

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

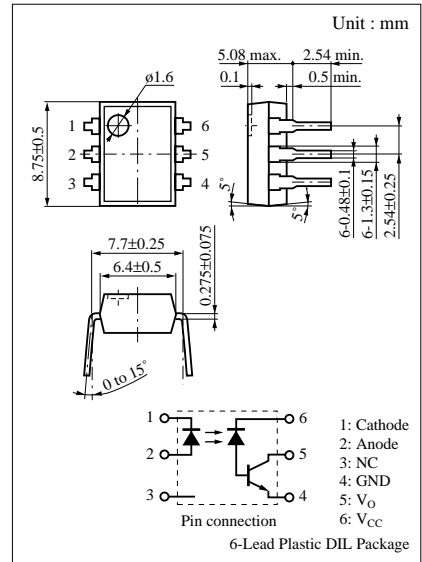
Absolute Maximum Ratings ($T_a = 25^\circ C$)

	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	$^\circ C$
Storage temperature		T_{sig}	-40 to +100	$^\circ C$

*1 Pulse width 1 ms, Duty cycle 50%

*2 Input power derating ratio is 1.0 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.

*3 Output power derating ratio is 1.6 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.



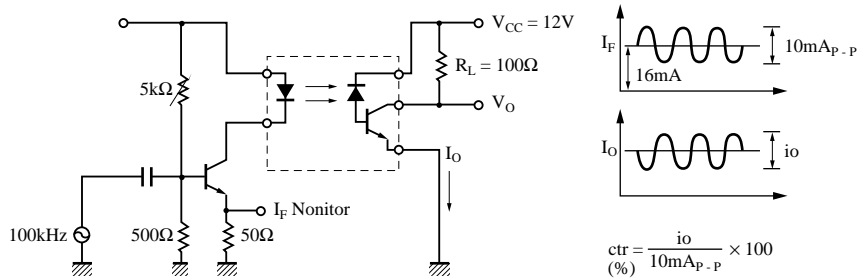
Note) The part number in the parenthesis shows conventional part number.

■ 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}	$I_F = 16mA, V_{CC} = 12V, R_L = 100\Omega$	-5.0	-3.0	-1.0	dB

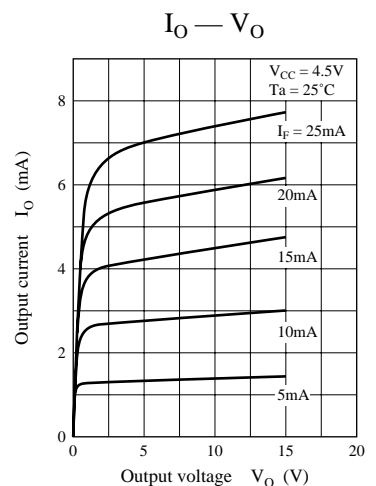
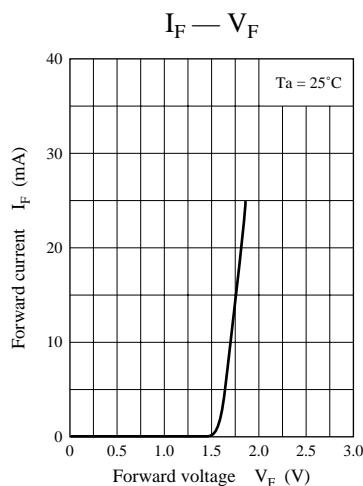
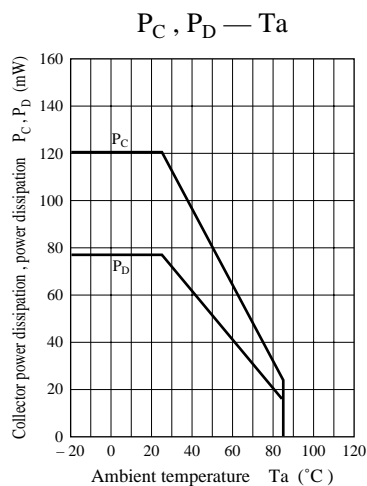
*1 AC Current transfer ratio (ctr) is a ratio of output current against AC input current.

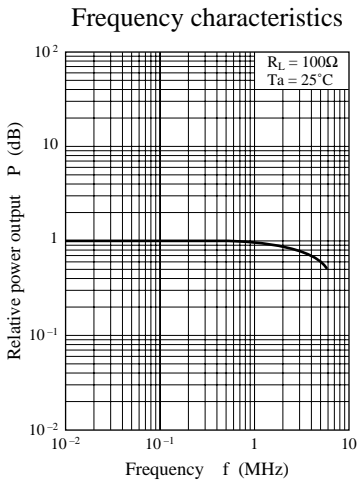
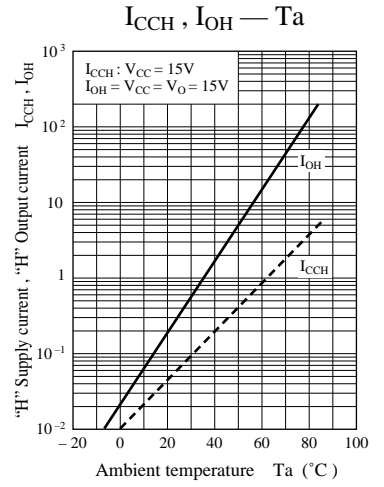
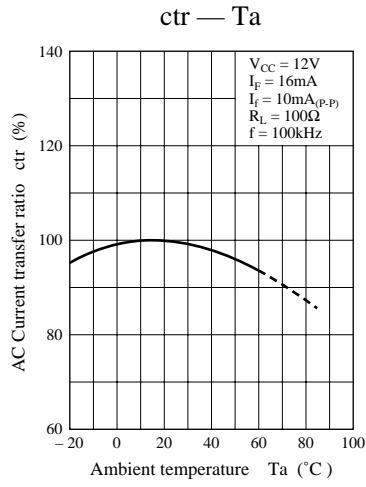
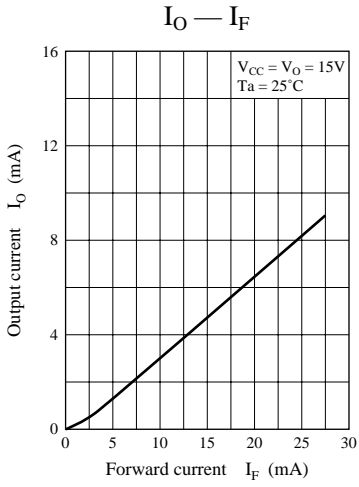
ctr measurement circuit



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

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





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.

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