

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	

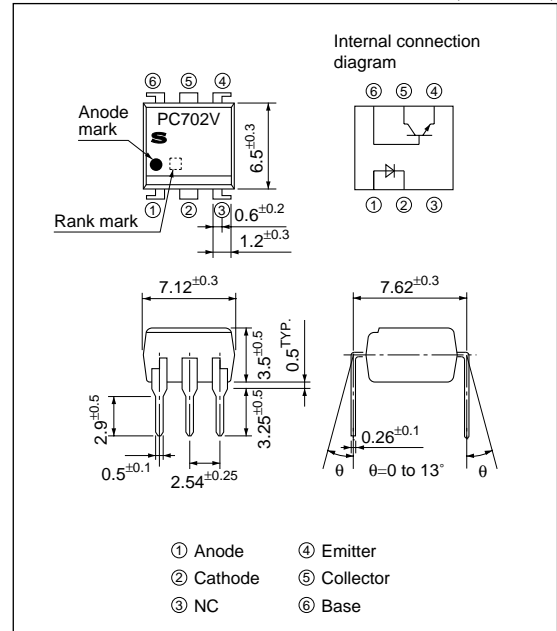
*1 Pulse width \leq 10 μ s, Duty ratio=0.004

*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_F	$I_F=60\text{mA}$	–	1.4	1.7	V
	Reverse current	I_R	$V_R=6\text{V}$	–	–	10	μA
	Terminal capacitance	C_i	$V=0, f=1\text{kHz}$	–	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=10\text{V}, I_F=0$	–	–	5×10^{-8}	A
Transfer characteristics	*4 Collector current	I_C	$I_F=10\text{mA}, V_{CE}=5\text{V}$	4.0	–	32.0	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=10\text{mA}, I_C=2.5\text{mA}$	–	0.25	0.4	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	–	Ω
	Floating capacitance	C_f	$V=0, f=1\text{MHz}$	–	0.6	1.0	pF
	Cut-off frequency	f_c	$I_F=10\text{mA}, V_{CC}=5\text{V}, R_L=75\Omega, R_{BE}=\infty, -3\text{dB}$	–	150	–	kHz
	Response time	Rise time	t_r	$I_F=10\text{mA}, V_{CC}=5\text{V}$ $R_L=75\Omega, R_{BE}=\infty$	–	2	7
Fall time		t_f	–		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

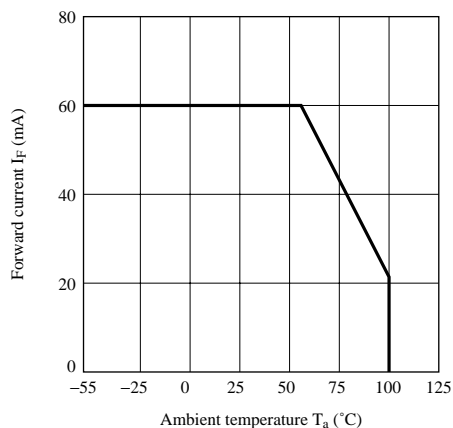


Fig.2 Collector Power Dissipation vs. Ambient Temperature

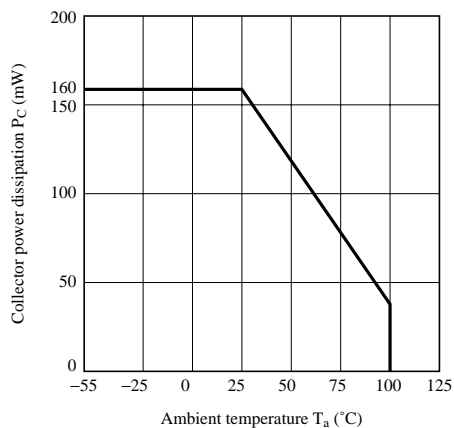


Fig.3 Peak Forward Current vs. Duty Ratio

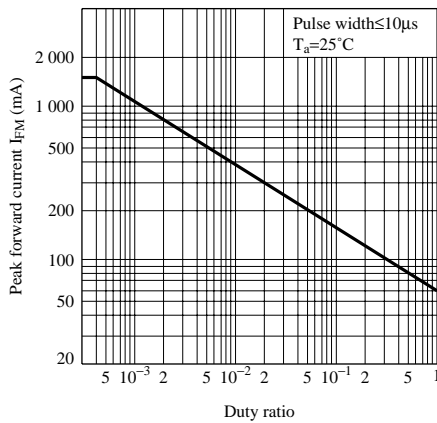


Fig.5 Current Transfer Ratio vs. Forward Current

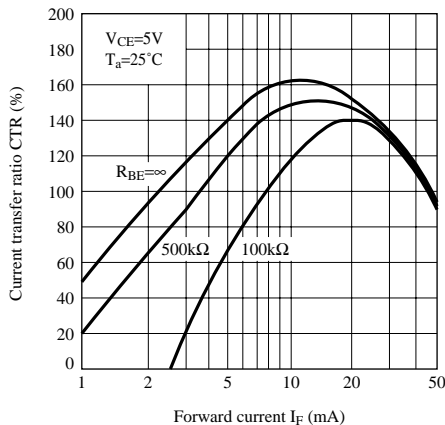


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

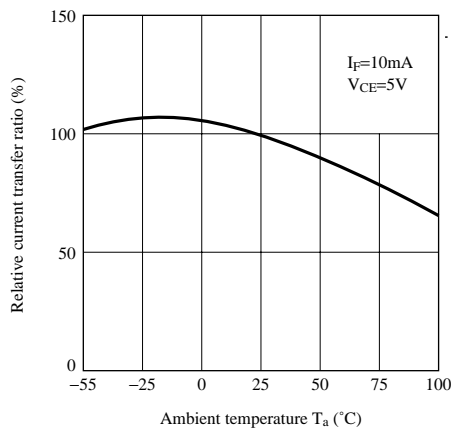


Fig.4 Forward Current vs. Forward Voltage

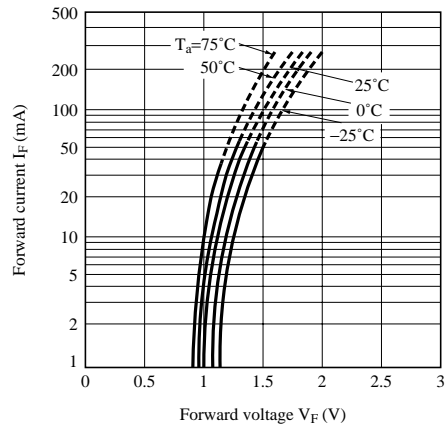


Fig.6 Collector Current vs. Collector-emitter Voltage

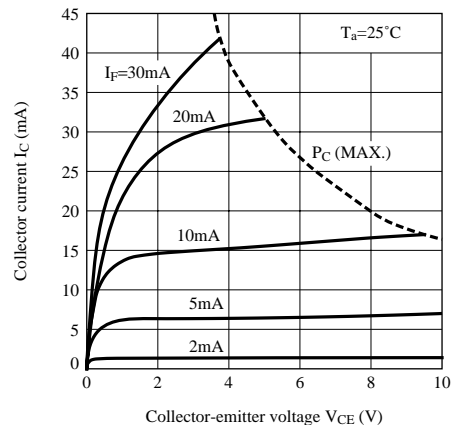


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

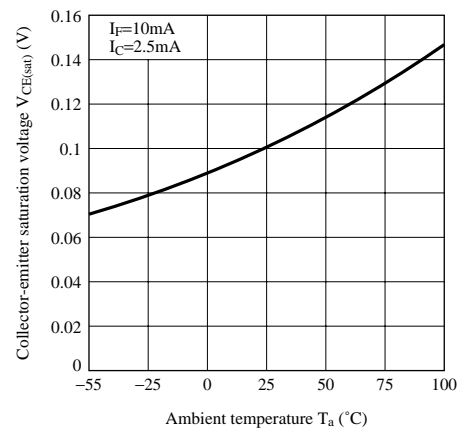


Fig.9 Collector Dark Current vs. Ambient Temperature

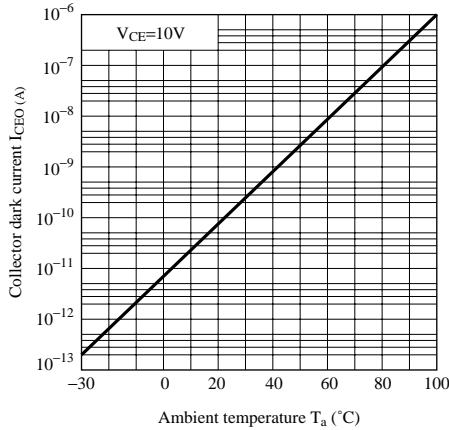


Fig.10 Collector-emitter Saturation Voltage vs. Forward Current

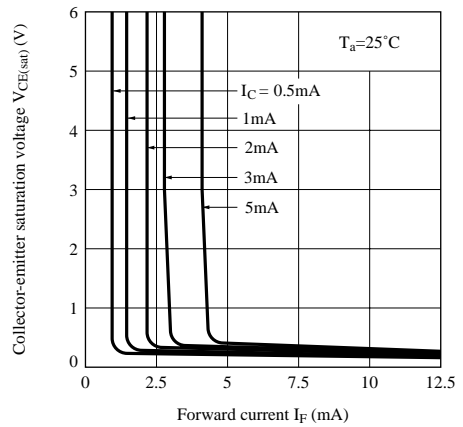


Fig.11 Response Time vs. Load Resistance

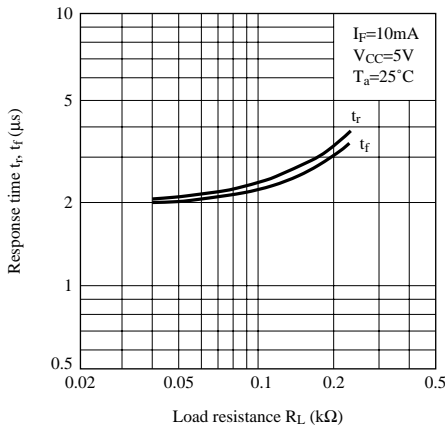


Fig.12 Test Circuit for Response Time

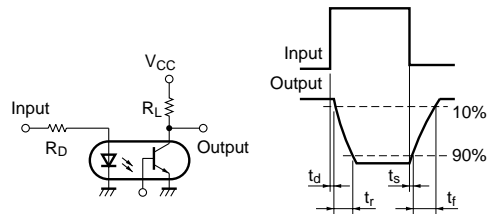


Fig.13 Frequency Response

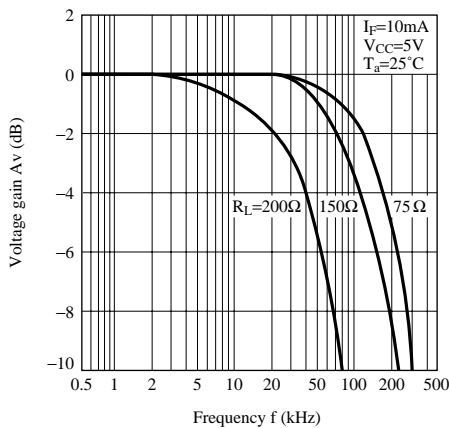
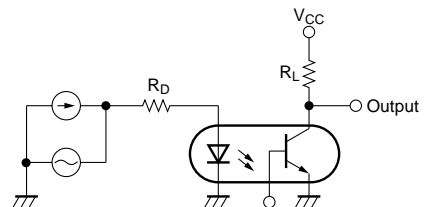


Fig.14 Test Circuit for Frequency Response



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