

# PC723V0NSZX/ PC723V0YSZX

## High Collector-emitter Voltage Type Photocoupler

### ■ Features

1. TTL compatible output
2. High collector-emitter voltage ( $V_{CEO}$ :80V)
3. Isolation voltage (Viso (rms):5kV)
4. Recognized by UL, file No.E64380  
Approved by TÜV (VDE0884)(PC723V0YSZX)
5. 6-pin DIP package

### ■ Applications

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

### ■ Model Line-up

Model No.	* Safety Standard Approval	
	UL	TÜV (VDE0884)
PC723V0NSZX	○	—
PC723V0YSZX	○	○

\* Application Model No. PC723V

### ■ 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	$V_{CEO}$	80	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector-base voltage	$V_{CBO}$	130	V
	Emitter-base voltage	$V_{EBO}$	6	V
	Collector current	$I_C$	50	mA
	Collector power dissipation	$P_C$	150	mW
	Total power dissipation	$P_{tot}$	200	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

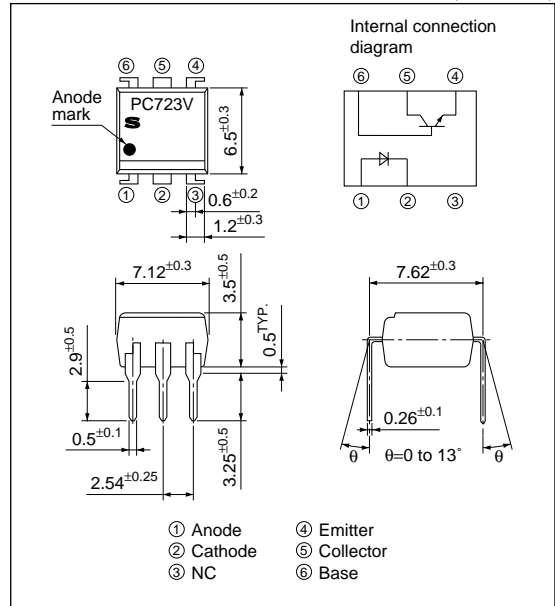
\*1 Pulse width≤100μs, Duty ratio=0.001

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

\*3 For 10 s

### ■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

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

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	$I_{CEO}$	$V_{CE}=40\text{V}, I_F=0, R_{BE}=\infty$	—	—	$10^{-7}$	A	
Transfer characteristics	Collector current	$I_C$	$I_F=5\text{mA}, V_{CE}=5\text{V}, R_{BE}=\infty$	2.5	5	20	mA	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20\text{mA}, I_C=1\text{mA}, R_{BE}=\infty$	—	0.1	0.3	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	$f_c$	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, R_{BE}=\infty, -3\text{dB}$	—	50	—	kHz	
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}, I_C=2\text{mA}$ $R_L=100\Omega, R_{BE}=\infty$	—	6	20	$\mu\text{s}$
		Fall time	$t_f$		—	7	20	$\mu\text{s}$

Fig.1 Forward Current vs. Ambient Temperature

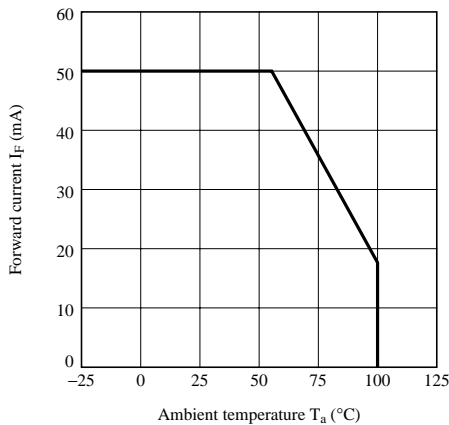


Fig.2 Collector Power Dissipation vs. Ambient Temperature

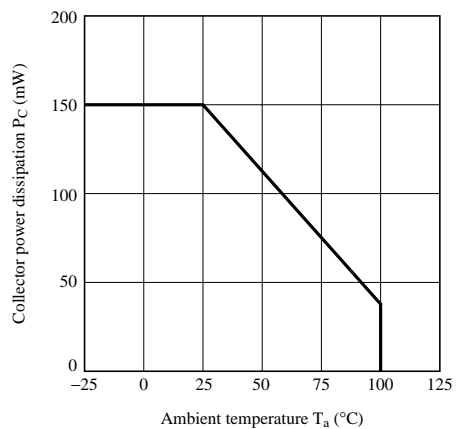


Fig.3 Peak Forward Current vs. Duty Ratio

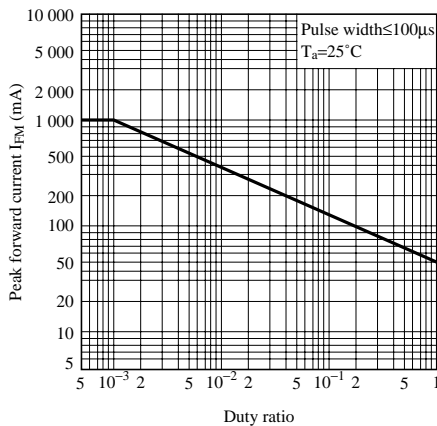
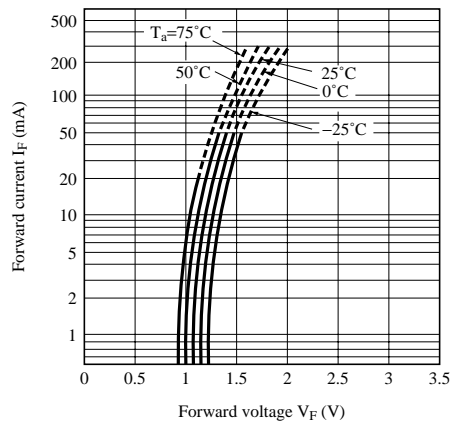
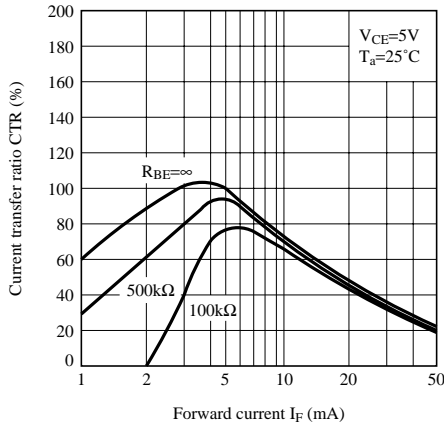


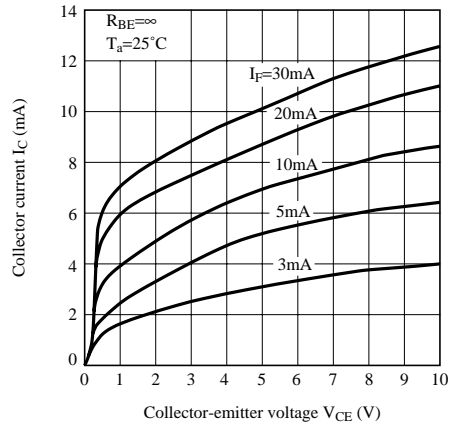
Fig.4 Forward Current vs. Forward Voltage



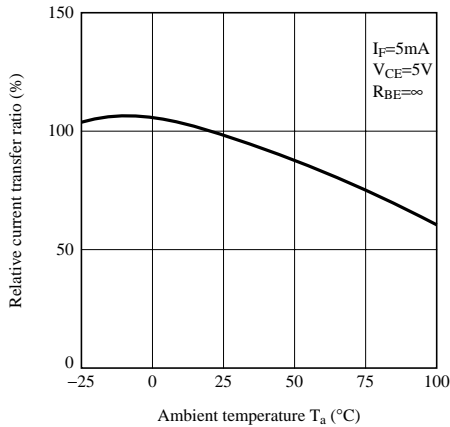
**Fig.5 Current Transfer Ratio vs. Forward Current**



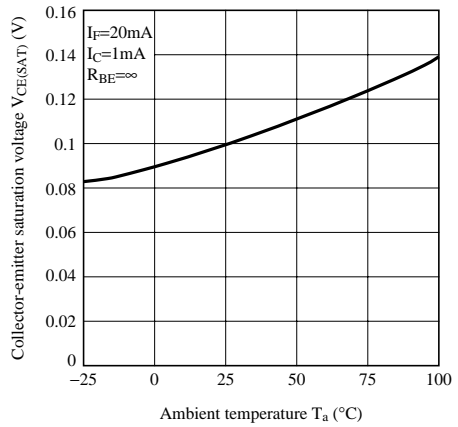
**Fig.6 Collector Current vs. Collector-emitter Voltage**



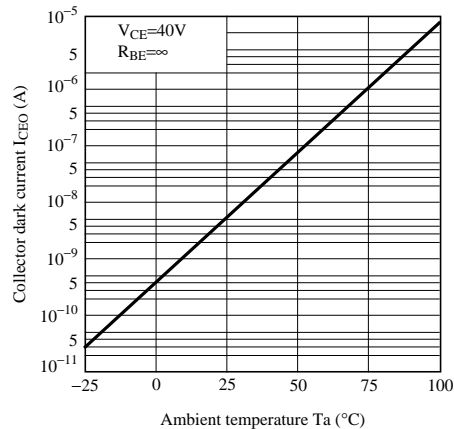
**Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature**



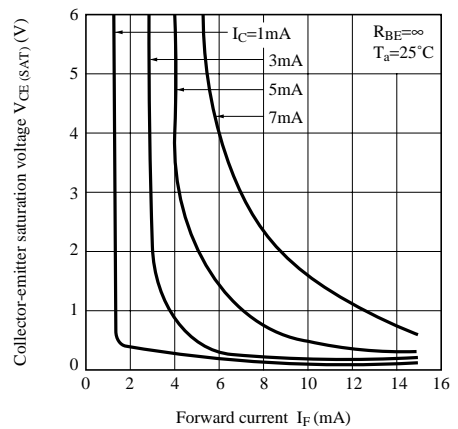
**Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature**



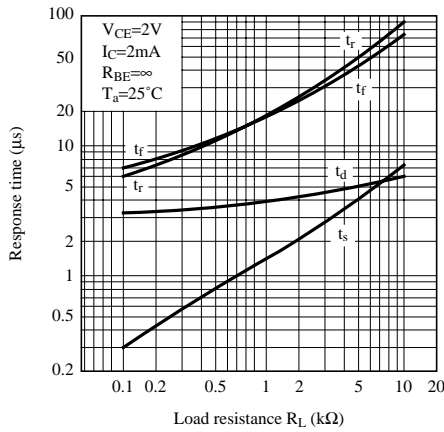
**Fig.9 Collector Dark Current vs. Ambient Temperature**



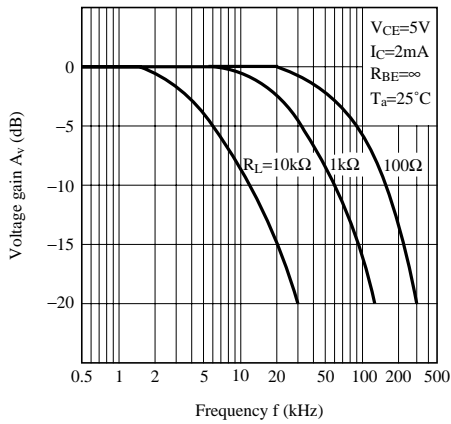
**Fig.10 Collector-emitter Saturation Voltage vs. Forward Current**



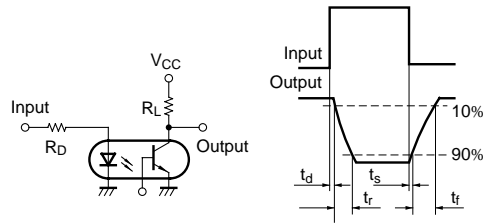
**Fig.11 Response Time vs. Load Resistance**



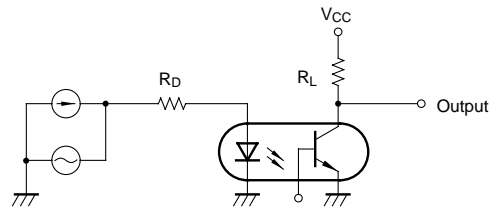
**Fig.13 Frequency Response**



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



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



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