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.

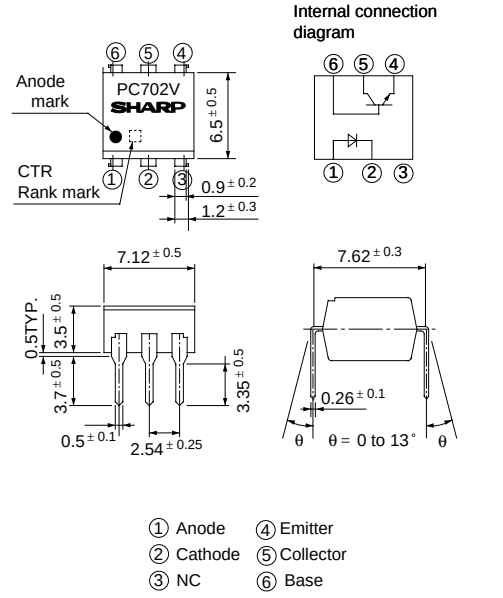
■ Features

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<=10μs, 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	-	-	5×10^{-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 = 10mA

V_{CE} = 5V

T_a = 25˚C

Fig. 1 Forward Current vs. Ambient Temperature

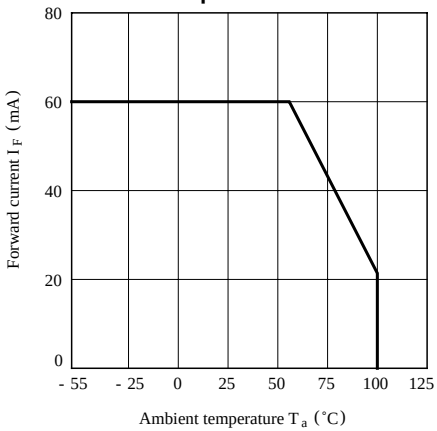


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

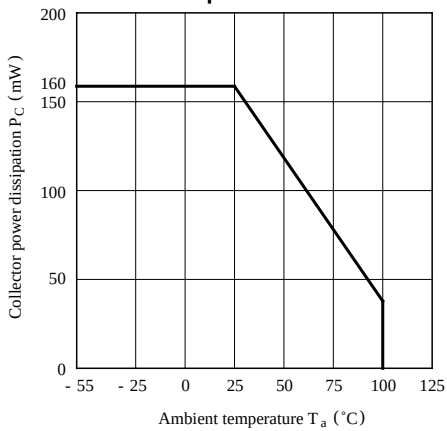


Fig. 3 Peak Forward Current vs. Duty Ratio

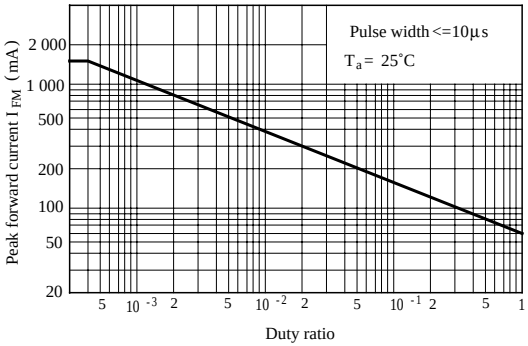


Fig. 4 Forward Current vs. Forward Voltage

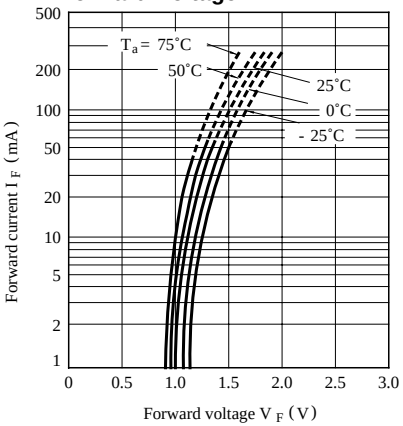


Fig. 5 Current Transfer Ratio vs. Forward Current

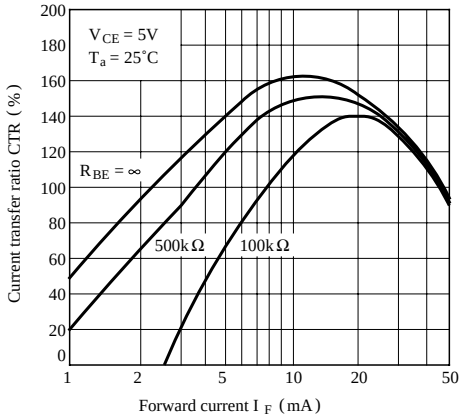


Fig. 6 Collector Current vs. Collector-emitter Voltage

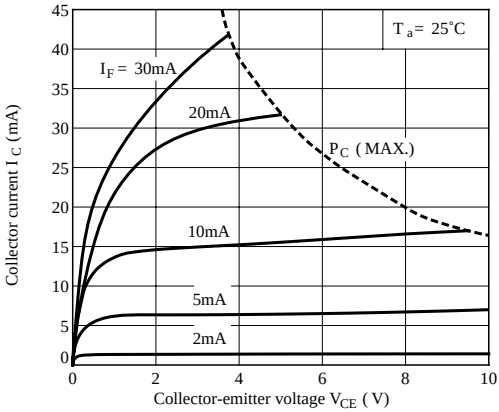


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

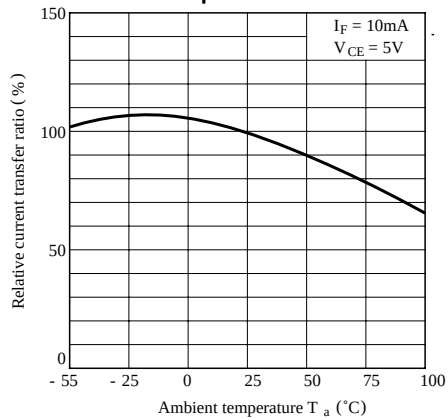


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

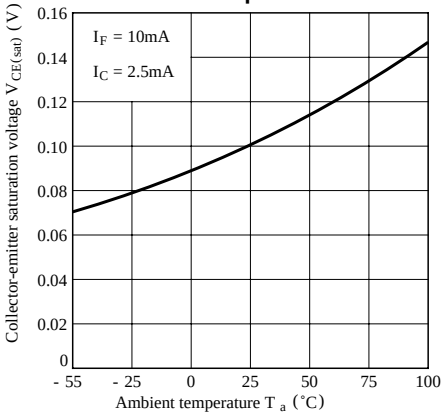


Fig. 9 Collector Dark Current vs. Ambient Temperature

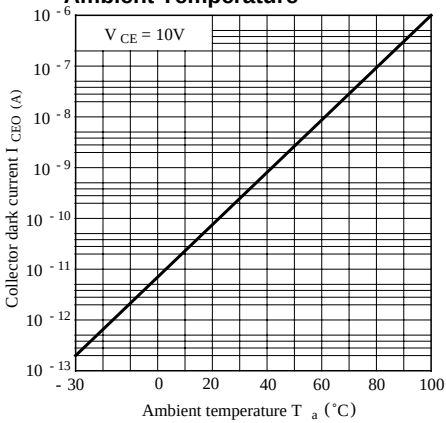


Fig.10 Response Time vs. Load Resistance

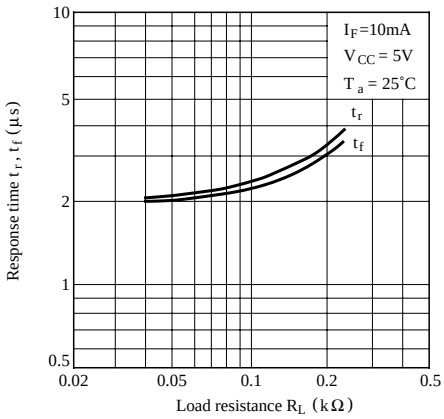


Fig.11 Frequency Response

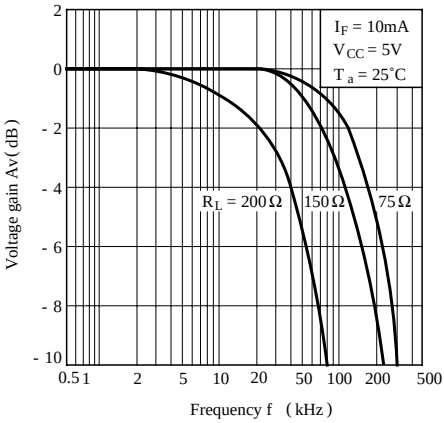
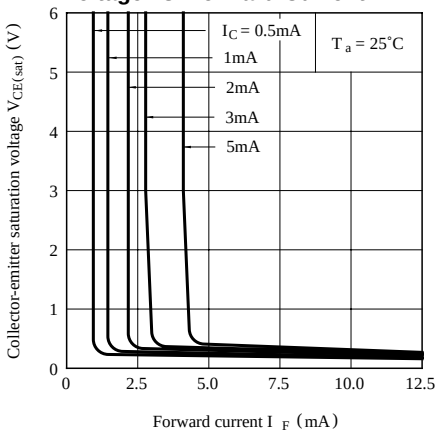
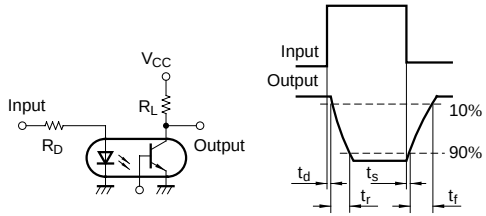


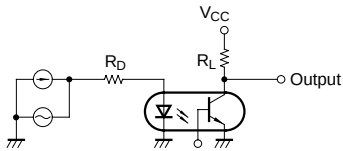
Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Response Time



Test Circuit for Frequency Response



●Please refer to the chapter "Precautions for Use".