

PC702VxNSZX Series/ PC702VxYSZX Series

■ Features

1. High collector-emitter voltage (V_{CEO} :70V)
2. Isolation voltage (Viso (rms):5kV)
3. TTL compatible output
4. Recognized by UL, file No.E64380
Approved by TÜV (VDE0884)(PC702VxYSZX Series)
5. 6-pin DIP package

■ Applications

1. Programmable controllers
2. Facsimiles
3. Telephones

■ Model Line-up

Model No.	* Safty Standard Approval	
	UL	TÜV(VDE0884)
PC702VxNSZX Series	○	—
PC702VxYSZX Series	○	○

* Application Model No. PC702V

■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	60	mA
	*1 Peak forward current	I_{FM}	1.5	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	105	mW
Output	Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector-base voltage	V_{CBO}	70	V
	Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	Pc	160	mW
	Total power dissipation	P _{tot}	200	mW
	*2 Isolation voltage	V_{iso} (rms)	5	kV
	Operating temperature	T _{opr}	-55 to +100	°C
	Storage temperature	T _{stg}	-55 to +150	°C
	*3 Soldering temperature	T _{sol}	260	°C

*1 Pulse width≤10μs, Duty ratio=0.004

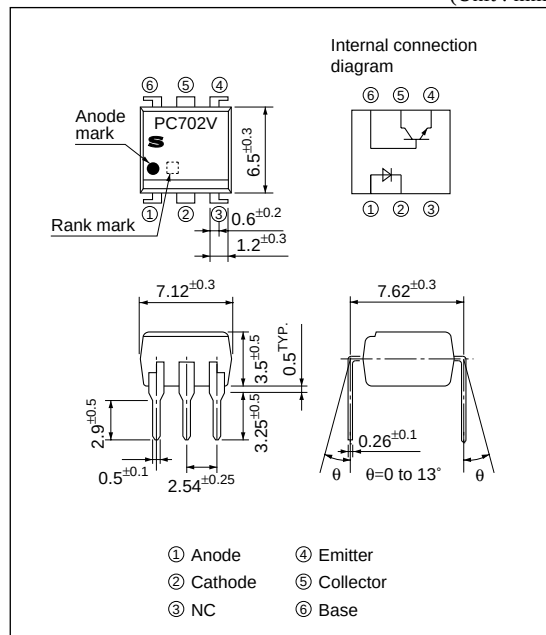
*2 40 to 60%RH, AC for 1 min

*3 For 10 s

High Collector-emitter Voltage Type Photocoupler

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(Ta=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V _F	I _F =60mA	—	1.4	1.7	V
	Reverse current		I _R	V _R =6V	—	—	10	μA
	Terminal capacitance		C _t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current		I _{CEO}	V _{CE} =10V, I _F =0	—	—	5×10 ⁻⁸	A
Transfer charac- teristics	*4 Collector current		I _C	I _F =10mA, V _{CE} =5V	4.0	—	32.0	mA
	Collector-emitter saturation voltage		V _{CE(sat)}	I _F =10mA, I _C =2.5mA	—	0.25	0.4	V
	Isolation resistance		R _{ISO}	DC500V, 40 to 60%RH	5×10 ¹⁰	10 ¹¹	—	Ω
	Floating capacitance		C _f	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency		f _C	I _F =10mA, V _{CC} =5V, R _L =75Ω, R _{BE} =∞, -3dB	—	150	—	kHz
	Response time	Rise time	t _r	I _F =10mA, V _{CC} =5V	—	2	7	μs
		Fall time	t _f	R _L =75Ω, R _{BE} =∞	—	2	8	μs

*4 Classification table of collector current is shown below.

Model No. *5	Rank mark	I_C (mA)
PC702V1NSZX	A	4.0 to 8.0
PC702V2NSZX	B	6.3 to 12.5
PC702V3NSZX	C	10.0 to 20.0
PC702V4NSZX	D	16.0 to 32.0
PC702V5NSZX	A or B	4.0 to 12.5
PC702V6NSZX	B or C	6.3 to 20.0
PC702V7NSZX	C or D	10.0 to 32.0
PC702V0NSZX	A, B, C or D	4.0 to 32.0

Measuring Conditions

$I_F=10\text{mA}$

$V_{CE}=5\text{V}$

$T_A=25^\circ\text{C}$

*5 PC702VxYSZX Series are equivalent.

Fig.1 Forward Current vs. Ambient Temperature

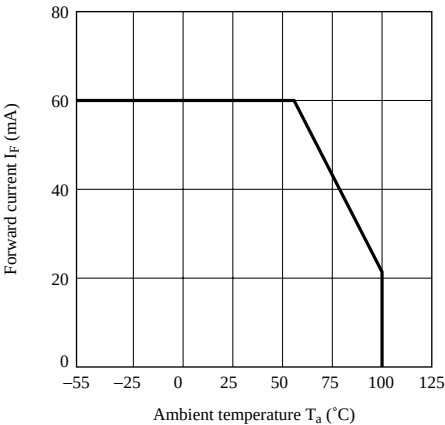


Fig.2 Collector Power Dissipation vs. Ambient Temperature

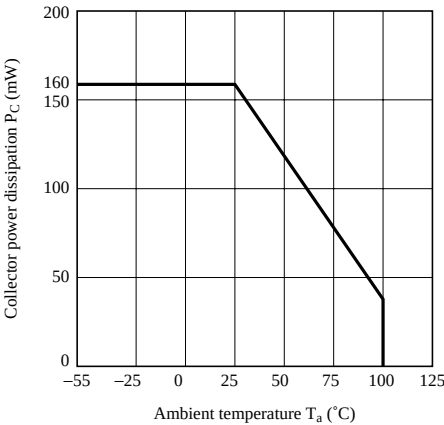


Fig.3 Peak Forward Current vs. Duty Ratio

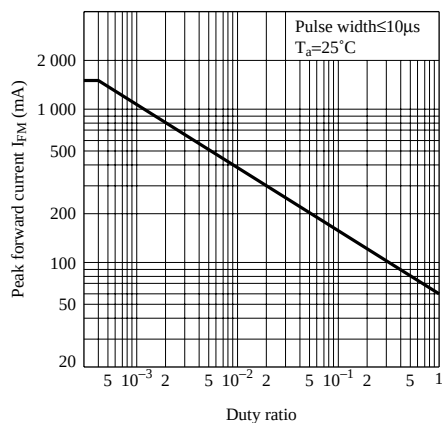


Fig.4 Forward Current vs. Forward Voltage

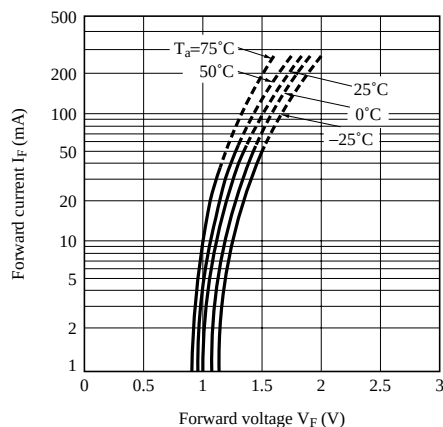


Fig.5 Current Transfer Ratio vs. Forward Current

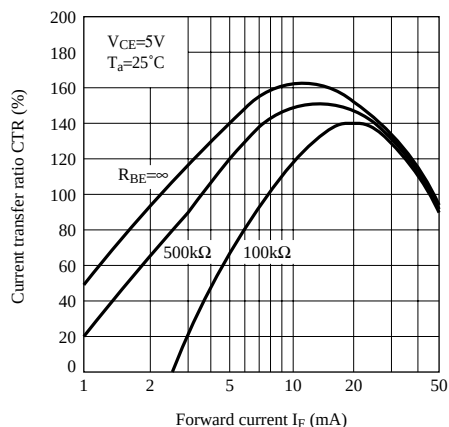


Fig.6 Collector Current vs. Collector-emitter Voltage

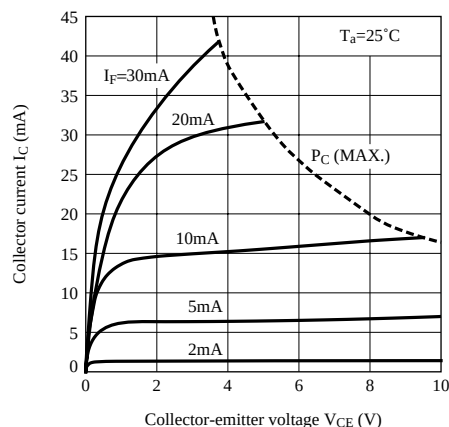


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

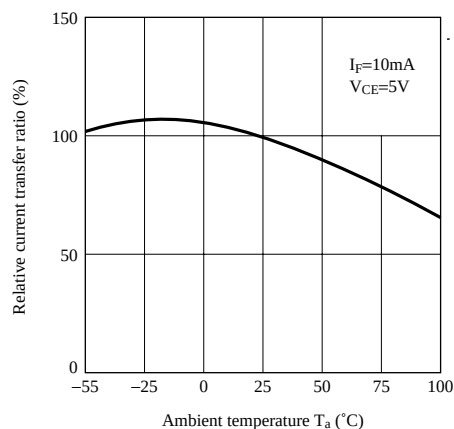


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

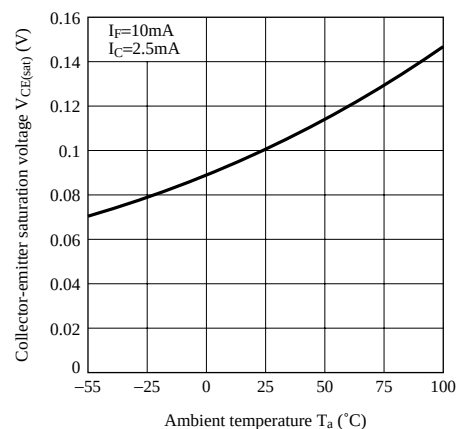
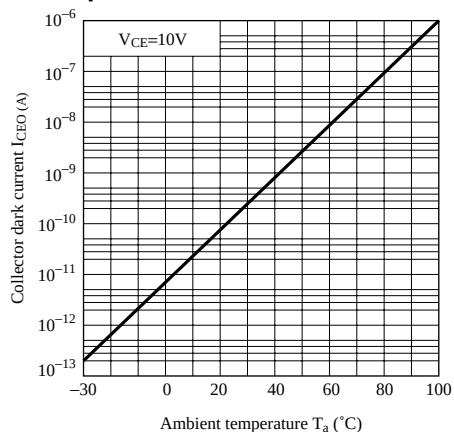
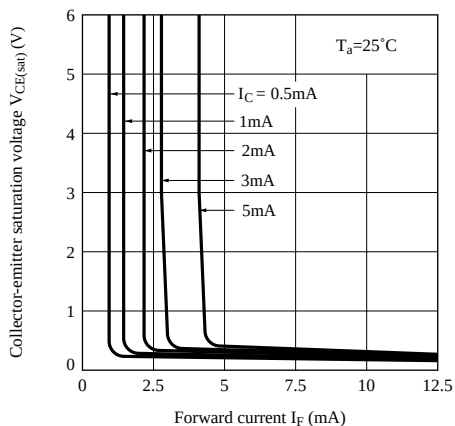
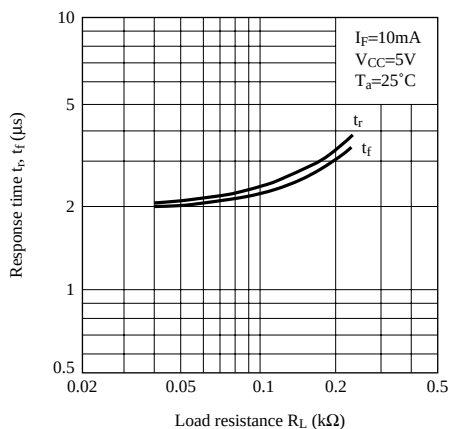
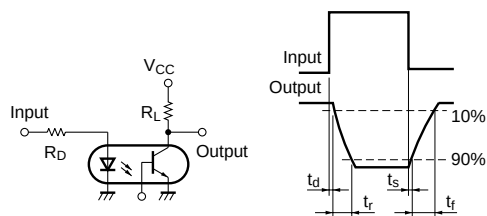
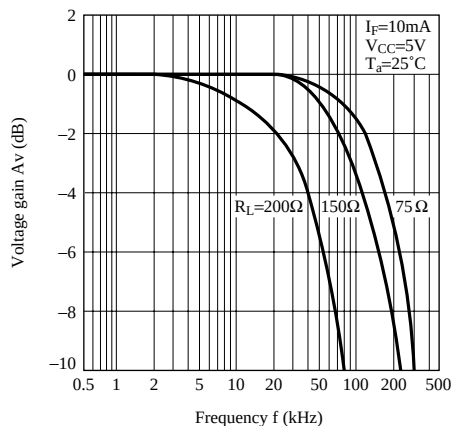
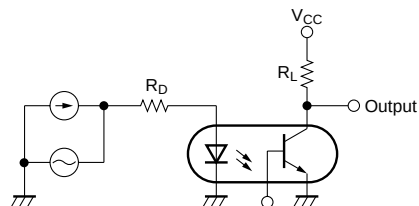


Fig.9 Collector Dark Current vs. Ambient Temperature**Fig.10 Collector-emitter Saturation Voltage vs. Forward Current****Fig.11 Response Time vs. Load Resistance****Fig.12 Test Circuit for Response Time****Fig.13 Frequency Response****Fig.14 Test Circuit for Frequency Response**

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.