

PC703V

High Collector-emitter Voltage Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (PC703VI/PC703VP)(Page 656)
 ※※TUV(VDE0884) approved type is also available as an option.

■ Features

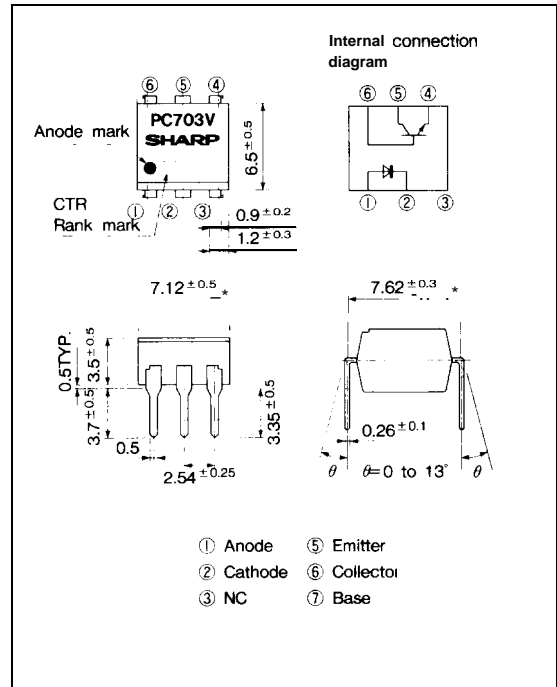
1. High collector-emitter voltage (V_{CEO} : 70V)
2. High isolation voltage between input and output
(V_{iso} : 5 000V_{rms})
3. TTL compatible output
4. Recognized by UL, file No. E64380,

■ 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)



- ① Anode
- ② Cathode
- ③ NC
- ④ Emitter
- ⑤ Collector
- ⑥ Base

■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
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
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	°C
Storage temperature	T_{stg}	-55 to +125	°C
*3 Soldering temperature	T_{sol}	260	°c

*1 Pulse width ≤ 100 μs, Duty ratio= 0.001

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

*3 For 10 seconds

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Photocouplers

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, R _{BE} = ∞	—	—	10 ⁻⁷	A
Transfer charac. teristics	*4 Current transfer ratio	CTR	I _F = 10mA, V _{CE} = 5V, R _{BE} = ∞	40		320	%
	Collector -emitter saturation voltage	V _{CE(sat)}	I _F = 20mA, I _C = 1mA, R _{BE} = ∞	—	0.1	0.2	V
	Isolation resistance	R _{ISO}	DC500V, 40 to 60%RH	5 × 10 ¹⁰	10 ¹¹	--	Ω
	Floating capacitance	C _i	V = 0, f = 1MHz	—	0.6	1.0	pF
	Cut-off frequency	f _c	V _{CE} = 5V, I _C = 2mA R _L = 100Ω, R _{BE} = ∞, -3dB	—	80	—	kHz
Response time	Rise time	t _r	V _{CE} = 2V, I _C = 2mA R _L = 100Ω, R _{BE} = ∞		4	1.3	μs
	Fall time	t _f			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 m-D	40 to 320

Measurement conditions

I_F = 10mA

V_{CE} = 5V

T_a = 25°C

Fig. 1 **Forward Current vs. Ambient Temperature**

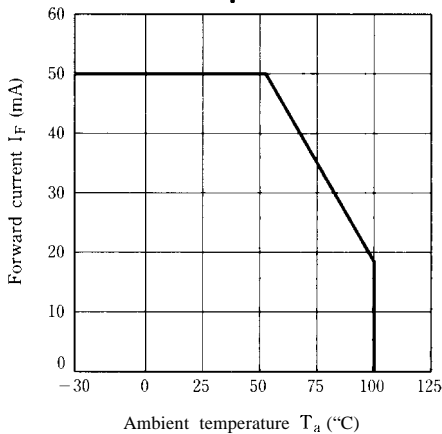


Fig.12 **Collector Power Dissipation VS. Ambient Temperature**

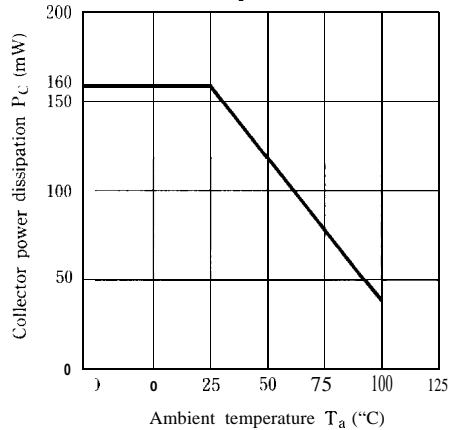


Fig. 3 Fesk Forward Current vs. Duty Ratio

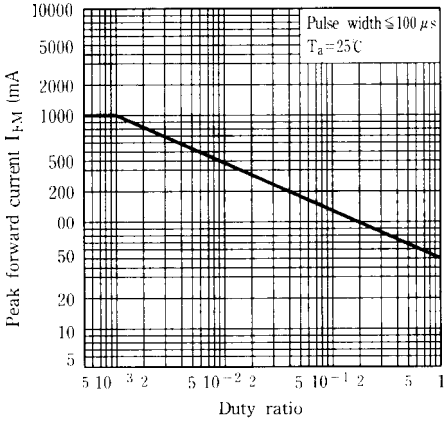


Fig. 4 Forward Current vs. Forward Voltage

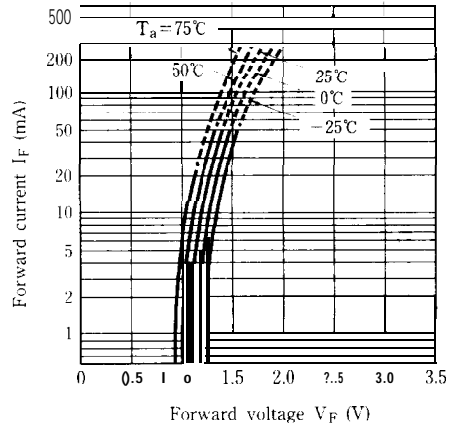


Fig. 5 Current Transfer Ratio vs. Forward Current

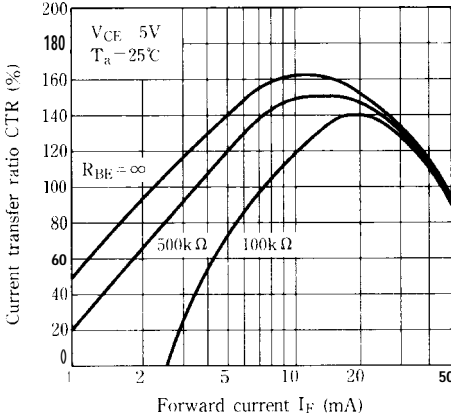


Fig. 6 Collector current vs. Collector-emitter Voltage

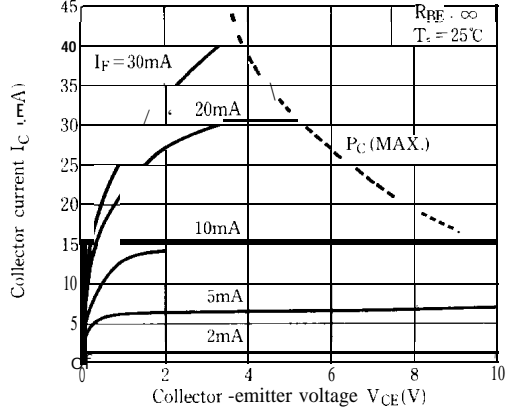


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

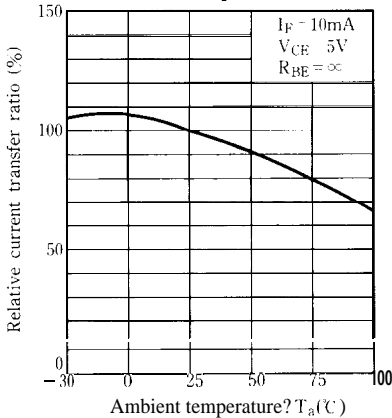


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

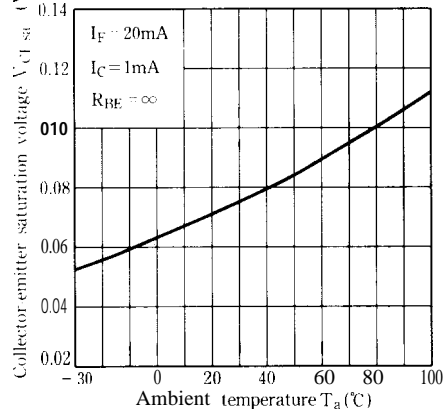


Fig. 9 Collector Dark Current vs. Ambient Temperature

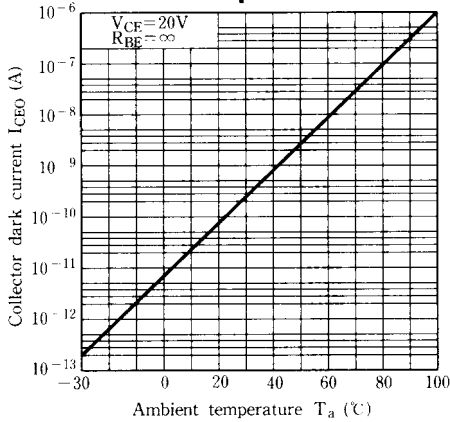


Fig.10 Response Time vs. Load Resistance

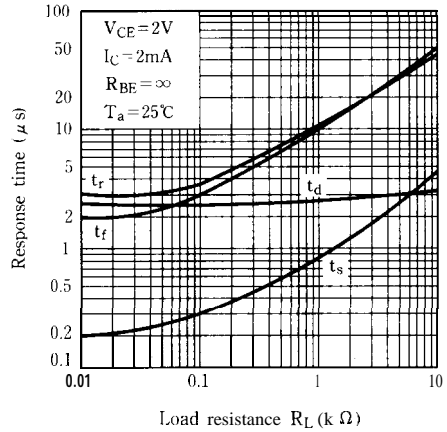
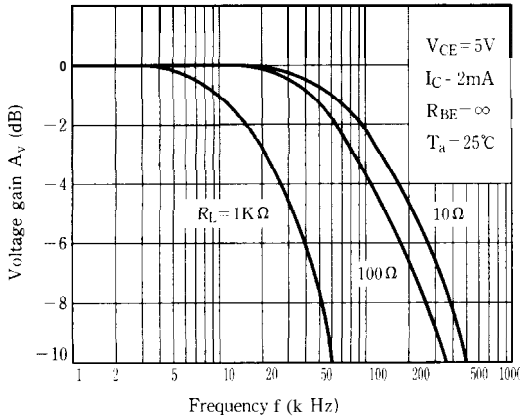


Fig.11 Frequency Response



Test Circuit for Response Time

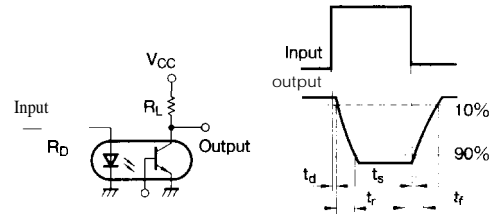
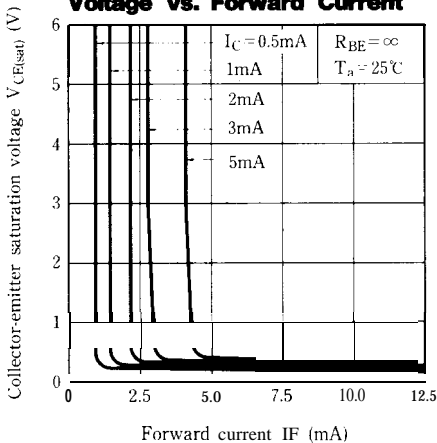
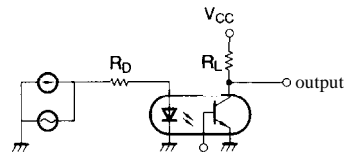


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frequency Response



● Please refer to the chapter "Precautions for Use" . (Page 78 to 93)