

# PC3H510NIP

## Low Input Current, Half-Pitch Photocoupler

### ■ Features

1. Low input drive current ( $I_F=0.5\text{mA}$ )
2. High sensitivity  
(Darlington type, CTR:Min. 600%)
3. Half-pitch type, well suited for high-density mounting  
(Lead pitch:1.27mm)
4. Soldering reflow type ( $230^\circ\text{C}$ , 30s)
5. Taping package
6. Isolation voltage (Viso (rms):2.5kV)
7. Recognized by UL, file No. E64380

### ■ Applications

1. Programmable controllers
2. Facsimiles
3. Telephones

### ■ Package Specifications

Model No.	Package specification
PC3H510NIP	Taping reel diameter 330mm (3 000pcs.)

### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

	Parameter	Symbol	Rating	Unit
Input	*1 Forward current	$I_F$	10	mA
	*2 Peak forward current	$I_{FM}$	200	mA
	Reverse voltage	$V_R$	6	V
	*1 Power dissipation	$P$	15	mW
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_C$	80	mA
	*1 Collector power dissipation	$P_C$	150	mW
	*1 Total power dissipation	$P_{tot}$	170	mW
	Operating temperature	$T_{opr}$	$-30$ to $+100$	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	$-40$ to $+125$	$^\circ\text{C}$
	*3 Isolation voltage	$V_{iso (rms)}$	2.5	kV
	*4 Soldering temperature	$T_{sol}$	260	$^\circ\text{C}$

\*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.2 to 5

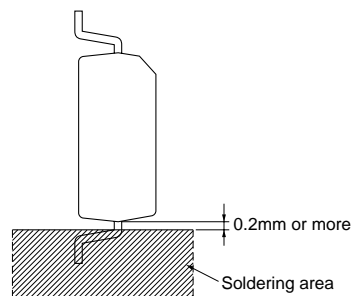
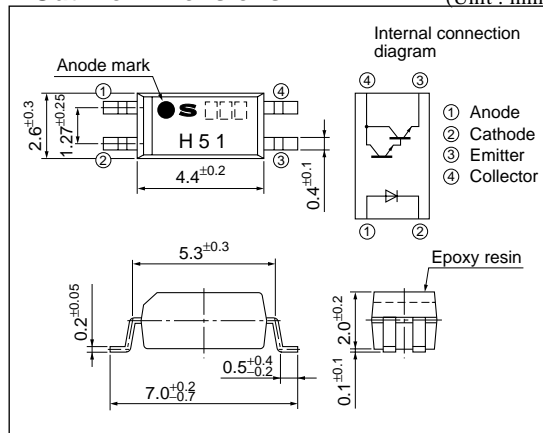
\*2 Pulse width $\leq 100\mu\text{s}$ , Duty ratio=0.001(shown in Fig.6)

\*3 40 to 60%RH, AC for 1 min,  $f=60\text{Hz}$

\*4 For 10 s

### ■ Outline Dimensions

(Unit : mm)



## ■ Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F=5\text{mA}$	–	1.2	1.4	V
	Reverse current	$I_R$	$V_R=4\text{V}$	–	–	10	$\mu\text{A}$
	Terminal capacitance	$C_t$	$V=0, f=1\text{kHz}$	–	30	250	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE}=10\text{V}, I_F=0$	–	–	1000	nA
	Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=0.1\text{mA}, I_F=0$	35	–	–	V
	Emitter-collector breakdown voltage	$BV_{ECO}$	$I_E=10\mu\text{A}, I_F=0$	6	–	–	V
Transfer characteristics	Collector current	$I_C$	$I_F=0.5\text{mA}, V_{CE}=2\text{V}$	3	14	60	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=1\text{mA}, I_C=2\text{mA}$	–	–	1.0	V
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60%RH	$5 \times 10^{10}$	$10^{11}$	–	$\Omega$
	Floating capacitance	$C_f$	$V=0, f=1\text{MHz}$	–	0.6	1.0	pF
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}$ $I_C=10\text{mA}$ $R_L=100\Omega$	–	60	300
Fall time		$t_f$	–		53	250	$\mu\text{s}$

Fig.1 Forward Current vs. Ambient Temperature

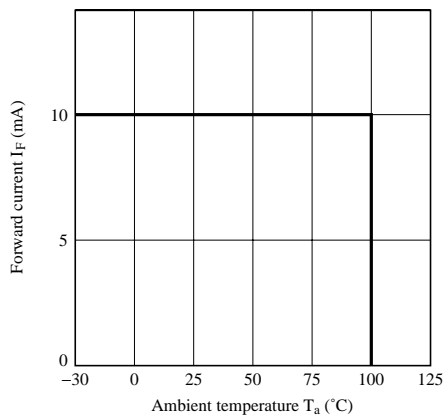
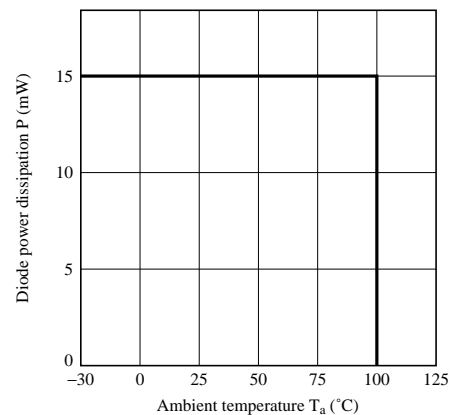
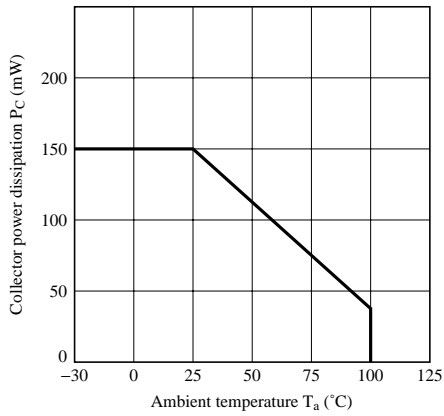


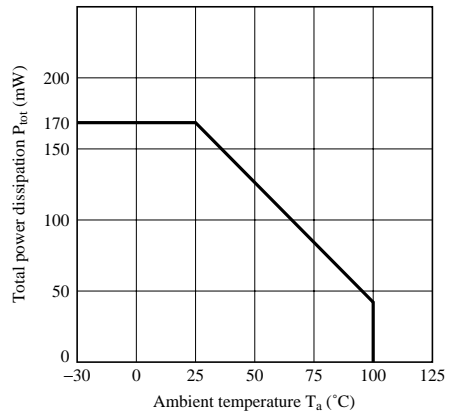
Fig.2 Diode Power Dissipation vs. Ambient Temperature



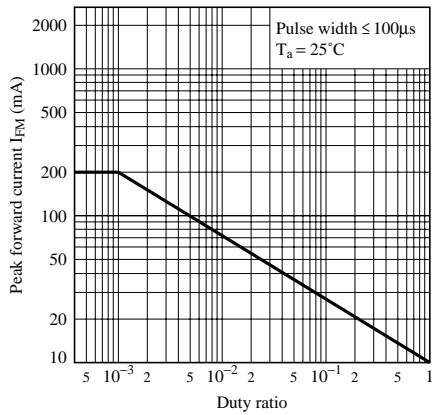
**Fig.3 Collector Power Dissipation vs. Ambient Temperature**



**Fig.4 Total Power Dissipation vs. Ambient Temperature**



**Fig.5 Peak Forward Current vs. Duty Ratio**



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