

# PC713VxNSZX Series/ PC713VxYSZX Series

## ■ Features

1. TTL compatible output
2. Isolation voltage (Viso (rms)):5kV
3. Recognized by UL, file No.E64380  
Approved by TÜV (VDE0884)(PC713VxYSZX Series)
4. 6-pin DIP package

## ■ Applications

1. Home appliances
2. Programmable controllers
3. Peripheral equipment of personal computers

## ■ Model Line-up

Model No.	* Safty Standard Approval	
	UL	TÜV(VDE0884)
PC713VxNSZX Series	○	—
PC713VxYSZX Series	○	○

\* Application Model No. PC713V

## ■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	*1 Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P$	70	mW
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector-base voltage	$V_{CBO}$	35	V
	Emitter-base voltage	$V_{EBO}$	6	V
	Collector current	$I_C$	50	mA
	Collector power dissipation	$P_C$	150	mW
	Total power dissipation	$P_{tot}$	170	mW
	*2 Isolation voltage	$V_{iso (rms)}$	5	kV
	Operating temperature	$T_{opr}$	-25 to +100	°C
	Storage temperature	$T_{stg}$	-40 to +125	°C
	*3 Soldering temperature	$T_{sol}$	260	°C

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

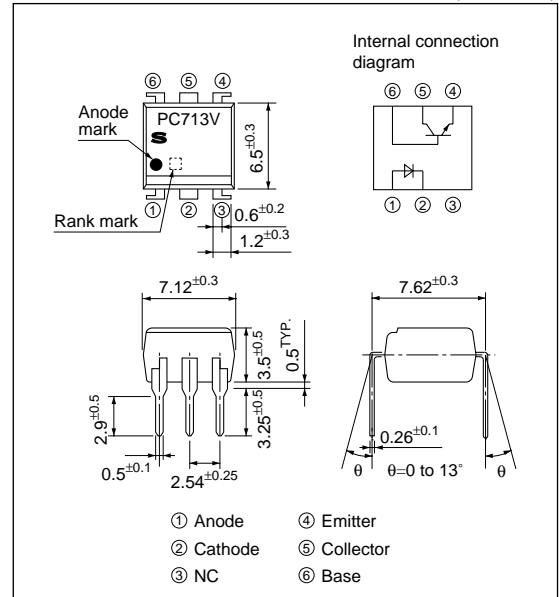
\*2 40 to 60%RH, AC for 1 min

\*3 For 10 s

## High Isolation Voltage Type Photocoupler

## ■ Outline Dimensions

(Unit : mm)



## ■ Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F=20\text{mA}$	–	1.2	1.4	V	
	Peak forward voltage	$V_{FM}$	$I_{FM}=0.5\text{A}$	–	–	3.0	V	
	Reverse current	$I_R$	$V_R=4\text{V}$	–	–	10	$\mu\text{A}$	
	Terminal capacitance	$C_t$	$V=0, f=1\text{kHz}$	–	30	250	pF	
Output	Collector dark current	$I_{CEO}$	$V_{CE}=20\text{V}, I_F=0, R_{BE}=\infty$	–	–	$10^{-7}$	A	
Transfer characteristics	*4 Collector current		$I_C$	$I_F=5\text{mA}, V_{CE}=5\text{V}, R_{BE}=\infty$	2.5	–	30	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_F=20\text{mA}, I_C=1\text{mA}, R_{BE}=\infty$	–	0.1	0.2	V
	Isolation resistance		$R_{ISO}$	DC500V, 40 to 60%RH	$5 \times 10^{10}$	$10^{11}$	–	$\Omega$
	Floating capacitance		$C_f$	$V=0, f=1\text{MHz}$	–	0.6	1.0	pF
	Cut-off frequency		$f_c$	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, R_{BE}=\infty$	–	80	–	kHz
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}, I_C=2\text{mA}$ $R_L=100\Omega, R_{BE}=\infty$	–	4	18	$\mu\text{s}$
Fall time		$t_f$	–		3	18	$\mu\text{s}$	

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

Model No. *5	Rank mark	$I_C$ (mA)
PC713V1NSZX	A	4.0 to 8.0
PC713V2NSZX	B	6.5 to 13.0
PC713V3NSZX	C	10.0 to 20.0
PC713V5NSZX	A or B	4.0 to 13.0
PC713V6NSZX	B or C	6.5 to 20.0
PC713V8NSZX	A, B or C	4.0 to 20.0
PC713V0NSZX	A, B, C or no marking	2.5 to 30.0

Measuring Conditions

$I_F=5\text{mA}$

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

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

\*5 PC713VxYSZX Series are equivalent.

Fig.1 Forward Current vs. Ambient Temperature

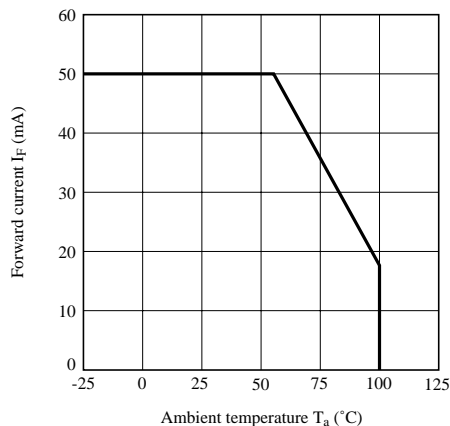


Fig.2 Collector Power Dissipation vs. Ambient Temperature

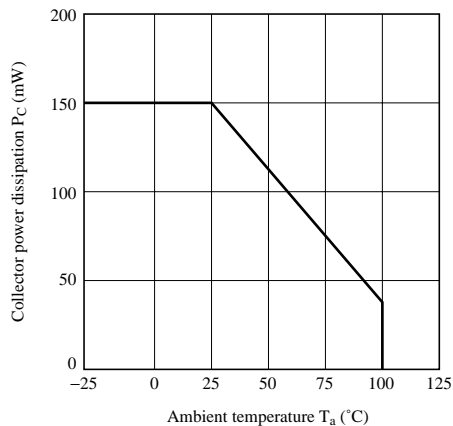


Fig.3 Peak Forward Current vs. Duty Ratio

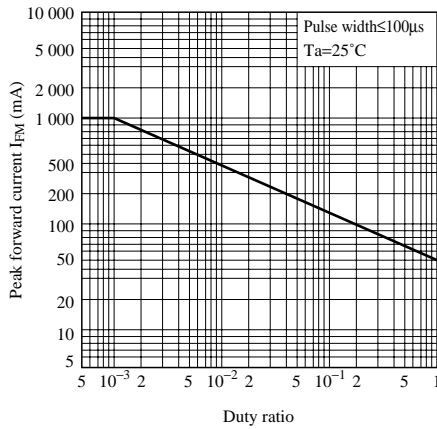


Fig.4 Forward Current vs. Forward Voltage

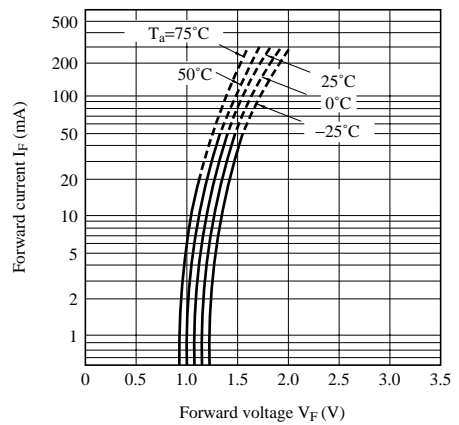


Fig.5 Current Transfer Ratio vs. Forward Current

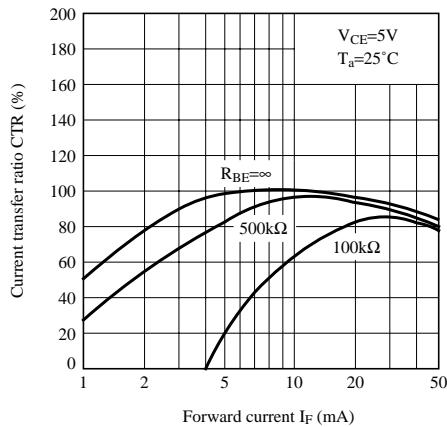


Fig.6 Collector Current vs. Collector-emitter Voltage

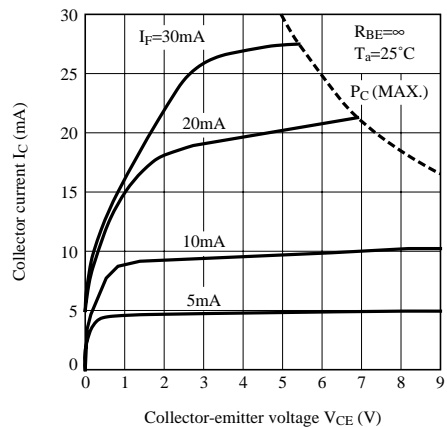


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

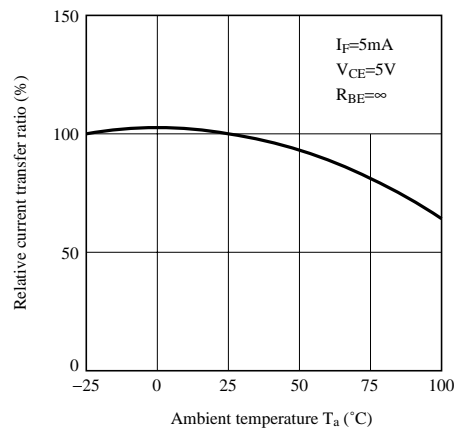
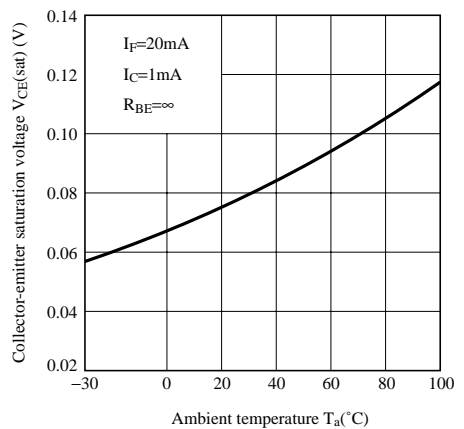
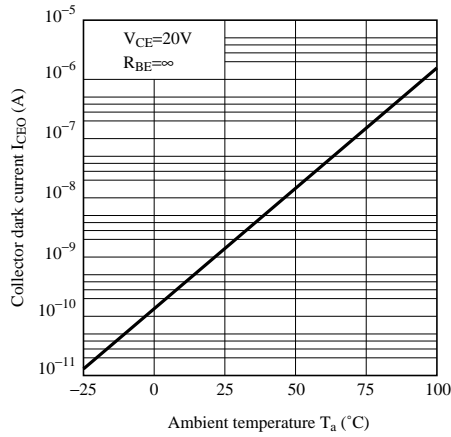


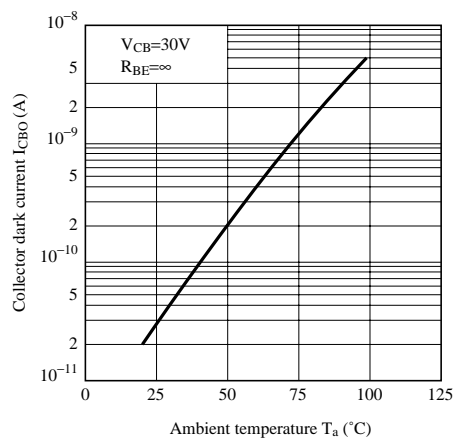
Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature



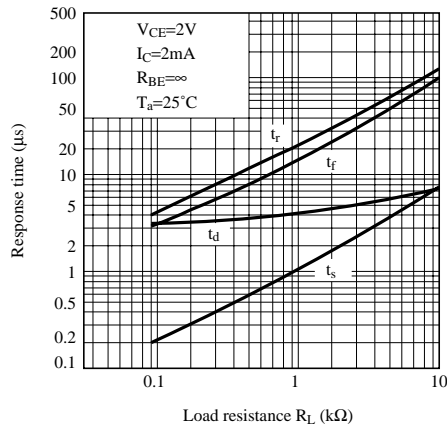
**Fig.9 Collector Dark Current vs. Ambient Temperature**



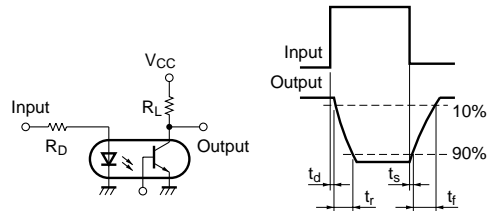
**Fig.10 Collector-base Dark Current vs. Ambient Temperature**



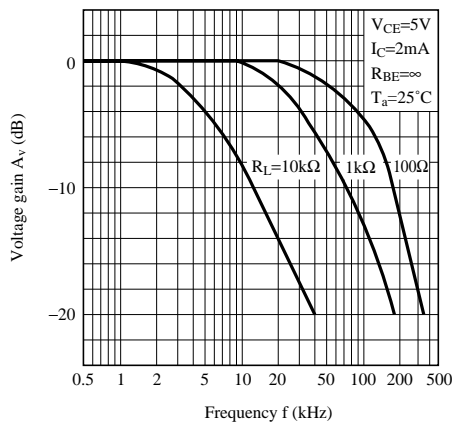
**Fig.11 Response Time vs. Load Resistance**



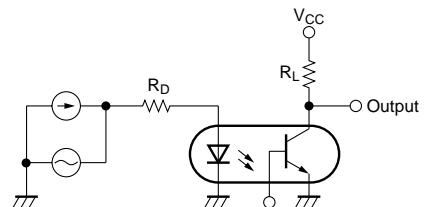
**Fig.12 Test Circuit for Response Time**



**Fig.13 Frequency Response**



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



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