

PC457L0NIP

Photocoupler

High Speed and High CMR *OPIC Photocoupler

Features

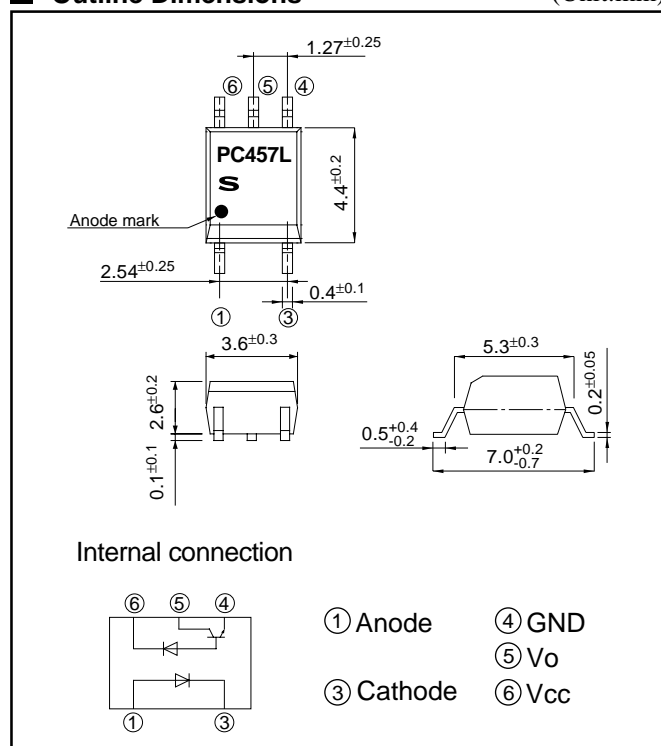
- (1) High instantaneous common mode rejection voltage (CMR:MIN. 15kV/ μ s)
- (2) High speed response
(t_{PHL} :MAX. 0.8 μ s, t_{PLH} :MAX. 0.8 μ s)
- (3) Isolation voltage($V_{iso}(rms)$) : 3.75kV
- (4) Mini-flat package
- (5) Flow soldering : 280°C for 6s or less
- (6) Under preparation for UL and VDE standard

Applications

- (1) Programmable controller
- (2) Inverter

Outline Dimensions

(Unit:mm)



* "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	*1 Forward current	I _F	25
	Reverse voltage	V _R	5
	Power dissipation	P	45
Output	*2 Supply voltage	V _{CC}	- 0.5 to +30
	Output voltage	V _O	- 0.5 to +20
	Output current	I _O	8
	Power dissipation	P _O	100
	Total power dissipation	P _{tot}	100
*3 Isolation voltage		V _{iso(rms)}	3.75
Operating temperature		T _{opr}	- 55 to +100
Storage temperature		T _{stg}	- 55 to +125
*4 Soldering temperature		T _{sol}	270

*1 Ta=0 to +70°C

*2 MAX. 1 minute

*3 40 to 60% RH, AC for 1 minute

*4 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=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F=16\text{mA}$	—	1.7	1.95	V
	Reverse current	I_R	$V_R=5\text{V}$	—	—	10	μA
	Terminal capacitance	C_t	$V_F=0, f=1\text{MHz}$	—	60	250	pF
Output	High level output current	$I_{OH(1)}$	$I_F=0, V_{CC}=5.5\text{V}, V_O=5.5\text{V}$	—	3	500	nA
		$I_{OH(2)}$	$I_F=0, V_{CC}=15\text{V}, V_O=15\text{V}$	—	—	1.0	μA
		$I_{OH(3)}$	$I_F=0, V_{CC}=15\text{V}, V_O=15\text{V} *5$	—	—	50	
	High level supply current	$I_{CCH(1)}$	$I_F=0, V_{CC}=15\text{V}, V_O=\text{OPEN}$	—	0.02	1.0	μA
		$I_{CCH(2)}$	$I_F=0, V_{CC}=15\text{V}, V_O=\text{OPEN} *5$	—	—	2.0	
	Low level supply current	I_{CCL}	$I_F=16\text{mA}, V_{CC}=15\text{V}, V_O=\text{OPEN}$	—	120	—	μA
Transfer characteristics	Low level output voltage	V_{OL}	$I_F=16\text{mA}, V_{CC}=4.5\text{V}, I_O=2.4\text{mA}$	—	—	0.4	V
	Current transfer ratio	CTR(1)	$I_F=16\text{mA}, V_{CC}=4.5\text{V}, V_O=0.4\text{V}$	19	—	50	%
		CTR(2)	$I_F=16\text{mA}, V_{CC}=4.5\text{V}, V_O=0.4\text{V} *5$	15	—	—	
	Isolation resistance	R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	—	Ω
	Floating capacitance	C_f	$V=0\text{V}, f=1\text{MHz}$	—	0.6	1.0	pF
	"High→Low" transfer time	t_{PHL}	$I_F=16\text{mA}, V_{CC}=5\text{V}, R_L=1.9\text{k}\Omega$	—	0.2	0.8	μs
	"Low→High" transfer time	t_{PLH}		—	0.6	0.8	
	Instantaneous common mode rejection voltage "Output: High level"	CM_H	$I_F=0\text{mA}, R_L=1.9\text{k}\Omega, V_{CM}=1.0\text{kV}_{P-P}, V_{CC}=5\text{V}$	15	30	—	kV/ μs
	Instantaneous common mode rejection voltage "Output: Low level"	CM_L	$I_F=16\text{mA}, R_L=1.9\text{k}\Omega, V_{CM}=1.0\text{kV}_{P-P}, V_{CC}=5\text{V}$	−15	−30	—	kV/ μs

*5 Ta=0 to 70°C

As of September 2001

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