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

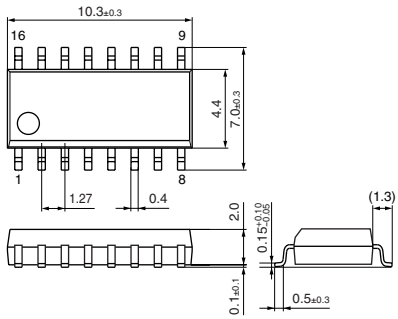
- Suited for interface circuits requiring high density mounting of parts, especially hybrid ICs and programmable controllers
- Signal transfer between circuits with different potentials and with impedances

■ 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

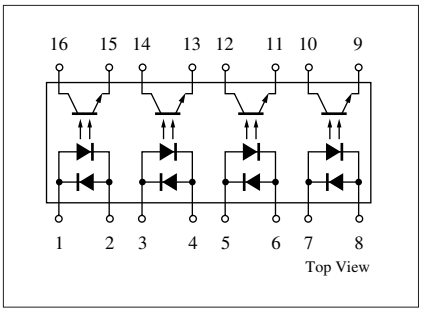
Note) ∗1: Pulse repetition rate = 100 pps. Pulse wide ≤ 100 µs
∗2: Above 25°C ambient temperature, derate dissipation at the rate of 0.75 mW/°C.
∗3: Above 25°C ambient temperature, derate dissipation at the rate of 1.2 mW/°C.
∗4: AC voltage (t = 1.0 min., RH < 60%)

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.

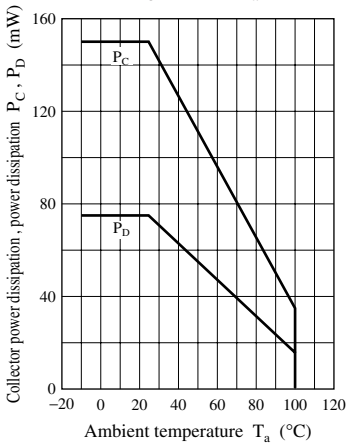
∗3: Fall time is defined as the time required for the collector current to decrease from 90% to 10% of peak value.

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

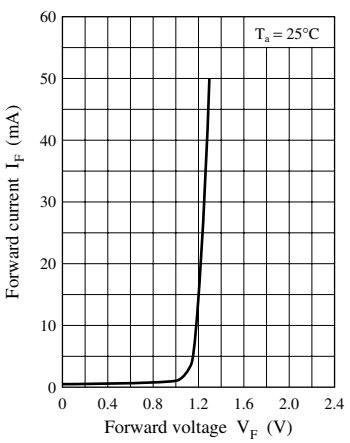
Input and output are practiced by electricity.

The device is designed be disregarded radiation.

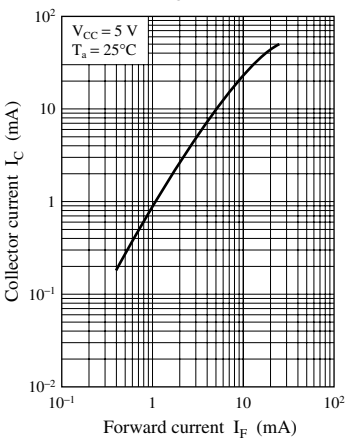
P_C , P_D — T_a



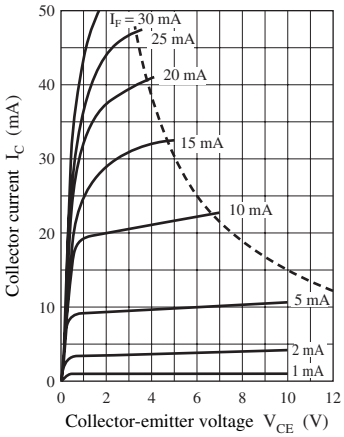
I_F — V_F



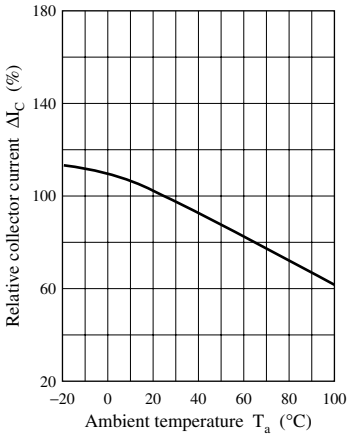
I_C — I_F



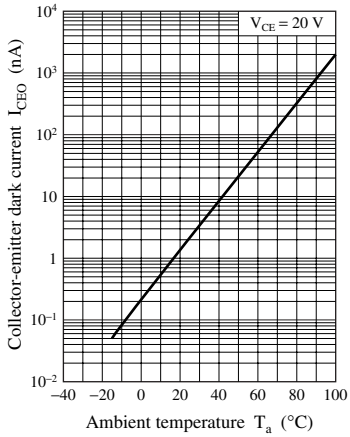
I_C — V_{CE}



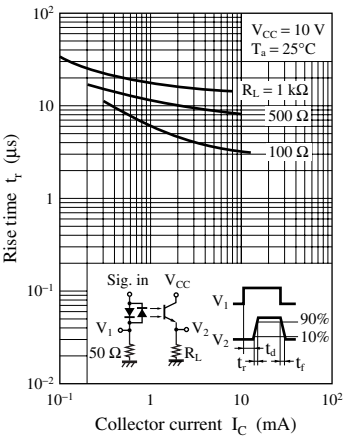
ΔI_C — T_a



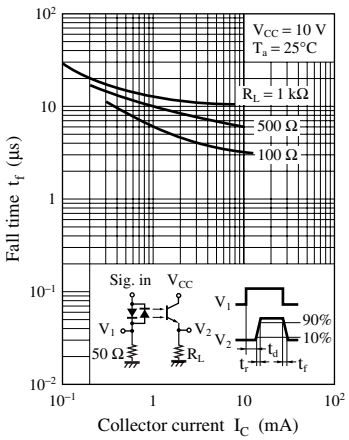
I_{CEO} — T_a



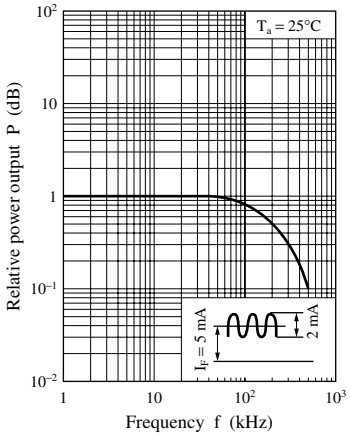
t_r — I_C



t_f — I_C



Frequency characteristics



⚠ Caution for Safety

⚠ DANGER

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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.

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