

PC410L0NIP

Photocoupler

Ultra-High Speed Response, High CMR *OPIC Photocoupler

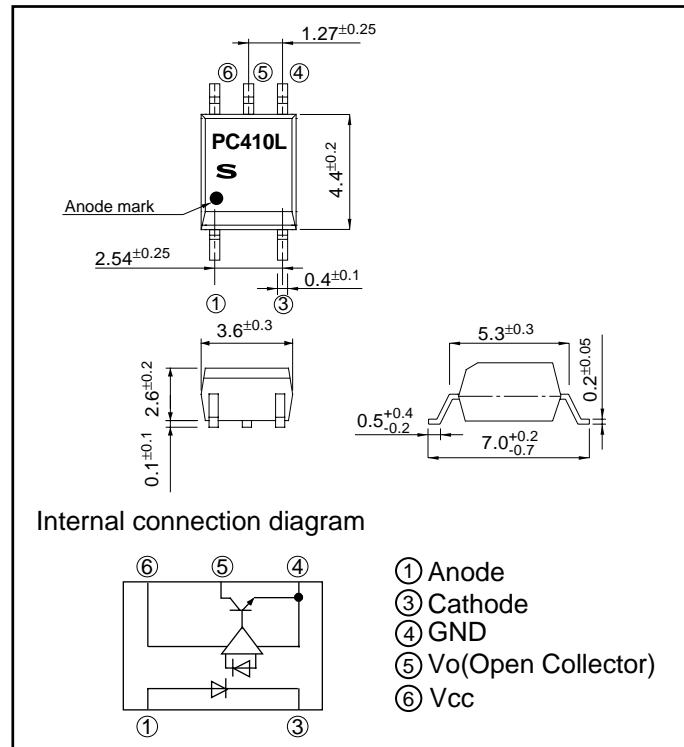
Features

- (1) High instantaneous common mode rejection voltage (CMR: MIN.10kV/ μ s)
- (2) High speed response(TYP.10Mbps)
- (3) Isolation voltage ($V_{iso}(rms)$):3.75kV)
- (4) Mini-flat package
- (5) Flow soldering : 280°C for 6s or less
- (6) Under preparation for UL and VDE standard

Applications

- (1) Programmable controllers
- (2) Inverters

Outline Dimensions



* "OPIC" (Optical IC) is a trademark of the SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.

Absolute Maximum Ratings

(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	20	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P	40	mW
Output	Supply voltage	V_{CC}	7	V
	High level output voltage	V_{OH}	7	V
	Low level output current	I_{OL}	50	mA
	Collector power dissipation	P_C	85	mW
*1 Isolation voltage		$V_{iso}(rms)$	3.75	kV
Operating temperature		T_{opr}	-40 to +85	°C
Storage temperature		T_{stg}	-40 to +125	°C
*2 Soldering temperature		T_{sol}	270	°C

*1 40 to 60% RH, AC for 1 min

*2 For 10s at the portion of 0.2mm or more from the root of lead pins

(Notice)

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(Internet)

•Data for Sharp's optoelectronic/power devices is provided on internet. (Address <http://sharp-world.com/ecg/>)

Electro-optical Characteristics

(Ta=-40 to +85°C unless specified)

Parameter		Symbol	Condition	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V _F	T _a =25°C, I _F =10mA	-	1.6	1.9	V	
	Reverse current	I _R	T _a =25°C, V _R =5V	-	-	10	μA	
	Terminal capacitance	C _t	T _a =25°C, V=0, f=1MHz	-	60	150	pF	
Output	Low level output voltage	V _{OL}	I _{OL} =13mA, V _{CC} =5.5V, I _F =5mA	-	0.4	0.6	V	
	High level output current	I _{OH}	V _O =V _{CC} =5.5V, I _F =250μA	-	0.02	100	μA	
	Low level supply current	I _{CCL}	V _{CC} =5.5V, I _F =10mA	-	7	13	mA	
	High level supply current	I _{CCH}	V _{CC} =5.5V, I _F =0mA	-	5	10	mA	
Transfer characteristics	"High→Low" threshold input current	I _{FHL}	V _{CC} =5V, V _O =0.8V, R _L =350Ω	-	2.5	5	mA	
	Isolation resistance	R _{ISO}	T _a =25°C, DC500V, 40 to 60%RH	5×10 ¹⁰	1×10 ¹¹	-	Ω	
	Floating capacitance	C _f	T _a =25°C, V=0V, f=1MHz	-	0.6	-	pF	
	Response time	"High→Low" propagation delay time	t _{PHL}	T _a =25°C V _{CC} =5V, I _F =7.5mA, R _L =350Ω, C _L =15pF	25	48	75	ns
		"Low→High" propagation delay time	t _{PLH}		25	50	75	
		Fall time	t _f		-	10	-	
		Rise time	t _r		-	20	-	
	*3 Distortion of pulse width	Δtw			-	-	35	
CMR	Instantaneous common mode rejection voltage (High level output)	CM _H	I _F =0mA, V _{O(MIN.)} =2V	T _a =25°C, V _{CC} =5V, V _{CM} =1kV(P-P), R _L =350Ω	10	20	-	kV/μs
	Instantaneous common mode rejection voltage (High level output)	CM _L	I _F =5mA, V _{O(MAX.)} =0.8V		-10	-20	-	

*3 Distortion of pulse width Δtw=| t_{PHL}-t_{PLH} |

In measuring output characteristics and transfer characteristics, connect a by-pass capacitor of 0.01μF or more between V_{CC}(Pin No. 8) and GND (Pin No. 5) near the device.

As of March 2001

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