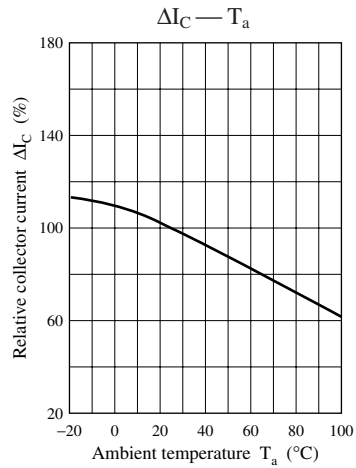
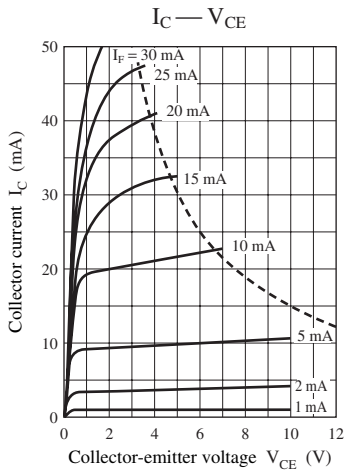
\*3: Fall time is defined as the time required for the collector current to decrease from 90% to 10% of peak value.

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

Input and output are practiced by electricity.

The device is designed be disregarded radiation.





# 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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