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

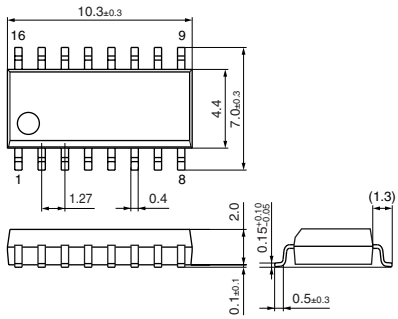
- Suited for interface circuits requiring high density mounting of parts, especially hybrid ICs and programmable controllers
- Signal transfer between circuits with different potentials and with impedances

■ Absolute Maximum Ratings $T_a = 25°C$

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

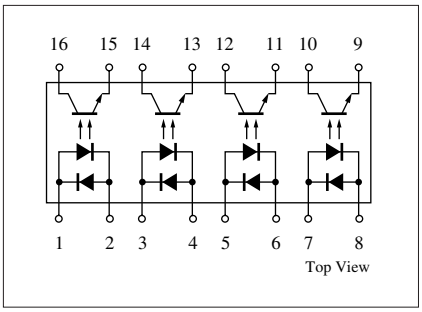
Note) ∗1: Pulse repetition rate = 100 pps. Pulse wide ≤ 100 µs
∗2: Above 25°C ambient temperature, derate dissipation at the rate of 0.75 mW/°C.
∗3: Above 25°C ambient temperature, derate dissipation at the rate of 1.2 mW/°C.
∗4: AC voltage (t = 1.0 min., RH < 60%)

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

Pin Connection



■ 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.

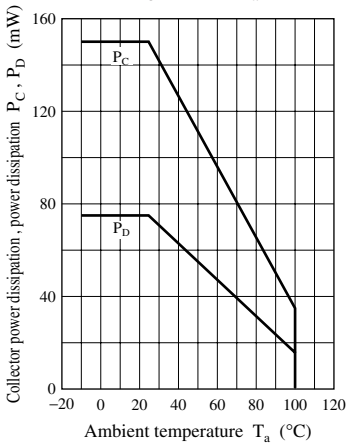
∗3: Fall time is defined as the time required for the collector current to decrease from 90% to 10% of peak value.

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

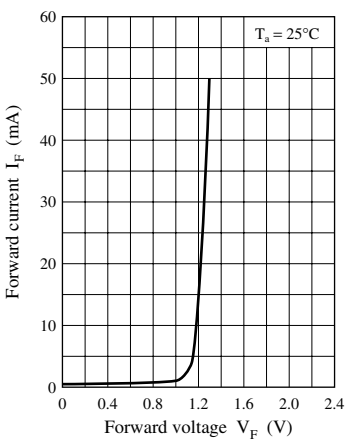
Input and output are practiced by electricity.

The device is designed be disregarded radiation.

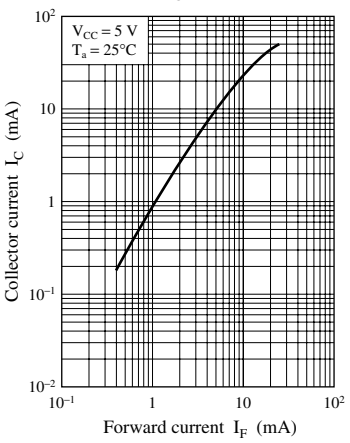
P_C , P_D — T_a



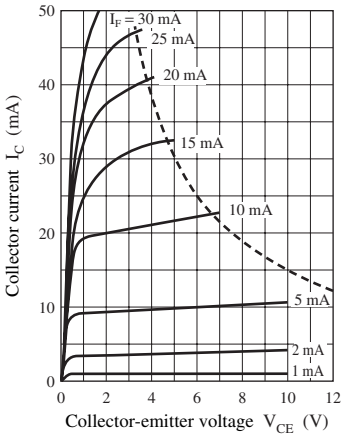
I_F — V_F



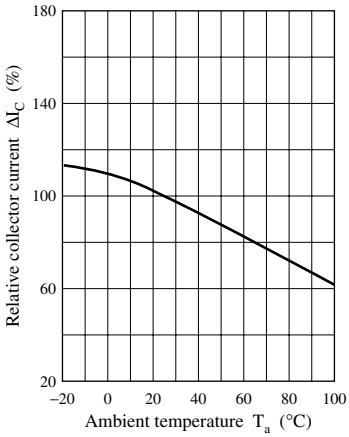
I_C — I_F



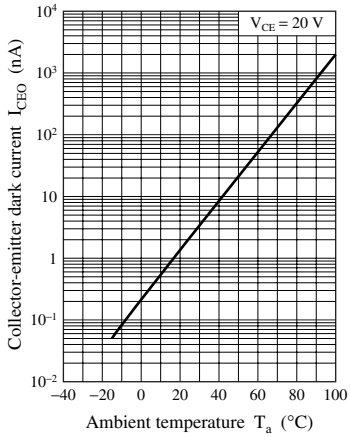
I_C — V_{CE}



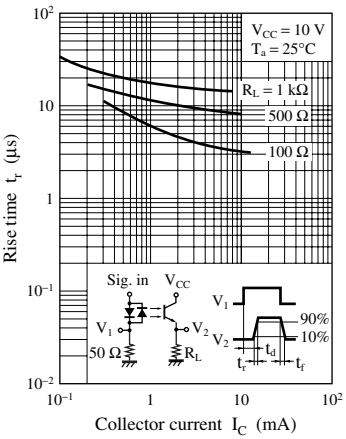
ΔI_C — T_a



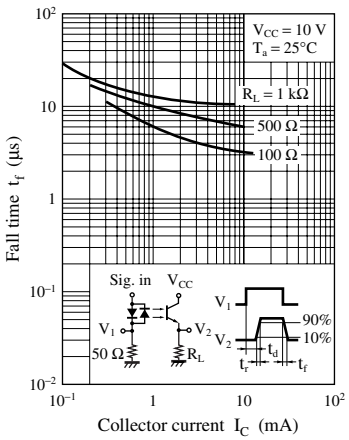
I_{CEO} — T_a



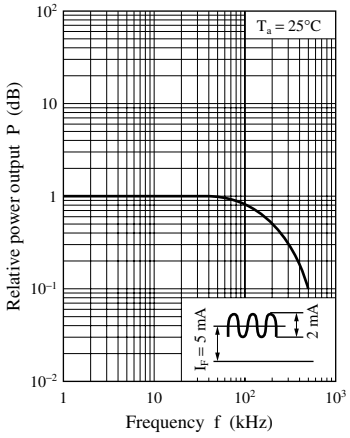
t_r — I_C



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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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.

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