

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

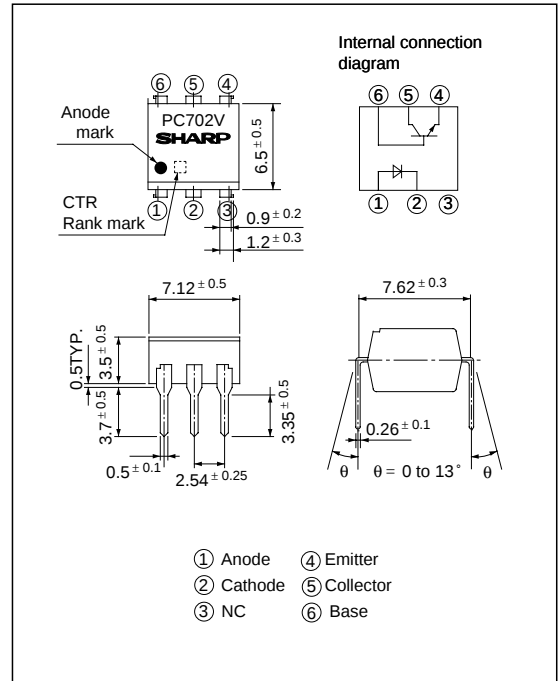
1. High collector-emitter voltage (V_{CEO} : 70V)
2. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
3. TTL compatible output
4. Recognized by UL, file No. E64380

■ 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

(Ta = 25°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 °C
Storage temperature			T_{stg}	- 55 to + 150 °C
*3Soldering temperature			T_{sol}	260 °C

*1 Pulse width ≤ 10 μs, Duty ratio : 0.0004

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

*3 For 10 seconds

■ Electro-optical Characteristics

(Ta= 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 x 10 ⁻⁸	A
Transfer charac- teristics	*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 x 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 = 75 Ω, 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 = 10mA
V_{CE} = 5V
T_a = 25°C

Fig. 1 Forward Current vs. Ambient Temperature

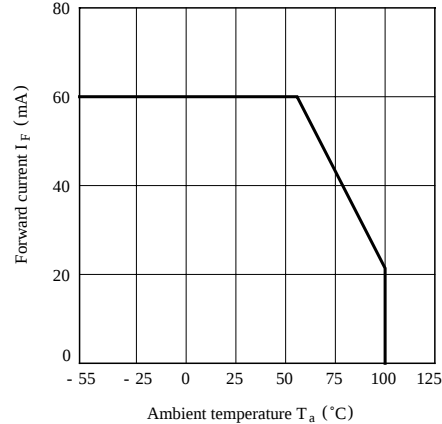


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

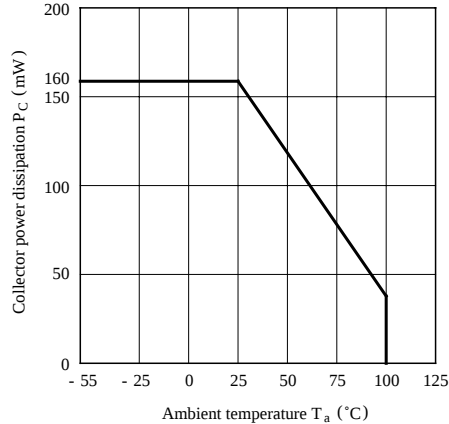


Fig. 3 Peak Forward Current vs. Duty Ratio

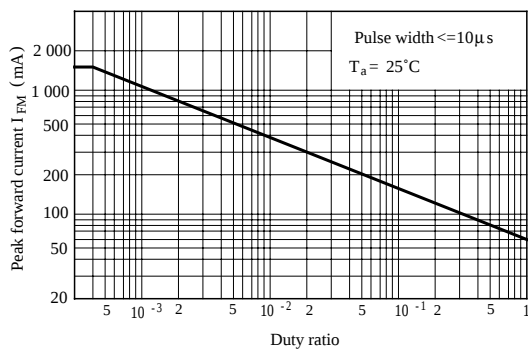


Fig. 4 Forward Current vs. Forward Voltage

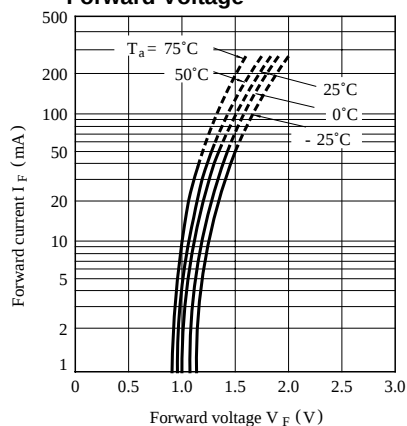


Fig. 5 Current Transfer Ratio vs. Forward Current

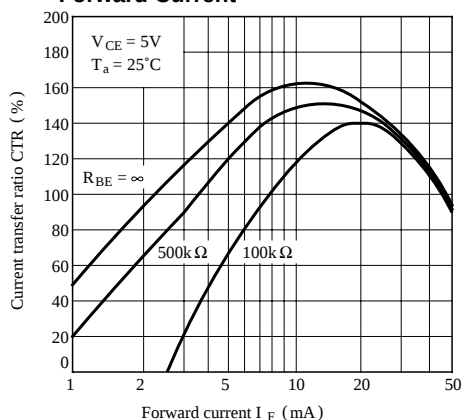


Fig. 6 Collector Current vs. Collector-emitter Voltage

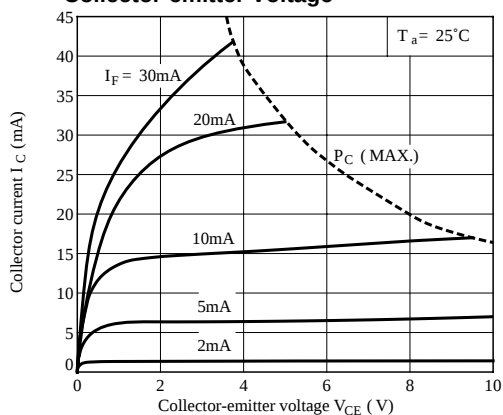


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

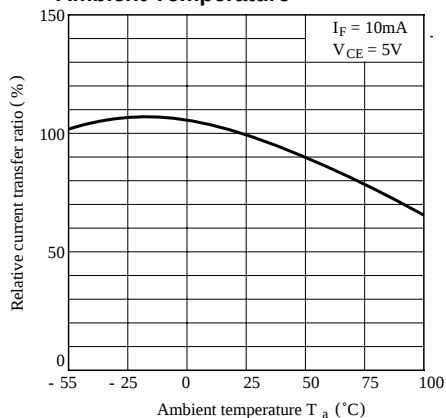


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

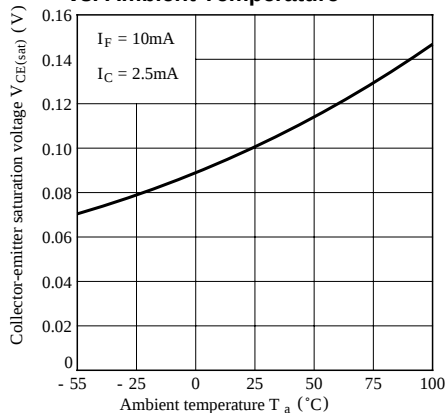


Fig. 9 Collector Dark Current vs. Ambient Temperature

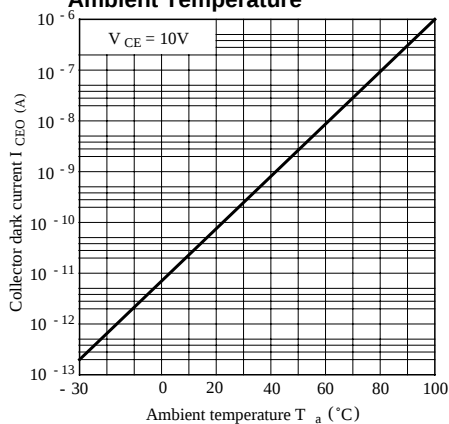


Fig.10 Response Time vs. Load Resistance

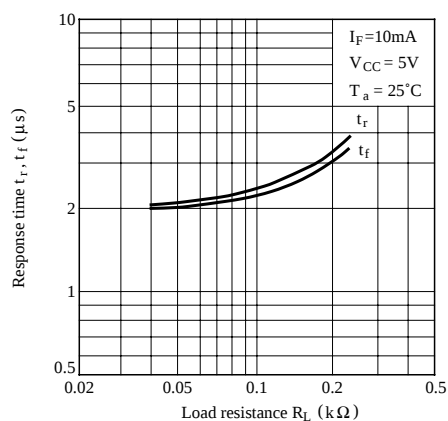


Fig.11 Frequency Response

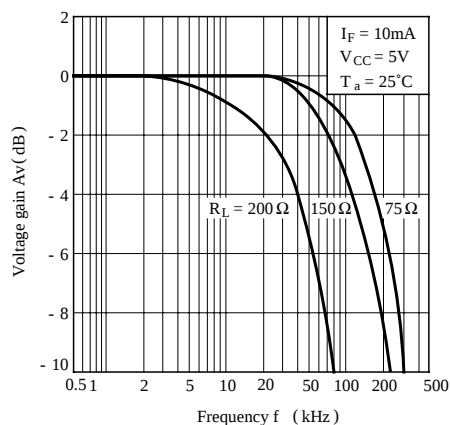
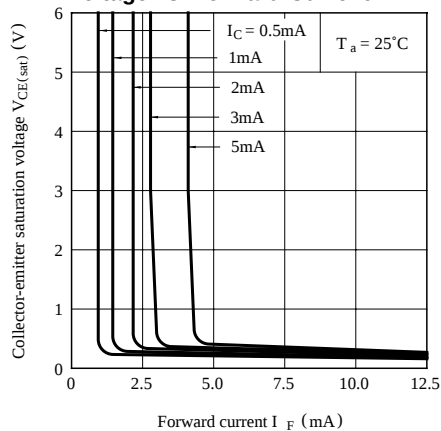
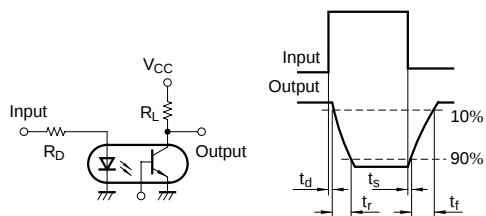


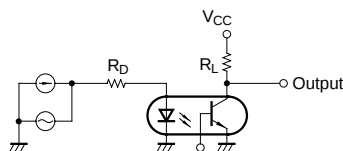
Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Response Time



Test Circuit for Frequency Response



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