

PC8172xNSZ Series

Low Input Current Type Photocoupler

■ Features

1. Low input current type. ($I_F=0.1\text{mA}$)
2. High resistance to noise due to high common rejection voltage. (CMR:MIN. $10\text{kV}/\mu\text{s}$)
3. Compact dual-in line package.
4. Isolation voltage. ($V_{\text{iso (rms)}}$): 5kV)

■ Applications

1. Programmable controllers.
2. Facsimiles.
3. Telephones.

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

Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	10
	*1 Peak forward current	I_{FM}	200
	Reverse voltage	V_R	6
	Power dissipation	P	15
Output	Collector-emitter voltage	V_{CEO}	70
	Emitter-collector voltage	V_{ECO}	6
	Collector current	I_C	50
	Collector power dissipation	P_C	150
Total power dissipation		P_{tot}	170
Operating temperature		T_{opr}	-30 to $+100$
Storage temperature		T_{stg}	-55 to $+125$
*2 Isolation voltage	$V_{\text{iso (rms)}}$	5	kV
*3 Soldering temperature	T_{sol}	260	$^\circ\text{C}$

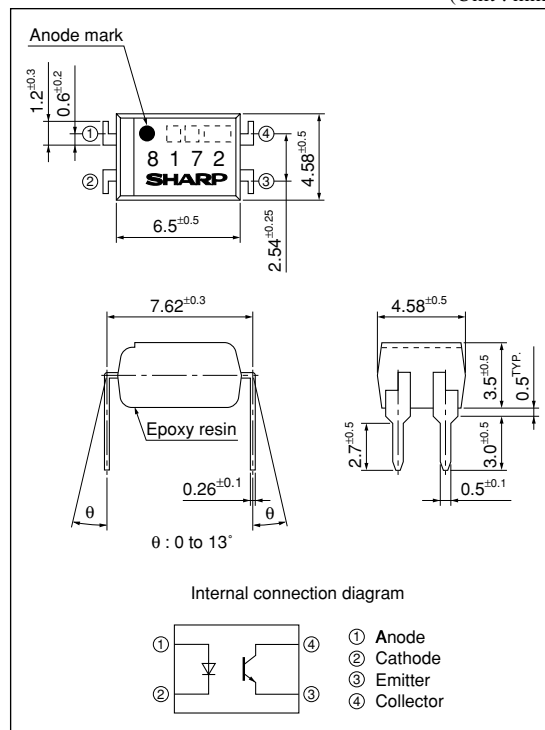
*1 Pulse width $\leq 100\mu\text{s}$, Duty ratio=0.001

*2 40 to 60%RH, AC for 1 minute, $f=60\text{Hz}$

*3 For 10s

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(T_a=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V _F	I _F =5mA	—	1.2	1.4	V
	Reverse current	I _R	V _R =4V	—	—	10	μA
	Terminal capacitance	C _t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current	I _{CEO}	V _{CE} =50V, I _F =0	—	—	100	nA
	Collector-emitter breakdown voltage	BV _{CEO}	I _C =0.1mA, I _F =0	70	—	—	V
	Emitter-collector breakdown voltage	BV _{ECO}	I _E =10μA, I _F =0	6	—	—	V
Transfer characteristics	Collector current	I _C	I _F =0.1mA, V _{CE} =5V	0.1	—	0.5	mA
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =5mA, I _C =1mA	—	0.1	0.3	V
	Isolation resistance	R _{ISO}	DC500V 40 to 60%RH	5×10 ¹⁰	1×10 ¹¹	—	Ω
	Floating capacitance	C _f	V=0, f=1MHz	—	0.6	1.0	pF
	Response time	Rise time	V _{CE} =2V, I _C =2mA, R _L =100Ω	—	4	18	μs
		Fall time		—	3	18	μs
	*4 Common mode rejection voltage	CMR	T _a =25°C, R _L =470Ω, V _{CM} =1.5kV (peak), I _F =0mA, V _{CC} =9V, V _{np} =100mV	10	—	—	kV/μs

*4 Refer to Fig.1.

Fig.1 Test Circuit for Common Mode Rejection Voltage

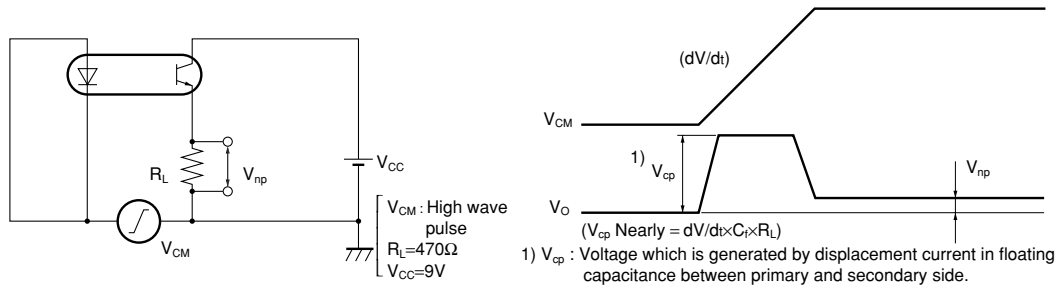


Fig.2 Forward Current vs. Ambient Temperature

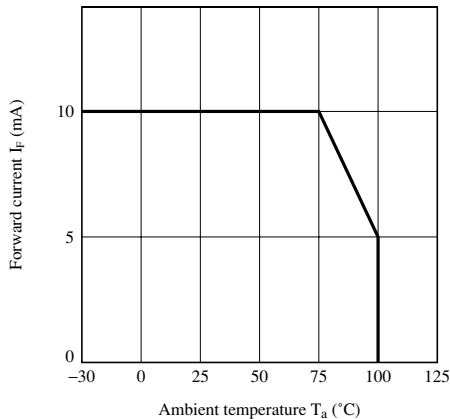


Fig.3 Diode Power Dissipation vs. Ambient Temperature

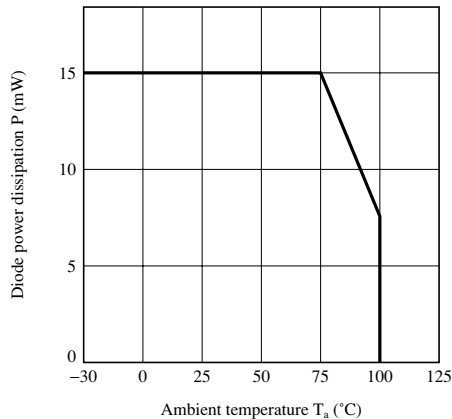
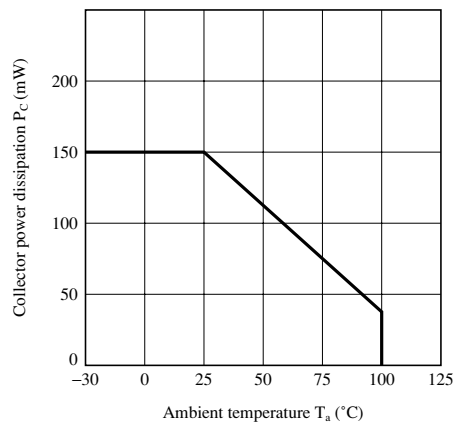
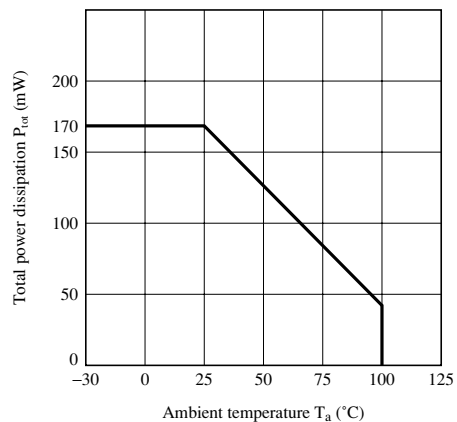
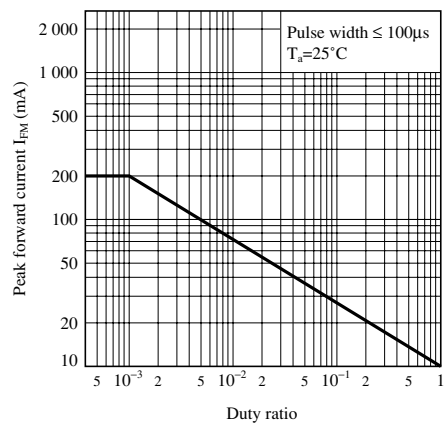


Fig.4 Collector Power Dissipation vs. Ambient Temperature**Fig.5 Total Power Dissipation vs. Ambient Temperature****Fig.6 Peak Forward Current vs. Duty Ratio**

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