

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 $T_a = 25^\circ\text{C}$

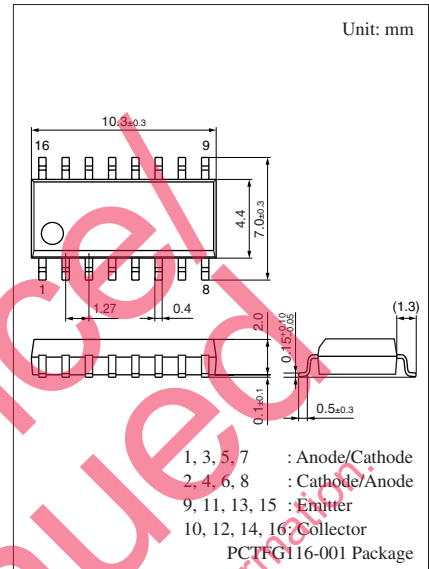
Parameter		Symbol	Rating	Unit
Input (light emitting diode)	Forward current (DC)	I_F	± 50	mA
	Pulse forward current *1	I_{FP}	± 1	A
	Power dissipation *2	P_D	75	mW/ch
Output (photo transistor)	Collector current	I_C	50	mA
	Collector-emitter voltage	V_{CEO}	80	V
	Emitter-collector voltage	V_{ECO}	7	V
	Collector power dissipation *3	P_C	120	mW/ch
Isolation voltage, input to output *4	V_{ISO}	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 $\leq 100 \mu\text{s}$

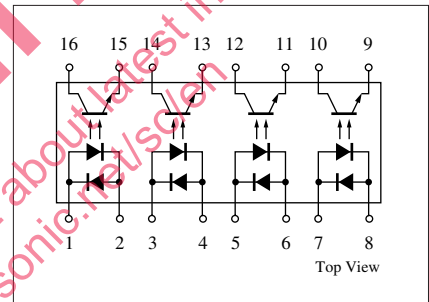
*2: Above 25°C ambient temperature, derate dissipation at the rate of $0.75 \text{ mW}/^\circ\text{C}$.

*3: Above 25°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}			Ω
	Rise time *2	t_r	$V_{CC} = 10 \text{ V}, I_C = 2 \text{ mA}$		4		μs
	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: $CTR = I_C / I_F \times 100\%$

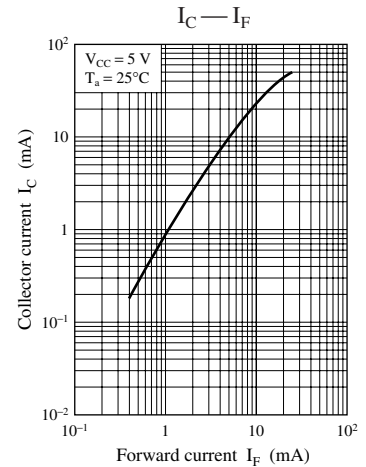
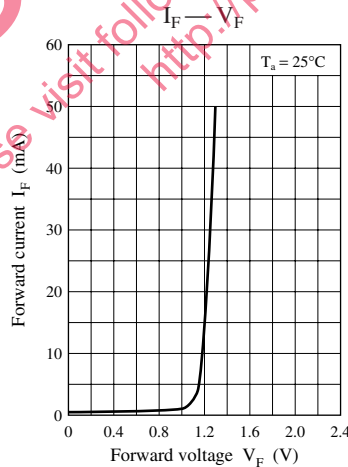
*2: Rise time is defined as the time required for the collector current to rise from 10% to 90% of peak value.

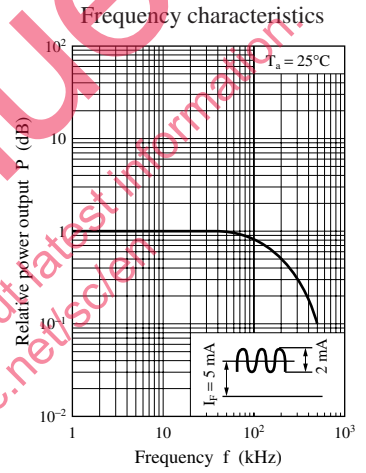
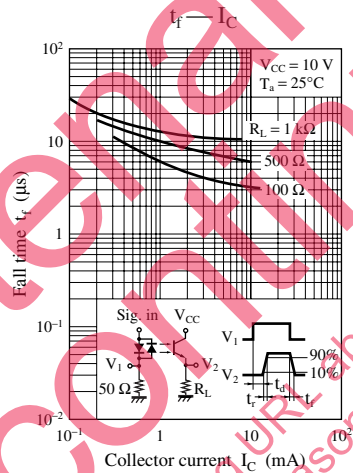
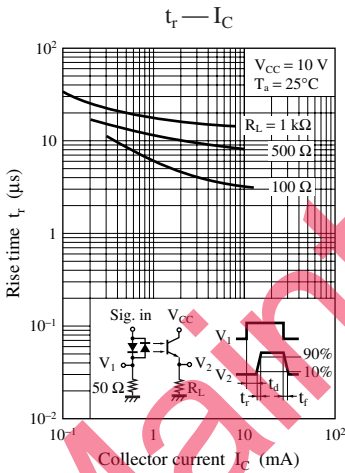
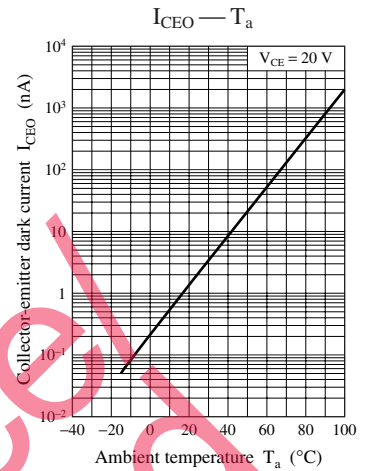
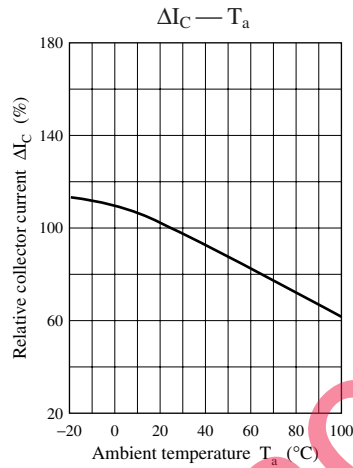
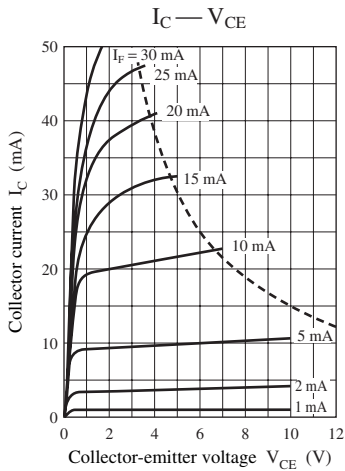
*3: Fall time is defined as the time required for the collector current to decrease from 90% to 10% of peak value.

*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**

■ 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.

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