

PC702V

High Collector-emitter Voltage Type Photocoupler

* Lead forming type (I type) and taping reel type (P type) are also available. (PC702VI/PC702VP)(Page 656)

**TUV (VDE0884) approved type is also available as an option.

■ Features

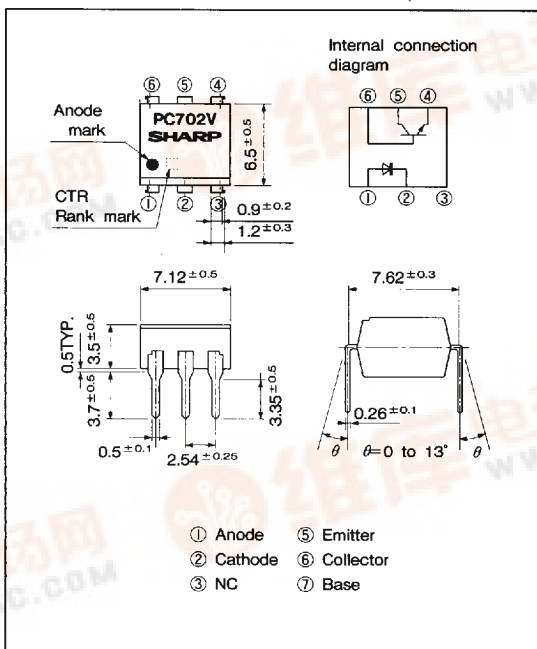
1. High collector-emitter voltage ($V_{CEO} : 70V$)
2. High isolation voltage between input and output ($V_{iso} : 5\,000V_{rms}$)
3. TTL compatible output
4. Recognized by UL, file No. E64380

■ Applications

1. Telephone sets, telephone exchangers
2. System appliances, measuring instruments
3. Signal transmission between circuits of different potentials and impedances

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

($T_a = 25^\circ C$)

	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	P_C	160	mW
	Total power dissipation	P_{tot}	200	mW
	*2 Isolation voltage	V_{iso}	5 000	V_{rms}
	Operating temperature	T_{opr}	-55 to +100	$^\circ C$
	Storage temperature	T_{stg}	-55 to +150	$^\circ C$
	*3 Soldering temperature	T_{sol}	260	$^\circ C$

*1 Pulse width $\leq 10 \mu s$, Duty ratio = 0.0004

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

*3 For 10 seconds

8180795 0011671 951

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device.

Electro-optical Characteristics

(T_a = 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	μ A	
	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	*Current transfer ratio		CTR	I _F =10mA, V _{CE} =5V	40	—	320	%
	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
Fall time			t _f	R _L =75Ω, R _{BE} =∞	—	2	8	μ s

*4 Classification table of current transfer ratio is shown below.

Model No.	Rank mark	CTR(%)
PC702V1	A	40 to 80
PC702V2	B	63 to 125
PC702V3	C	100 to 200
PC702V4	D	160 to 320
PC702V5	A or B	40 to 125
PC702V6	B or C	63 to 200
PC702V7	C or D	100 to 320
PC702V	A, B, C or D	40 to 320

Measuring Conditions

I_F = 10mA

V_{CE} = 5V

T_a = 25°C

Fig. 1 Forward Current vs. Ambient Temperature

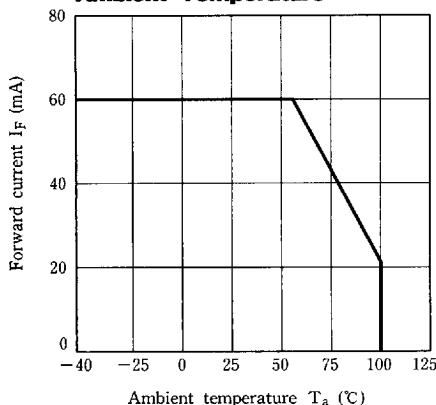


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

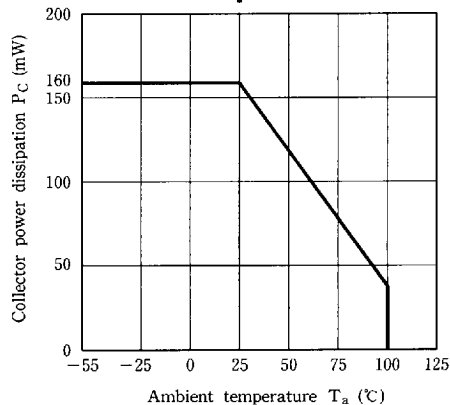


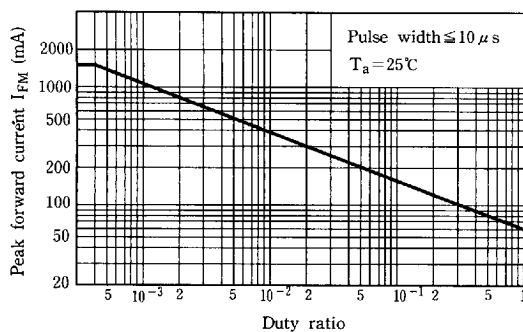
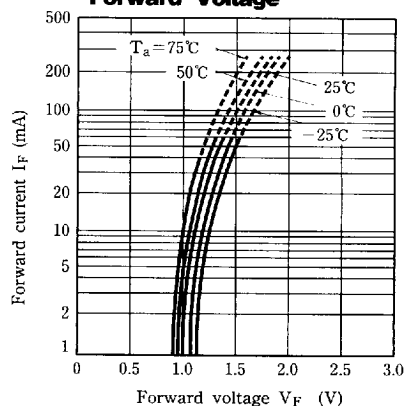
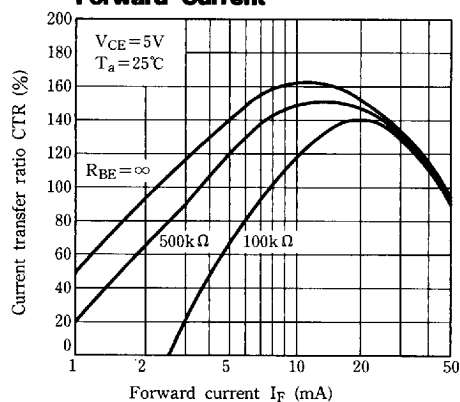
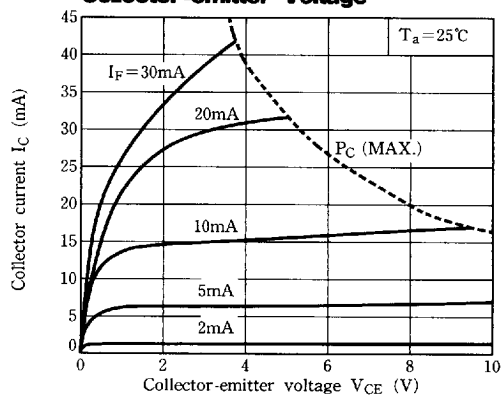
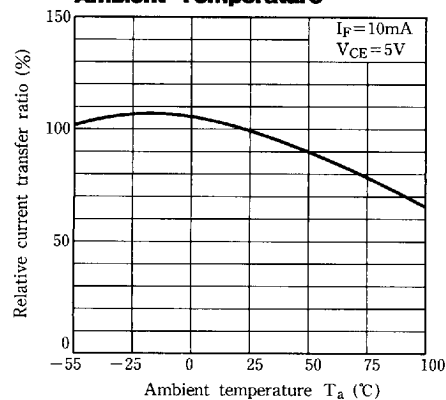
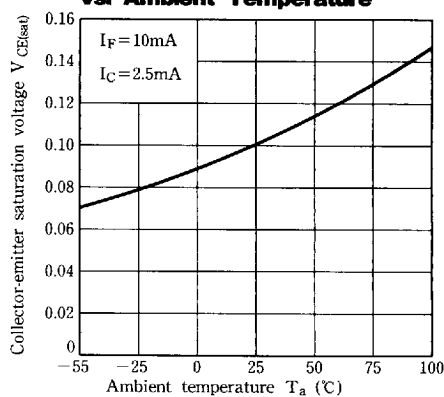
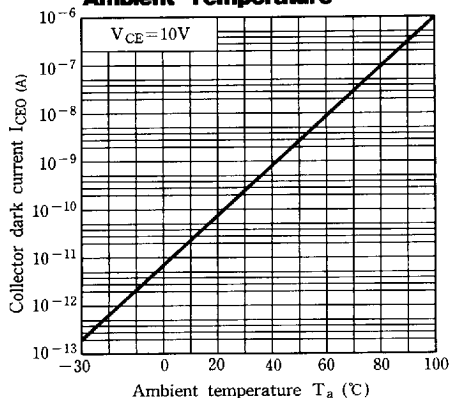
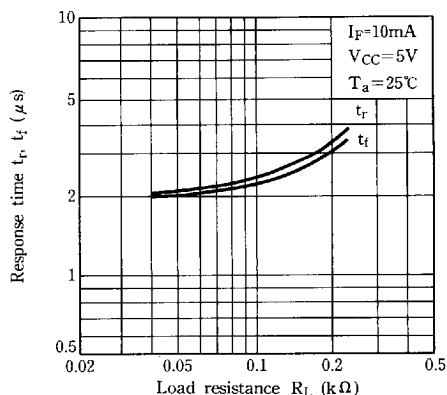
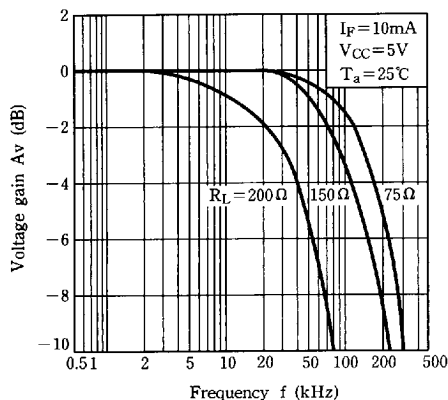
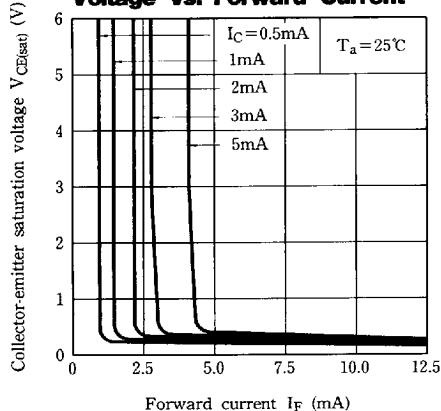
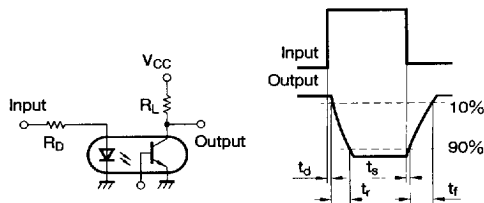
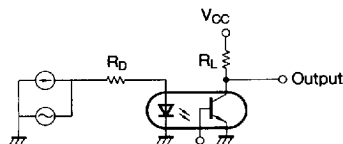
Fig. 3 Peak Forward Current vs. Duty Ratio**Fig. 4 Forward Current vs. Forward Voltage****Fig. 5 Current Transfer Ratio vs. Forward Current****Fig. 6 Collector Current vs. Collector-emitter Voltage****Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature****Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**

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

- Please refer to the chapter "Precautions for Use". (Page 78 to 93)