

PC702V

High Collector-emitter Voltage Type Photocoupler

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

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

■ Features

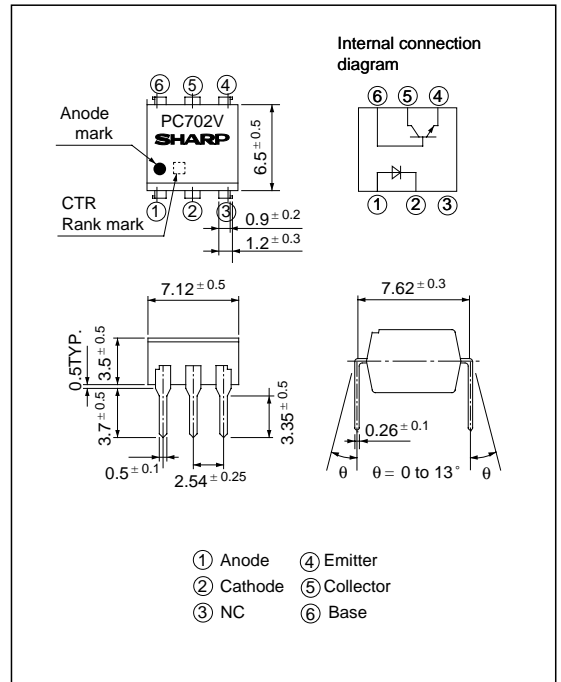
1. High collector-emitter voltage ($V_{CEO} : 70V$)
2. High isolation voltage between input and output ($V_{iso} : 5\ 000V_{rms}$)
3. TTL compatible output
4. Recognized by UL, file No. E64380

■ 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
	*1Peak 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
*2Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	- 55 to + 100	$^\circ C$
Storage temperature		T_{stg}	- 55 to + 150	$^\circ C$
*3Soldering 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

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	μA	
	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 characteristics	*4Current 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	μs
		Fall time	t _f	R _L = 75Ω, R _{BE} = ∞	-	2	8	μs

*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 = 10mAV_{CE} = 5VT_a = 25°C

Fig. 1 Forward Current vs. Ambient Temperature

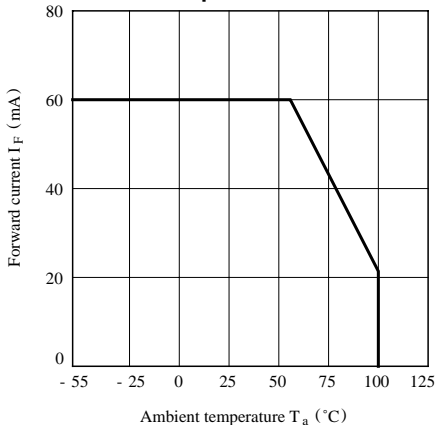


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

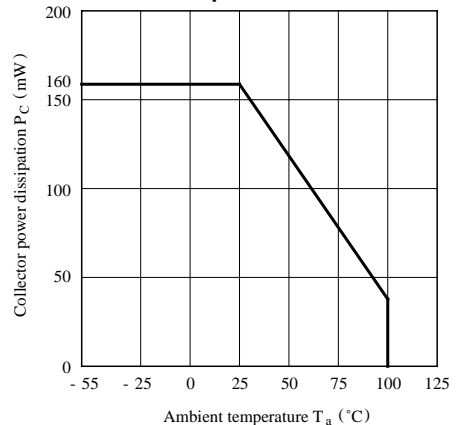


Fig. 3 Peak Forward Current vs. Duty Ratio

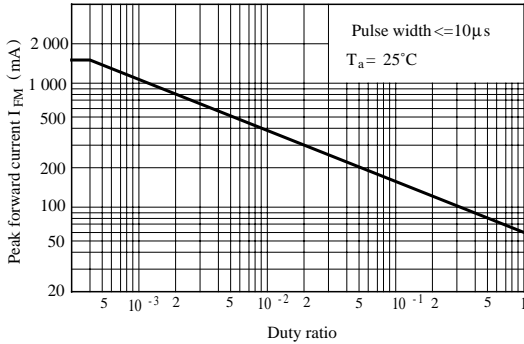


Fig. 4 Forward Current vs. Forward Voltage

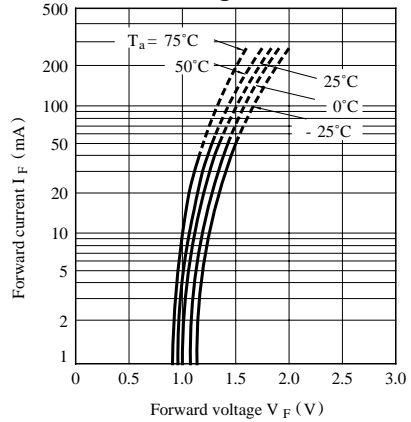


Fig. 5 Current Transfer Ratio vs. Forward Current

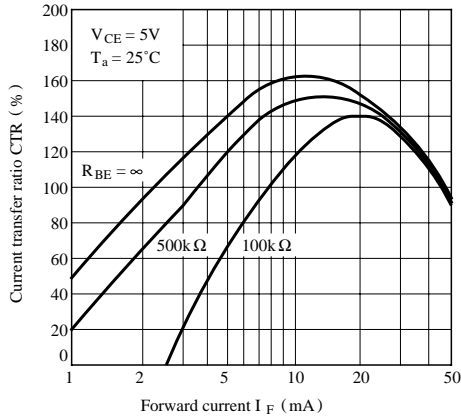


Fig. 6 Collector Current vs. Collector-emitter Voltage

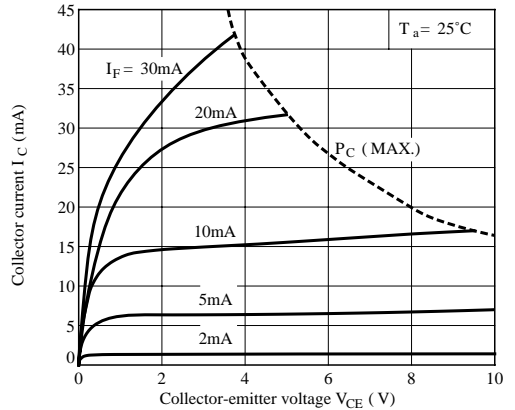


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

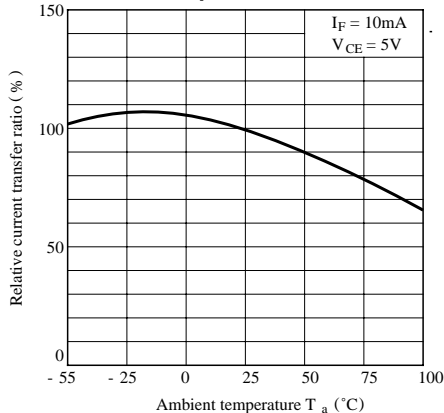


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

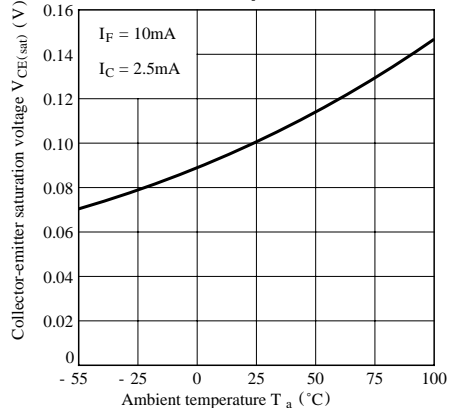


Fig. 9 Collector Dark Current vs. Ambient Temperature

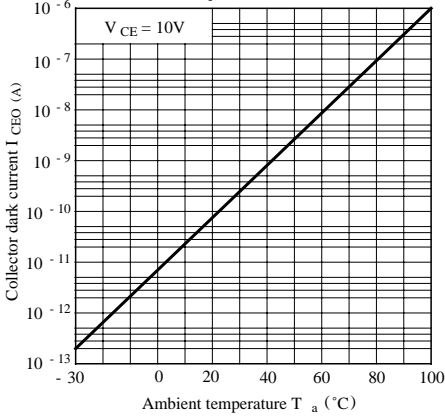


Fig.10 Response Time vs. Load Resistance

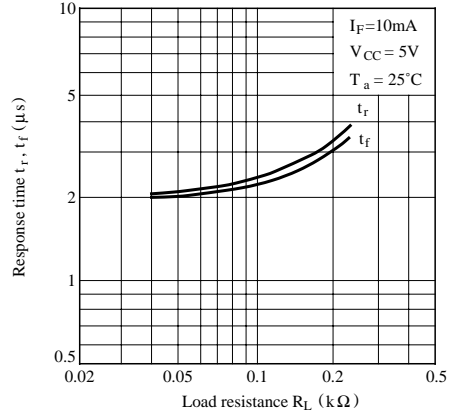
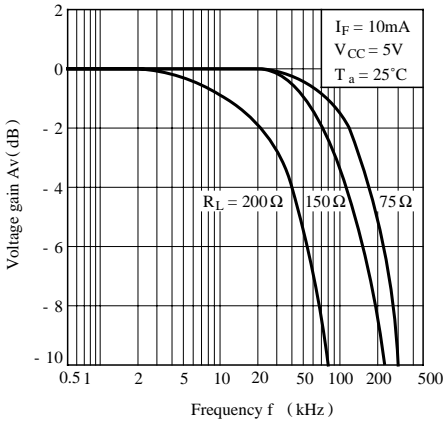
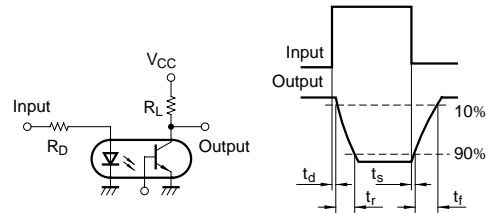


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

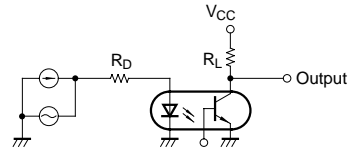
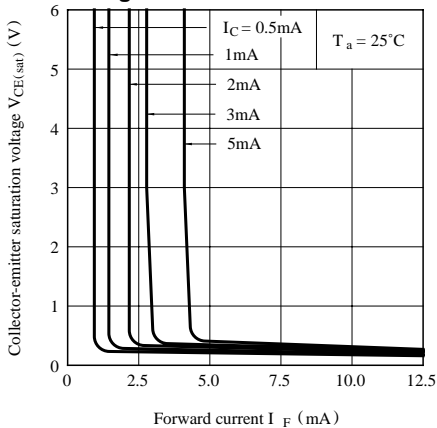


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter
“Precautions for Use”.