

PC957L0NSZ

Photocoupler

High Speed and High CMR *OPIC Photocoupler

Features

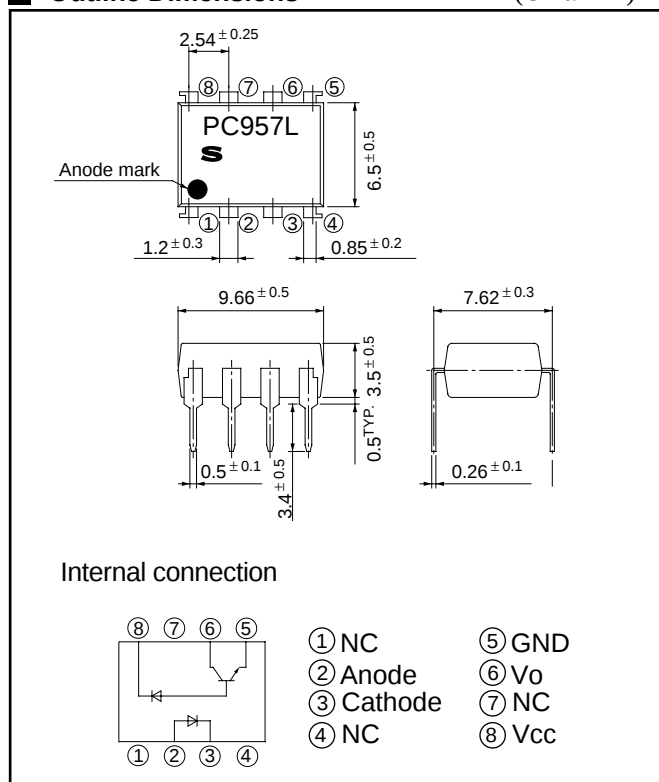
- (1) High instantaneous common mode rejection voltage (CMR:MIN. 15kV/ μ s)
- (2) High speed response
(t_{PHL} :MAX. 0.8 μ s, t_{PLH} :MAX. 0.8 μ s)
- (3) Isolation voltage($V_{iso}(rms)$: 5.0kV)
- (4) 8-pin DIP package
- (5) Flow soldering : 280°C for 6s or less
- (6) Recognized by UL (file No. E64380)
Under preparation for 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	Forward current	I_F	25	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P	45	mW
Output	Supply voltage	V_{CC}	-0.5 to +30	V
	Output voltage	V_O	-0.5 to +20	V
	Output current	I_O	8	mA
	Power dissipation	P_O	100	mW
	*1 Isolation voltage	$V_{iso}(rms)$	5.0	kV
	Operating temperature	T_{opr}	-55 to +100	°C
	Storage temperature	T_{stg}	-55 to +125	°C
	*2 Soldering temperature	T_{sol}	270	°C

*1 40 to 60% RH, for 1 minute

*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=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
		$I_{OH(2)}$	$I_F=0, V_{CC}=15\text{V}, V_O=15\text{V}$	—	0.01	1.0	μA
		$I_{OH(3)}$	$I_F=0, V_{CC}=15\text{V}, V_O=15\text{V} *3$	—	—	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
		$I_{CCH(2)}$	$I_F=0, V_{CC}=15\text{V}, V_O=\text{OPEN} *3$	—	—	2.0	
	Low level supply current	I_{CCL}	$I_F=16\text{mA}, V_{CC}=15\text{V},$ $V_O=\text{OPEN}$	—	120	—	μA
	Low level output voltage	V_{OL}	$I_F=16\text{mA}, V_{CC}=4.5\text{V},$ $I_O=2.4\text{mA}$	—	0.1	0.4	V
Transfer characteristics	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)	$I_F=16\text{mA}, V_{CC}=4.5\text{V}, V_O=0.4\text{V} *3$	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

*3 Ta=0 to 70°C

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