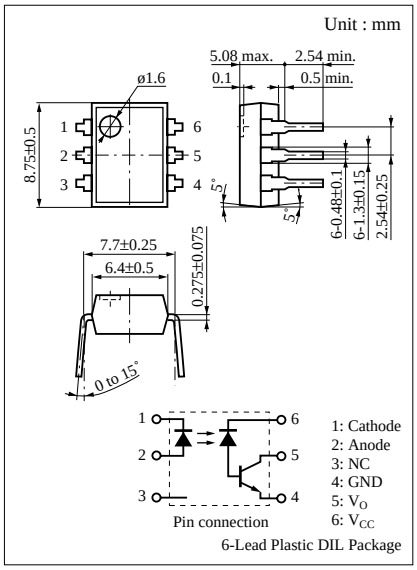
CNC4L901 (ON3401)

Optoisolator



■ Overview

CNC4L901 is a high speed response opto isolator in which a high speed, high output power GaAlAs red light emitting diode is combined with an Si photo IC. It has a fast photoelectric conversion speed, permitting high efficiency video signal transmission.

■ Features

- Good linearity and wide dynamic range
- High I/O isolation voltage : V_{ISO} = 2500 V_{rms} (min.)
- UL listed (UL File No. E79920)

■ Applications

- High speed solid relay
- High frequency pulse transformer
- Wide band isolation

■ Absolute Maximum Ratings (Ta = 25˚C)

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3	V
	Forward current (DC)	I_F	25	mA
	Power dissipation	P_D *2	75	mW
Output (Photo IC)	Supply voltage	V_{CC}	15	V
	Output voltage	V_O	15	V
	Power dissipation	P_C *3	120	mW
Total power dissipation		P_T	150	mW
Operating ambient temperature		T_{opr}	–25 to +85	˚C
Storage temperature		T_{stg}	–40 to +100	˚C

*1 Pulse width 1 ms, Duty cycle 50%

*2 Input power derating ratio is 1.0 mW/˚C at Ta ≥ 25˚C.

*3 Output power derating ratio is 1.6 mW/˚C at Ta ≥ 25˚C.

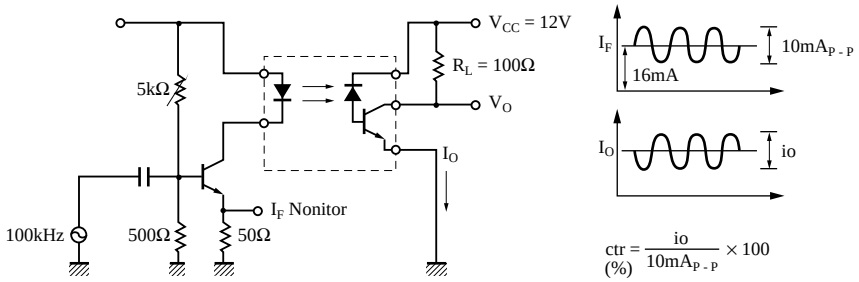
Note) The part number in the parenthesis shows conventional part number.

■ Electrical Characteristics (Ta = 25˚C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Reverse current (DC)	I_R	V_R = 3V			100	μA
	Forward voltage (DC)	V_F	I_F = 16mA		1.8	2.6	V
	Capacitance between pins	C_t	V_R = 0V, f = 1MHz		40		pF
Output characteristics	"H" output current	I_{OH}	I_F = 0mA, V_{CC} = V_O = 15V			100	μA
	"H" supply current	I_{CCH}	I_F = 0mA, V_{CC} = 15V			1	μA
Transfer characteristics	AC current transfer ratio	ctr*1	V_{CC} = 12V, I_F = 16mA	15		80	%
	Isolation voltage, input to output	V_{ISO}	t = 1min., RH < 60%	2500			V_{rms}
	Isolation capacitance, input to output	C_{ISO}	f = 1MHz		0.5		pF
	Isolation resistance, input to output	R_{ISO}	V_{ISO} = 500V	10^{11}			Ω
	Frequency response	BW*2	I_F = 16mA, V_{CC} = 12V, R_L = 100Ω	–5.0	–3.0	–1.0	dB

*1 AC Current transfer ratio (ctr) is a ratio of output current against AC input current.

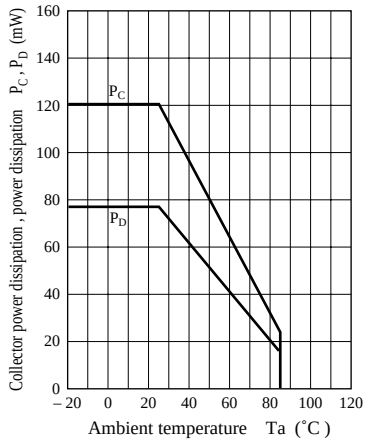
ctr measurement circuit



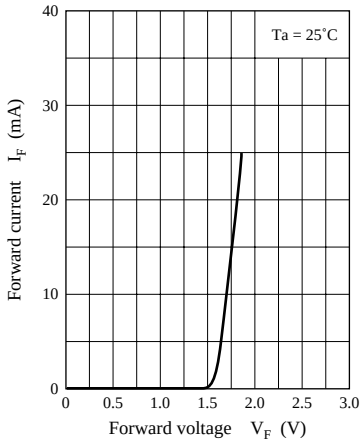
*2 Frequency response (BW) is a ratio of ctr at the frequency of f = 100 kHz and 3.58 MHz.

$$BW = 20 \log \frac{ctr\ (f = 3.58MHz)}{ctr\ (f = 100kHz)}$$

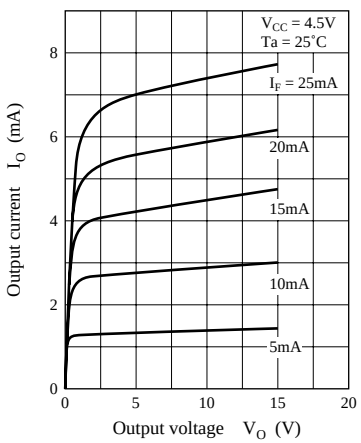
P_C , P_D — Ta



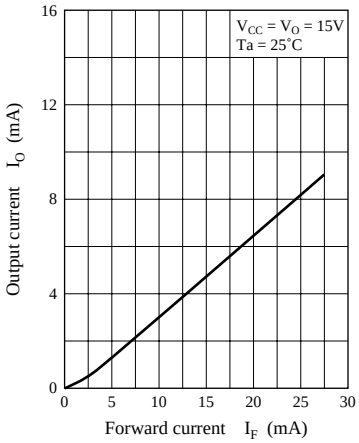
I_F — V_F



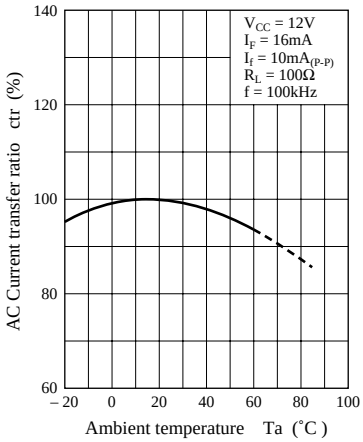
I_O — V_O



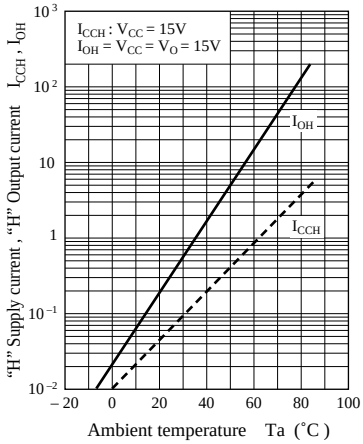
I_O — I_F



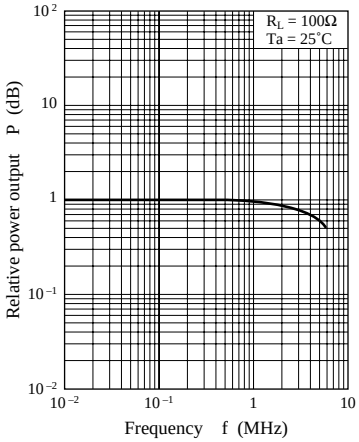
ctr — Ta



I_{CCH} , I_{OH} — Ta



Frequency characteristics



⚠ Caution for Safety

⚠ DANGER

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