

# PC702VxNSZX Series/ PC702VxYSZX Series

## High Collector-emitter Voltage Type Photocoupler

### ■ Features

1. High collector-emitter voltage ( $V_{CE0}:70V$ )
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	$V_{CE0}$	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	$P_C$	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

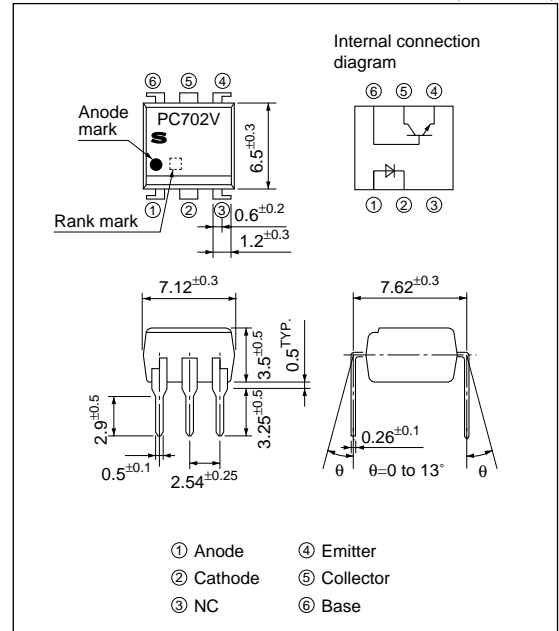
\*1 Pulse width $\leq$ 10 $\mu$ s, Duty ratio=0.004

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

\*3 For 10 s

### ■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =60mA	-	1.4	1.7	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =6V	-	-	10	μA
	Terminal capacitance	C <sub>i</sub>	V=0, f=1kHz	-	30	250	pF
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =10V, I <sub>F</sub> =0	-	-	5×10 <sup>-8</sup>	A
Transfer characteristics	*4 Collector current	I <sub>C</sub>	I <sub>F</sub> =10mA, V <sub>CE</sub> =5V	4.0	-	32.0	mA
	Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>F</sub> =10mA, I <sub>C</sub> =2.5mA	-	0.25	0.4	V
	Isolation resistance	R <sub>ISO</sub>	DC500V, 40 to 60%RH	5×10 <sup>10</sup>	10 <sup>11</sup>	-	Ω
	Floating capacitance	C <sub>f</sub>	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency	f <sub>c</sub>	I <sub>F</sub> =10mA, V <sub>CC</sub> =5V, R <sub>L</sub> =75Ω, R <sub>BE</sub> =∞, -3dB	-	150	-	kHz
	Response time	Rise time	t <sub>r</sub>	I <sub>F</sub> =10mA, V <sub>CC</sub> =5V R <sub>L</sub> =75Ω, R <sub>BE</sub> =∞	-	2	7
Fall time		t <sub>f</sub>	-		2	8	μs

\*4 Classification table of collector current is shown below.

Model No. *5	Rank mark	I <sub>C</sub> (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<sub>F</sub>=10mA  
V<sub>CE</sub>=5V  
T<sub>a</sub>=25°C

\*5 PC702VxYSZX Series are equivalent.

Fig.1 Forward Current vs. Ambient Temperature

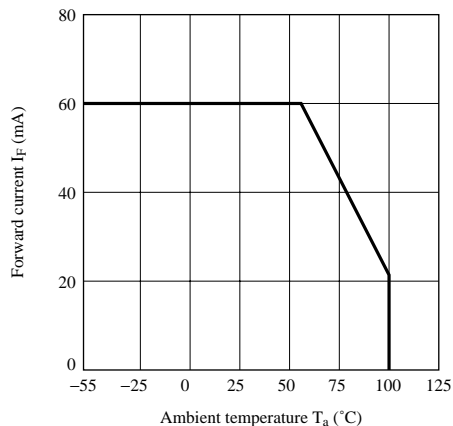
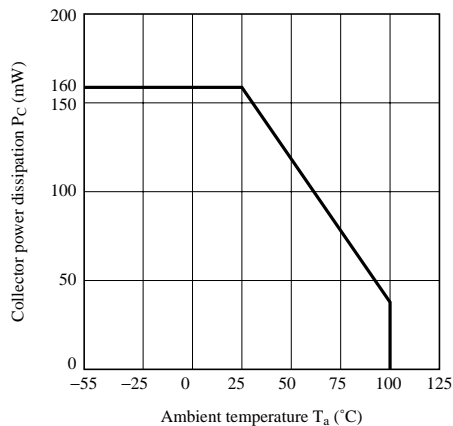
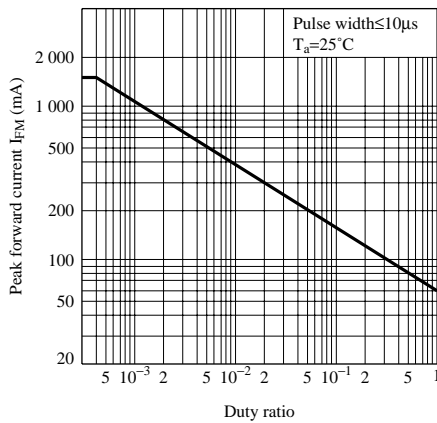


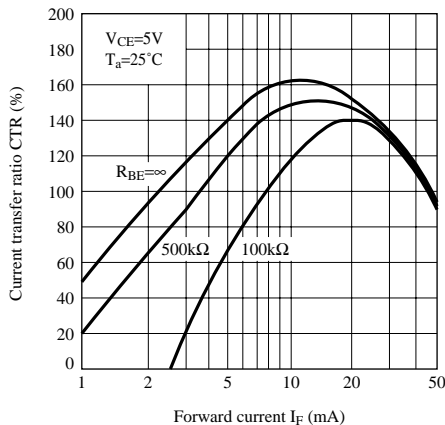
Fig.2 Collector Power Dissipation vs. Ambient Temperature



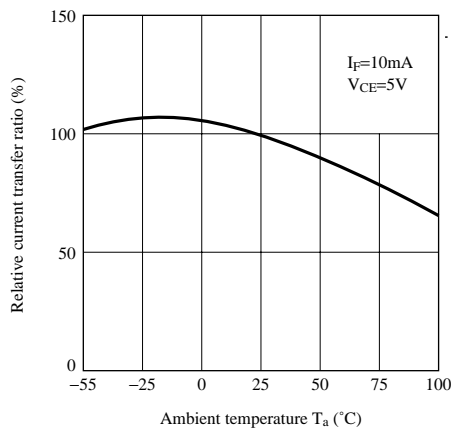
**Fig.3 Peak Forward Current vs. Duty Ratio**



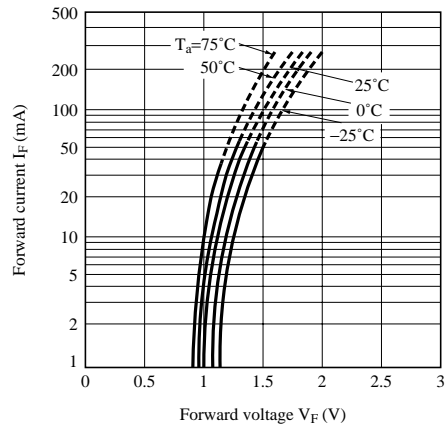
**Fig.5 Current Transfer Ratio vs. Forward Current**



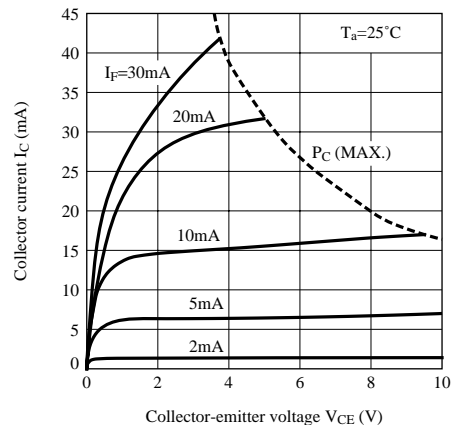
**Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature**



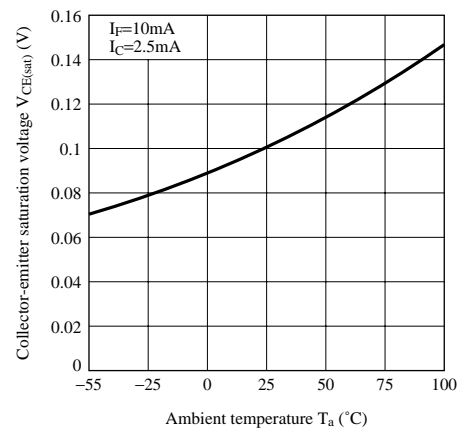
**Fig.4 Forward Current vs. Forward Voltage**



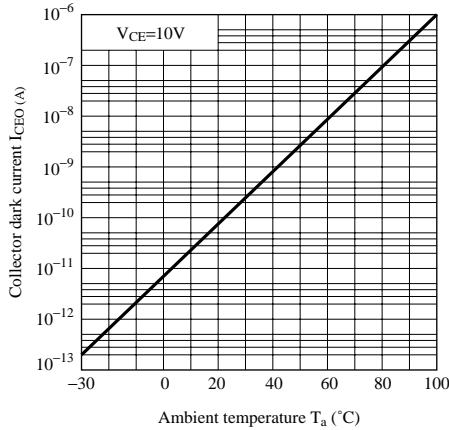
**Fig.6 Collector Current vs. Collector-emitter Voltage**



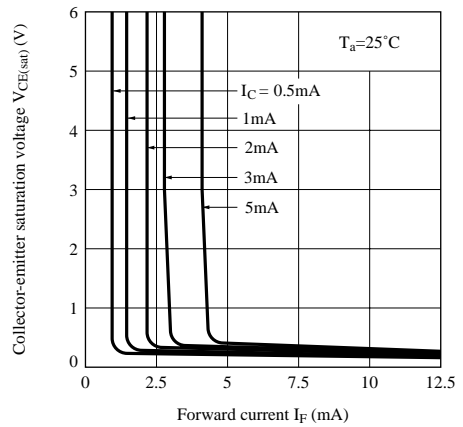
**Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature**



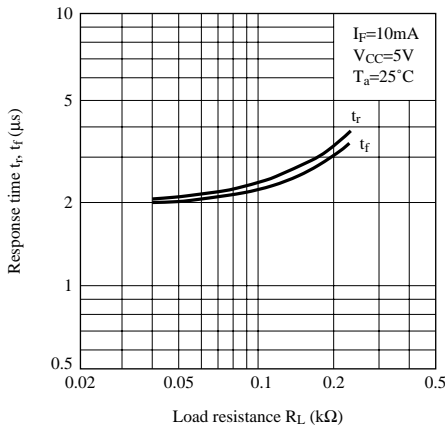
**Fig.9 Collector Dark Current vs. Ambient Temperature**



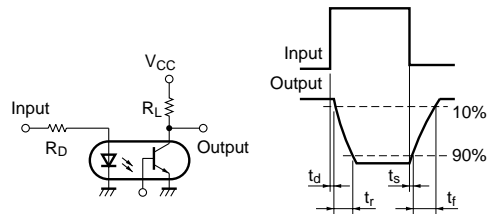
**Fig.10 Collector-emitter Saturation Voltage vs. Forward Current**



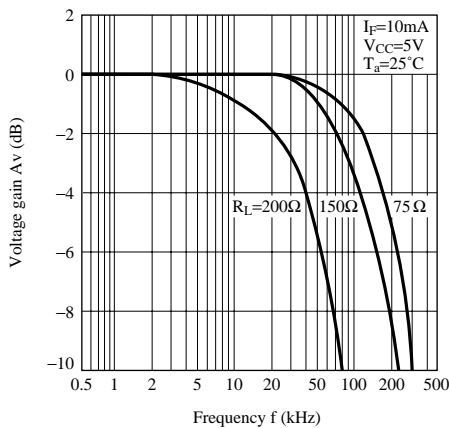
**Fig.11 Response Time vs. Load Resistance**



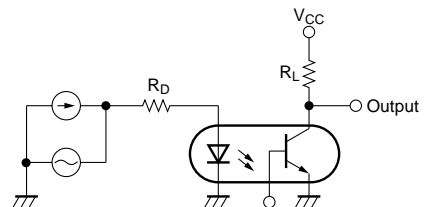
**Fig.12 Test Circuit for Response Time**



**Fig.13 Frequency Response**



**Fig.14 Test Circuit for Frequency Response**



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