

CNC4L901

Optoisolator

Overview

CNC4L901 is a high speed response opto isolator in which a high speed, high output power GaAIAs 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

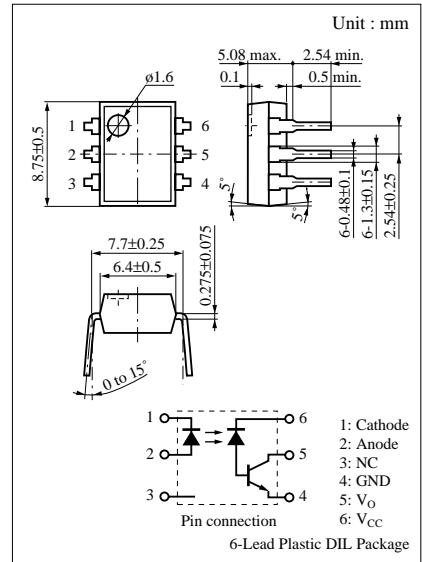
Absolute Maximum Ratings ($T_a = 25^\circ C$)

	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 $T_a \geq 25^\circ C$.

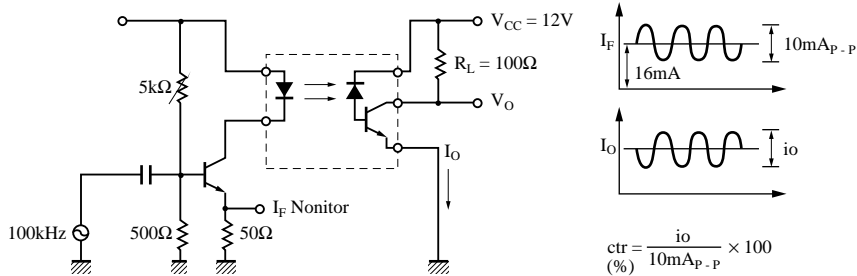


■ Electrical Characteristics (Ta = 25°C)

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.

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

