

PC703V

High Collector-emitter Voltage Type Photocoupler

* Lead forming type (I type) and taping reel type (P type) are also available. (PC703VI/PC703VP)

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

■ Features

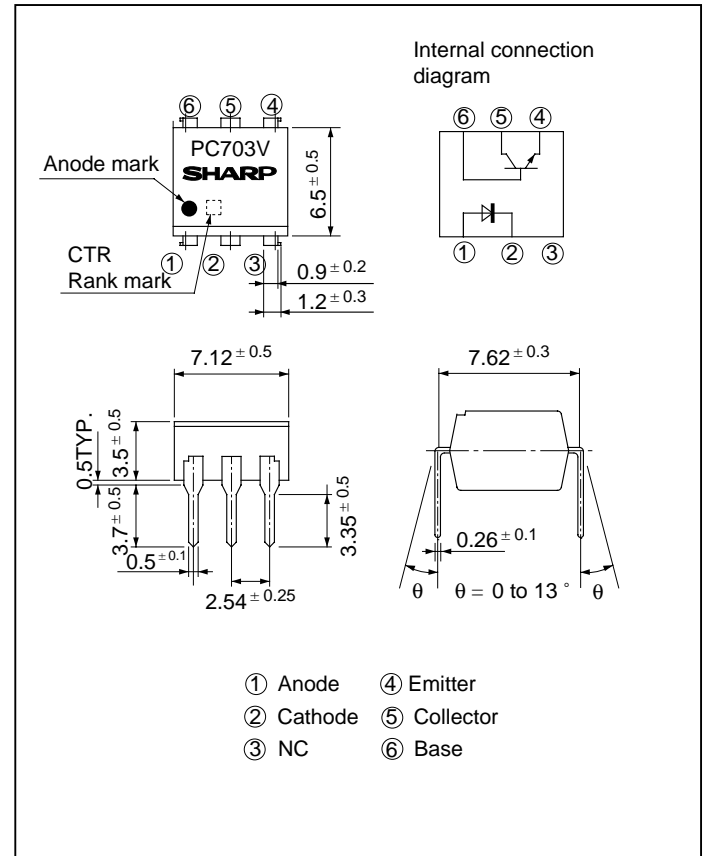
1. High collector-emitter voltage (V_{CEO} : 70V)
2. High isolation voltage between input and output
(V_{iso} : 5 000V_{rms})
3. TTL compatible output
4. Recognized by UL, file No. E64380,

■ 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

($T_a = 25^\circ\text{C}$)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	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}	- 30 to + 100	$^\circ\text{C}$
	Storage temperature	T_{stg}	- 55 to + 125	$^\circ\text{C}$
	*3 Soldering temperature	T_{sol}	260	$^\circ\text{C}$

*1 Pulse width $\leq 100\mu\text{s}$, Duty ratio : 0.001

*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 = 20mA	-	1.2	1.4	V	
	Peak forward voltage	V _{FM}	I _{FM} = 0.5A	-	-	3.0	V	
	Reverse current	I _R	V _R = 4V	-	-	10	μA	
	Terminal capacitance	C _t	V = 0, f = 1kHz	-	30	250	pF	
Output	Collector dark current	I _{CEO}	V _{CE} = 20V, I _F = 0	-	-	10 ⁻⁷	A	
Transfer characteristics	*4 Current transfer ratio	CTR	I _F = 10mA, V _{CE} = 5V	40	-	320	%	
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F = 20mA, I _C = 1mA	-	0.1	0.2	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	
	Response time	Cut-off frequency	f _C	V _{CE} = 5V, I _C = 2mA R _L = 100Ω, - 3dB	-	80	-	kHz
			Rise time	t _r	V _{CE} = 2V, I _C = 2mA	-	4	15
	Fall time	t _f	R _L = 100Ω	-	3	15	μs	

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

Model No.	Rank mark	CTR (%)
PC703V1	A	40 to 80
PC703V2	B	63 to 125
PC703V3	C	100 to 200
PC703V4	D	160 to 320
PC703V5	A or B	40 to 125
PC703V6	B or C	63 to 200
PC703V7	C or D	100 to 320
PC703V	A, B, C or D	40 to 320

Measurement conditions

$$I_F = 10\text{mA}$$

$$V_{CE} = 5\text{V}$$

$$T_a = 25^\circ\text{C}$$

Fig. 1 Forward Current vs. Ambient Temperature

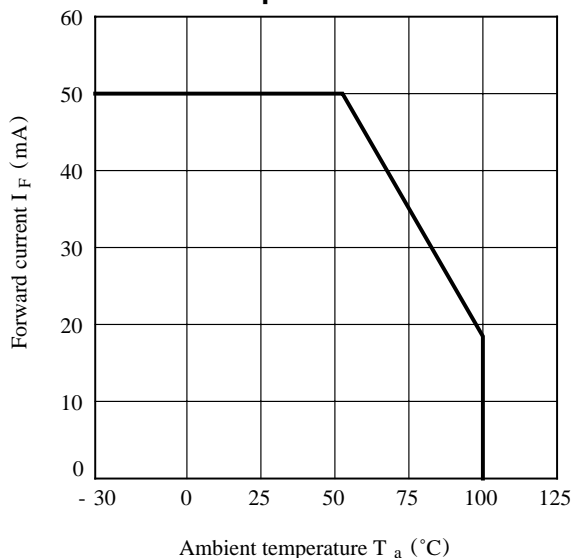


Fig.12 Collector Power Dissipation VS. Ambient Temperature

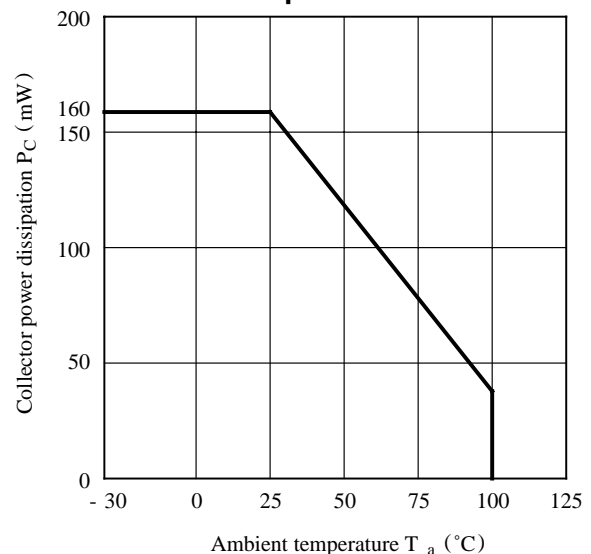


Fig. 3 Peak Forward Current vs. Duty Ratio

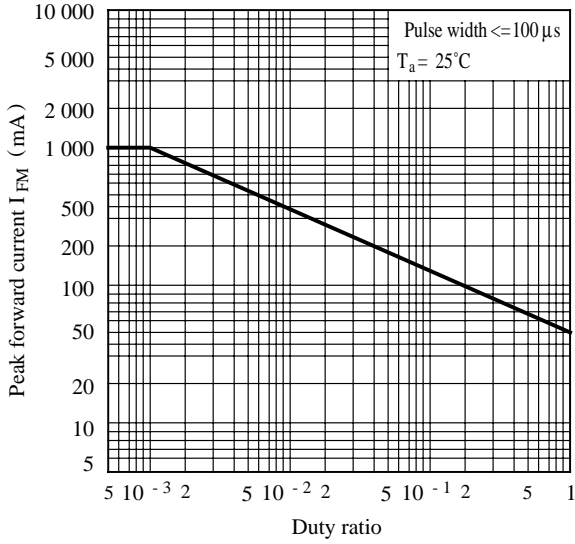


Fig. 4 Forward Current vs. Forward Voltage

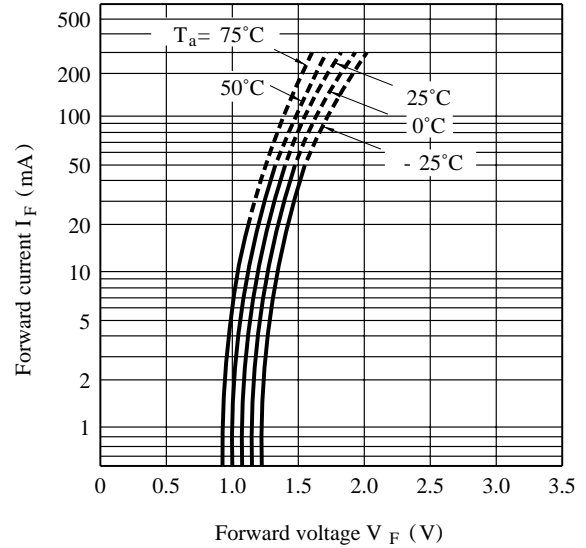


Fig. 5 Current Transfer Ratio vs. Forward Current

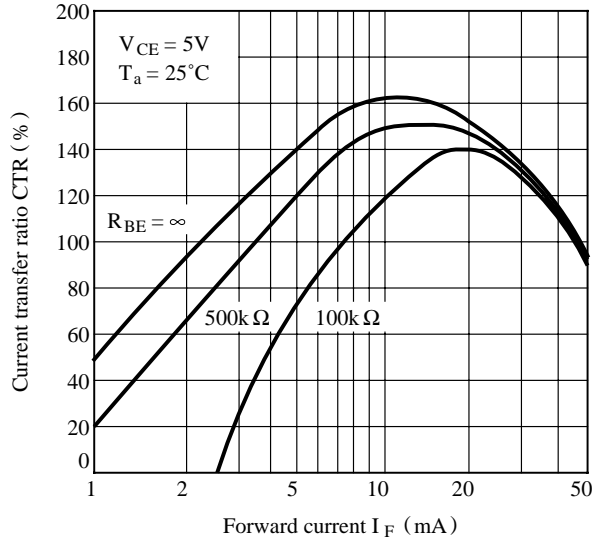


Fig. 6 Collector Current vs. Collector-emitter Voltage

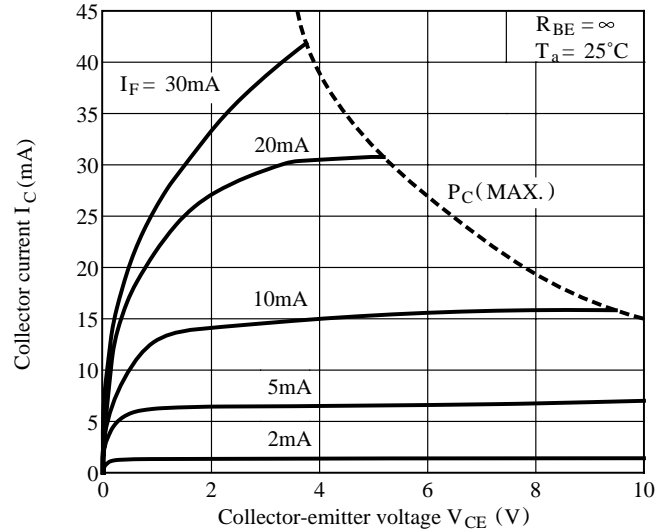


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

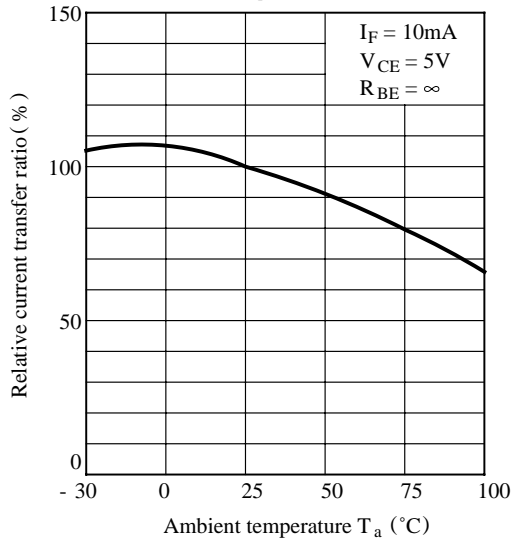


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

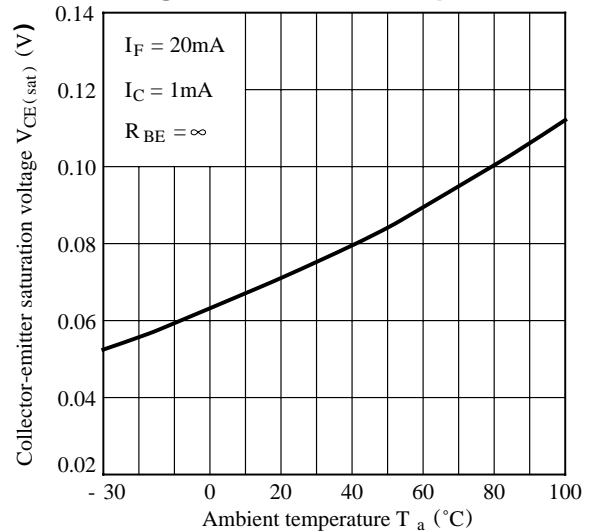


Fig. 9 Collector Dark Current vs. Ambient Temperature

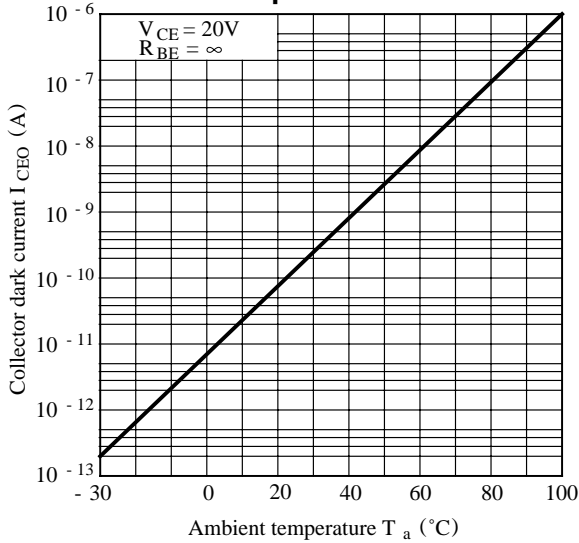


Fig.10 Response Time vs. Load Resistance

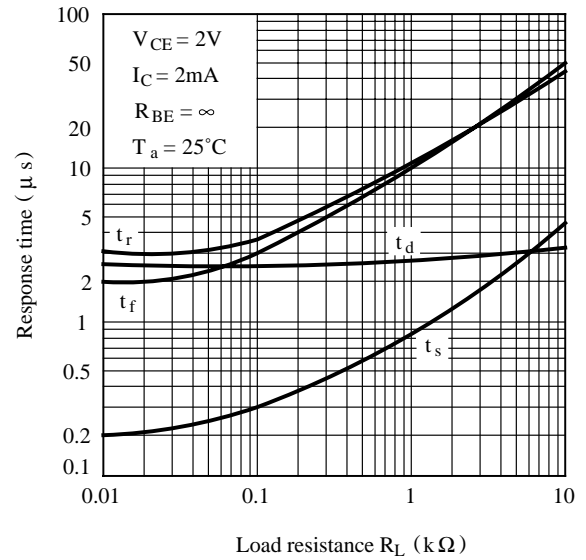
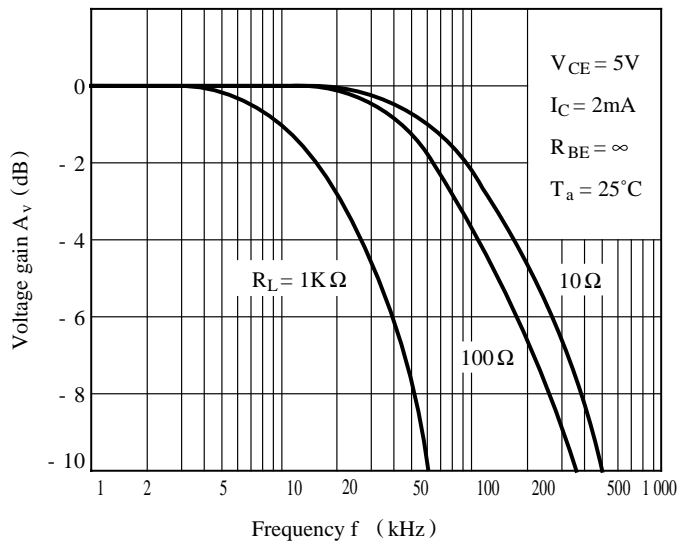


Fig.11 Frequency Response



Test Circuit for Response Time

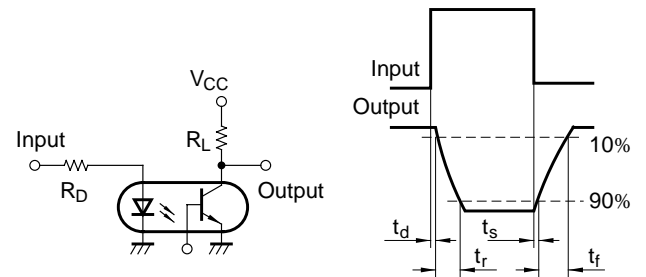
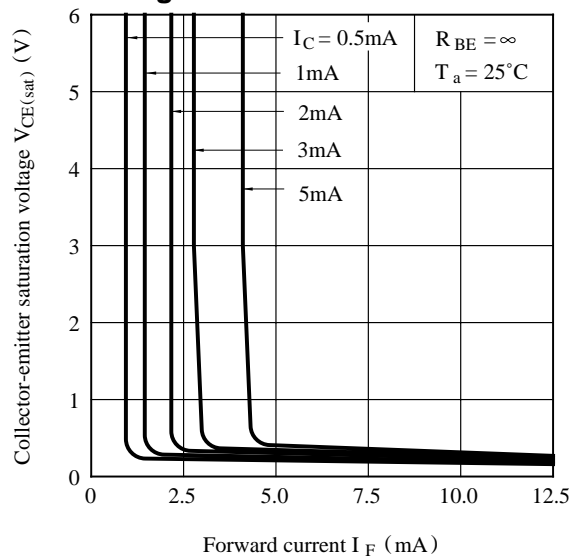
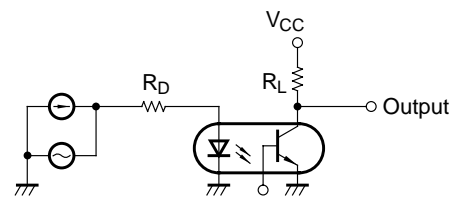


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frequency Response



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