

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

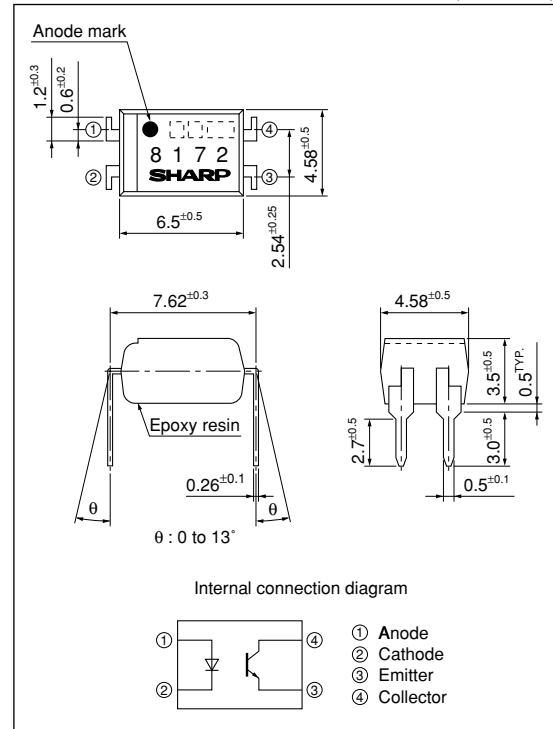
*1 Pulse width $\leq 100\mu\text{s}$, Duty ratio=0.001

*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	t _r	V _{CE} =2V, I _C =2mA, R _L =100Ω	-	4	18	μs
		Fall time	t _f		-	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

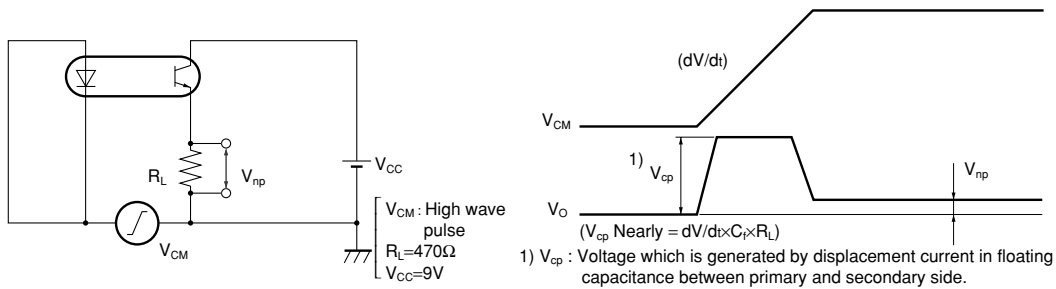


Fig.2 Forward Current vs. Ambient Temperature

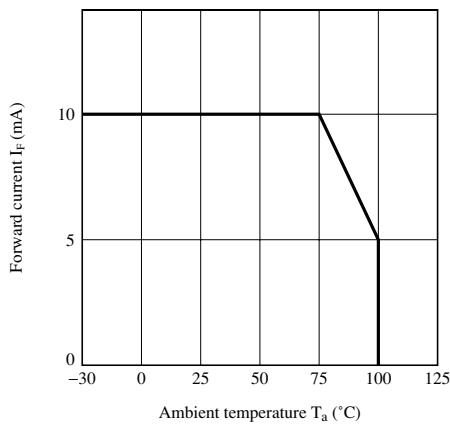


Fig.3 Diode Power Dissipation vs. Ambient Temperature

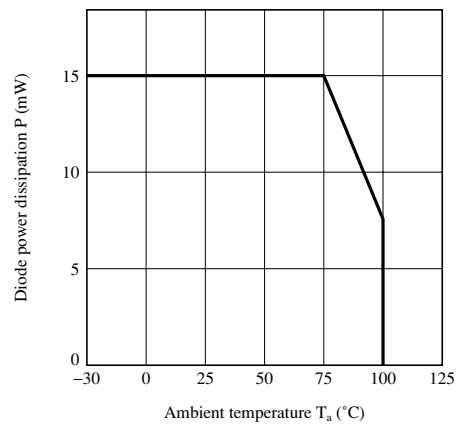


Fig.4 Collector Power Dissipation vs. Ambient Temperature

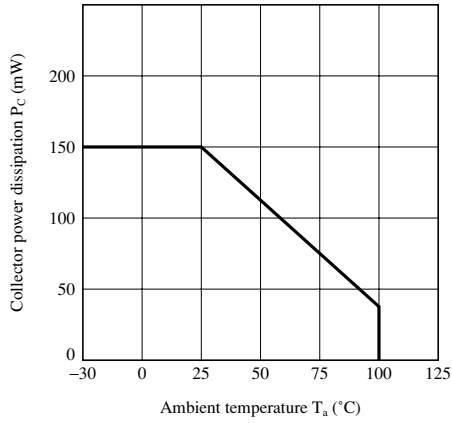


Fig.5 Total Power Dissipation vs. Ambient Temperature

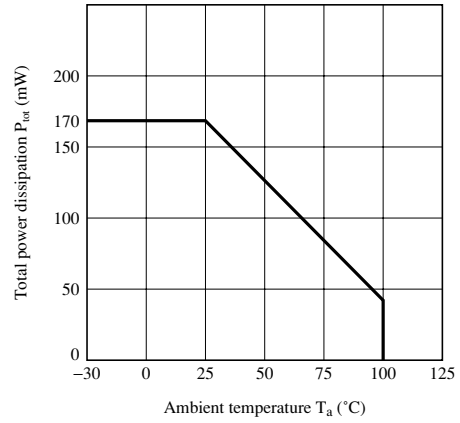
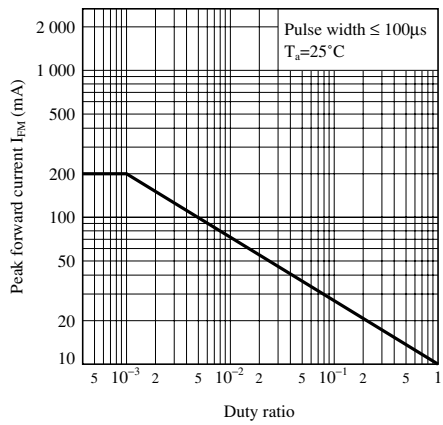


Fig.6 Peak Forward Current vs. Duty Ratio





NOTICE

- The circuit application examples in this publication are provided to explain representative applications of SHARP devices and are not intended to guarantee any circuit design or license any intellectual property rights. SHARP takes no responsibility for any problems related to any intellectual property right of a third party resulting from the use of SHARP's devices.
- Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device. SHARP reserves the right to make changes in the specifications, characteristics, data, materials, structure, and other contents described herein at any time without notice in order to improve design or reliability. Manufacturing locations are also subject to change without notice.
- Observe the following points when using any devices in this publication. SHARP takes no responsibility for damage caused by improper use of the devices which does not meet the conditions and absolute maximum ratings to be used specified in the relevant specification sheet nor meet the following conditions:
 - (i) The devices in this publication are designed for use in general electronic equipment designs such as:
 - Personal computers
 - Office automation equipment
 - Telecommunication equipment [terminal]
 - Test and measurement equipment
 - Industrial control
 - Audio visual equipment
 - Consumer electronics
 - (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
 - Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
 - Traffic signals
 - Gas leakage sensor breakers
 - Alarm equipment
 - Various safety devices, etc.
 - (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
 - Space applications
 - Telecommunication equipment [trunk lines]
 - Nuclear power control equipment
 - Medical and other life support equipment (e.g., scuba).
- Contact a SHARP representative in advance when intending to use SHARP devices for any "specific" applications other than those recommended by SHARP or when it is unclear which category mentioned above controls the intended use.
- If the SHARP devices listed in this publication fall within the scope of strategic products described in the Foreign Exchange and Foreign Trade Control Law of Japan, it is necessary to obtain approval to export such SHARP devices.
- This publication is the proprietary product of SHARP and is copyrighted, with all rights reserved. Under the copyright laws, no part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, in whole or in part, without the express written permission of SHARP. Express written permission is also required before any use of this publication may be made by a third party.
- Contact and consult with a SHARP representative if there are any questions about the contents of this publication.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View PC817-2 on WIN SOURCE](#)
-  [Sharp Microelectronics](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management