

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

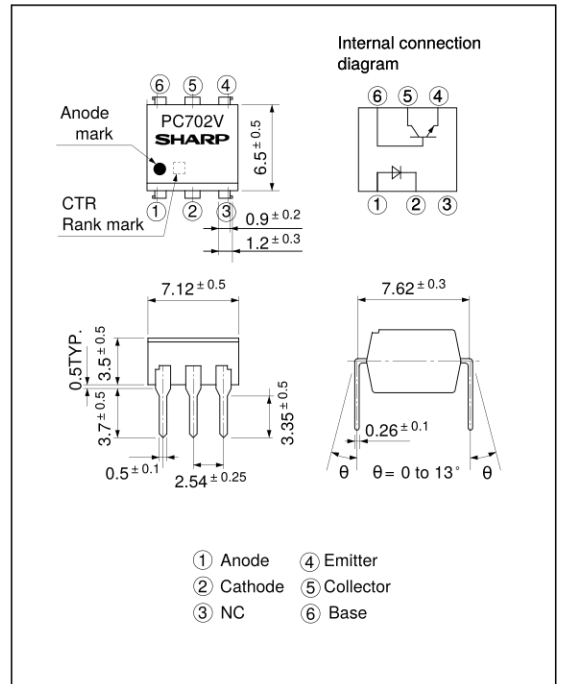
1. High collector-emitter voltage ($V_{CEO} : 70V$)
2. High isolation voltage between input and output ($V_{iso} : 5\,000V_{rms}$)
3. TTL compatible output
4. Recognized by UL, file No. E64380

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
	*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

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	Response time	f _c	I _F = 10mA, V _{CC} = 5V, R _L = 75Ω, R _{BE} = ∞, -3dB	-	150	-	kHz
					Rise time	t _r	I _F = 10mA, V _{CC} = 5V	-
		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 = 10mA

V_{CE} = 5V

T_a = 25°C

Fig. 1 Forward Current vs. Ambient Temperature

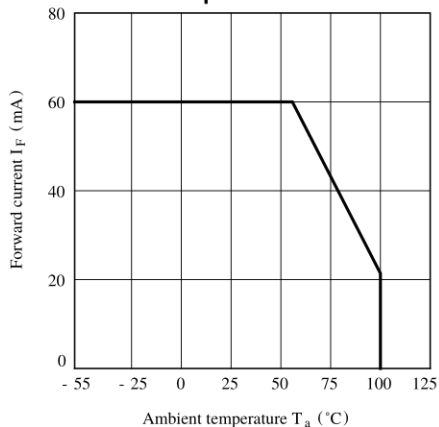


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

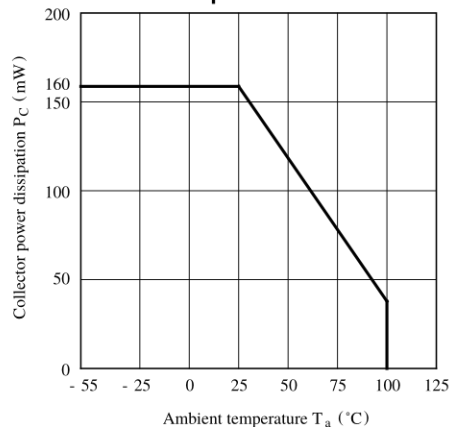


Fig. 3 Peak Forward Current vs. Duty Ratio

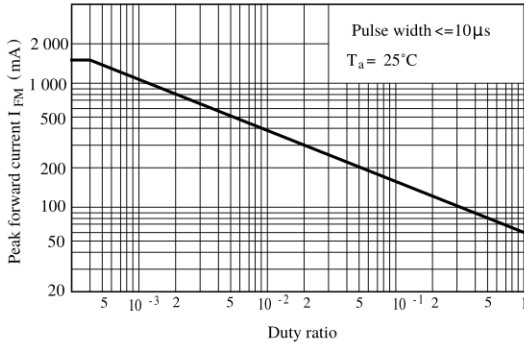


Fig. 4 Forward Current vs. Forward Voltage

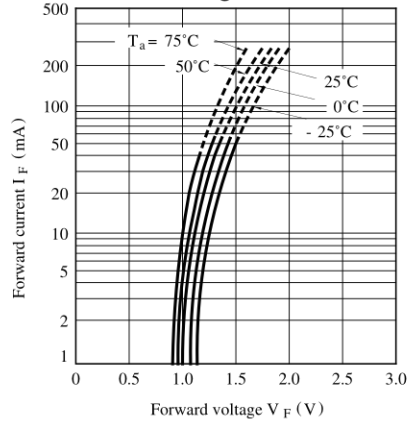


Fig. 5 Current Transfer Ratio vs. Forward Current

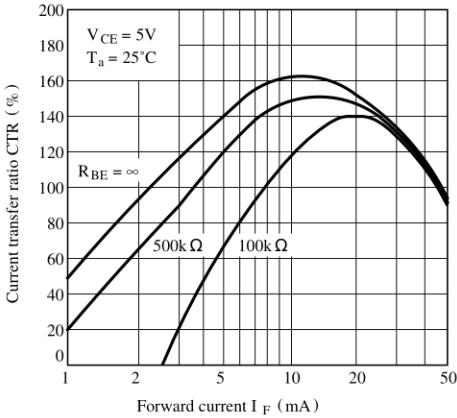


Fig. 6 Collector Current vs. Collector-emitter Voltage

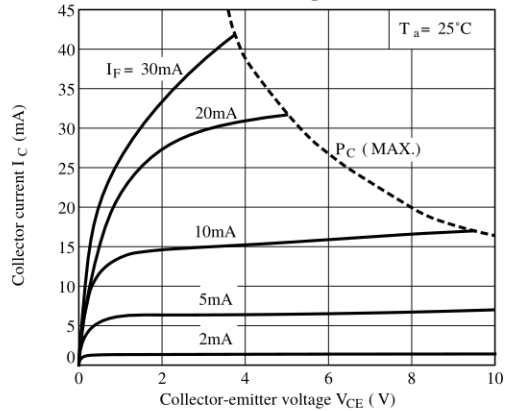


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

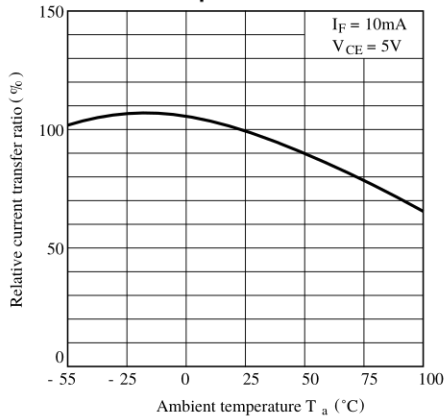


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

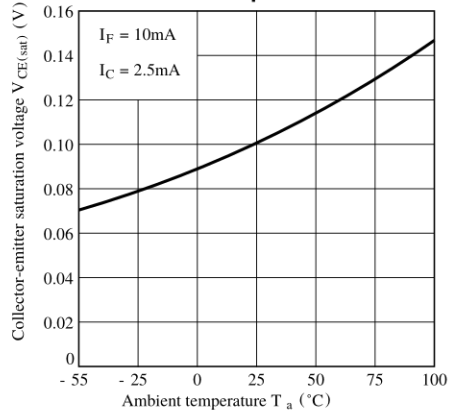


Fig. 9 Collector Dark Current vs. Ambient Temperature

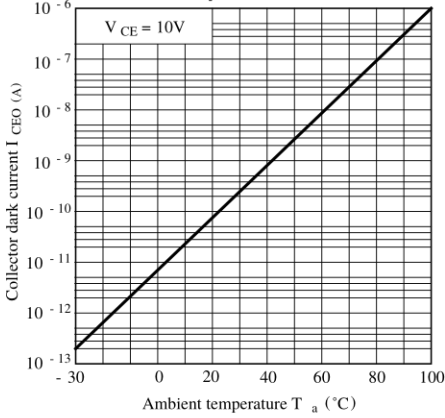


Fig.10 Response Time vs. Load Resistance

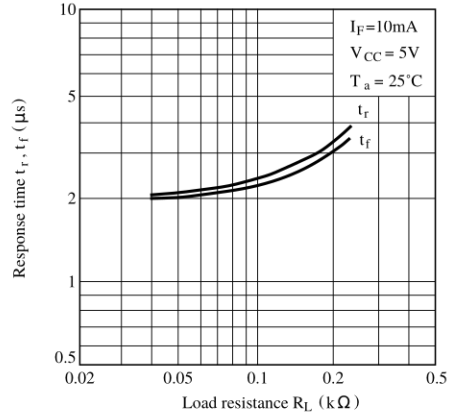
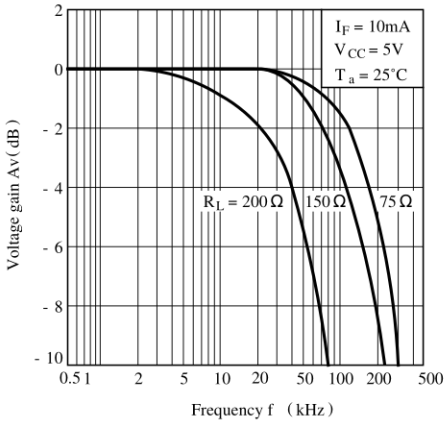
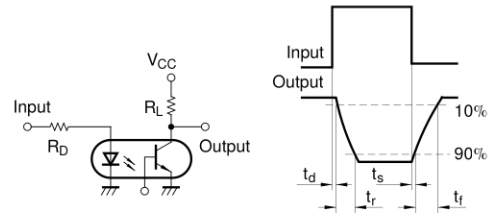


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

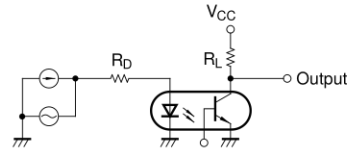
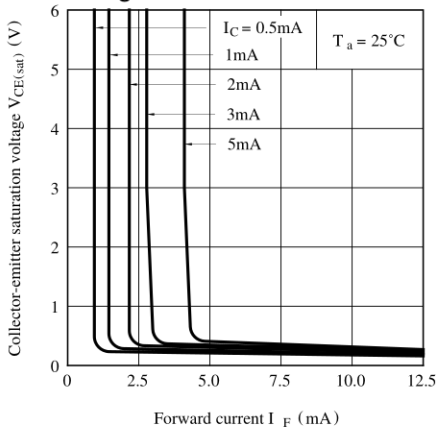


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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