PC852X/PC853X

High Collector-emitter Voltage Type Photocouplers

✻ Lead forming type (I type) and taping reel type (P type) are also available. (**PC852XI/PC852XP/PC853XI/PC853XP**)

■ Features

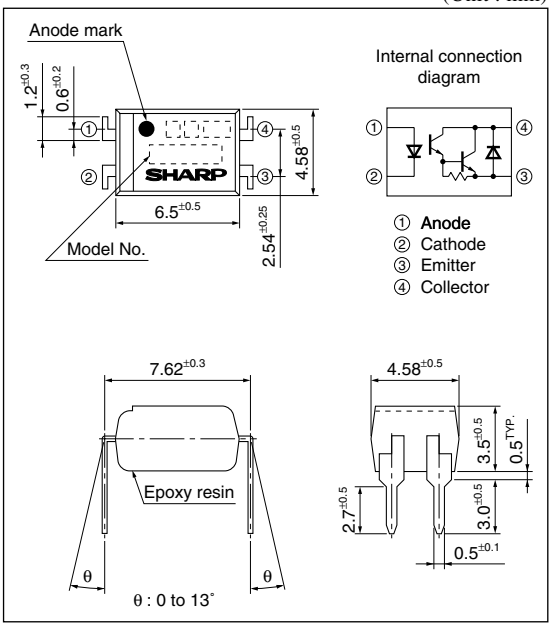
1. High collector-emitter voltage
   (V_{CEO}:350V)
2. High current transfer ratio
   (CTR:MIN. 1 000% at I_F=1mA, V_{CE}=2V)
3. High isolation voltage between input and output
   ($V_{iso\ (rms)}$:5kV)
4. Compact dual-in-line package
5. Large collector power dissipation
   PC853X (P_C:300mW)
6. Recognized by UL, file NO. E64380
   (model No. **PC852/PC853**)

■ Applications

1. Telephones
2. Facsimiles
3. Modems
4. Set-top Boxes

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

	Parameter	Symbol	Rating PC852X	Rating PC853X	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}	350		V
	Emitter-collector voltage	V_{ECO}	0.1		V
	Collector current	I_C	150		mA
	Collector power dissipation	P_C	150	300	mW
Total power dissipation		P_{tot}	200	320	mW
*2 Isolation voltage		$V_{iso\ (rms)}$	5		kV
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≤100μs, Duty ratio:0.001
*2 40 to 60%RH, AC for 1 minute
*3 For 10s

■ Electro-optical Characteristics

(T_a=25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=10mA	–	1.2	1.4	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}=200V, I_F=0	–	–	200	nA
	Collector-emitter breakdown voltage		BV_{CEO}	I_C=0.1mA, I_F=0	350	–	–	V
Transfer characteristics	Collector current		I_C	I_F=1mA, V_{CE}=2V	10	40	150	mA
	Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_F=20mA, I_C=100mA	–	–	1.2	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
	Cut-off frequency		f_c	V_{CE}=2V, I_C=20mA, R_L=100Ω, −3dB	1	7	–	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=20mA, R_L=100Ω	–	100	300	μs
		Fall time	t_f		–	20	100	μs

Fig.1 Forward Current vs. Ambient Temperature

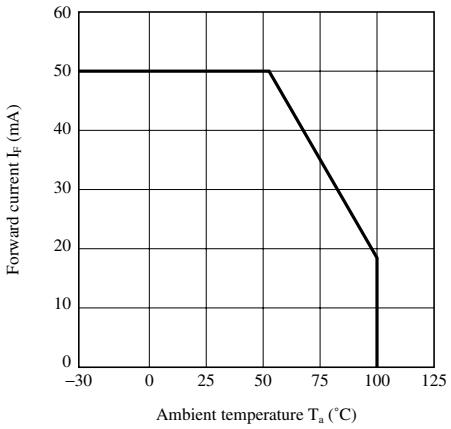


Fig.2-a Collector Power Dissipation vs. Ambient Temperature

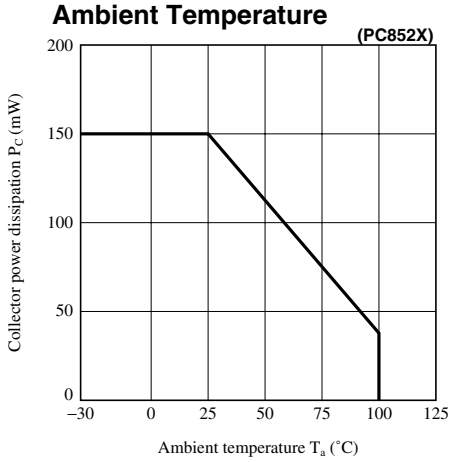


Fig.2-b Collector Power Dissipation vs. Ambient Temperature

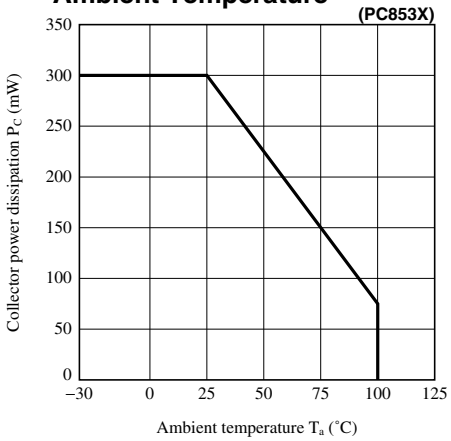


Fig.3 Peak Forward Current vs. Duty Ratio

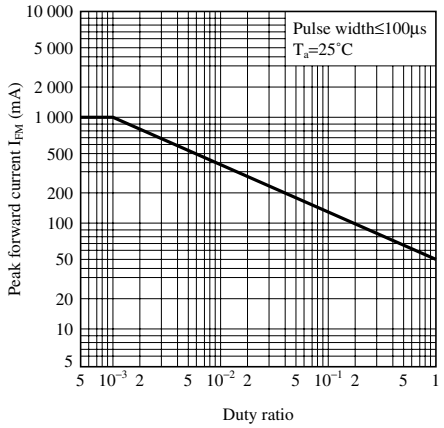


Fig.4 Forward Current vs. Forward Voltage

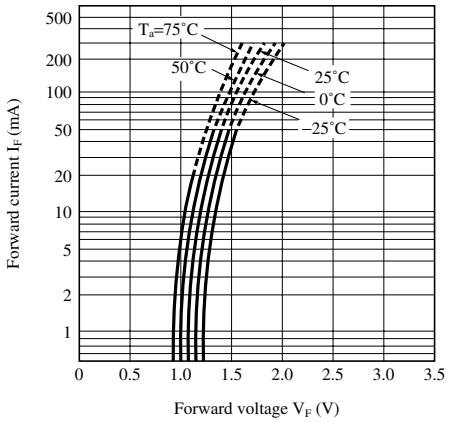


Fig.5-a Current Transfer Ratio vs. Forward Current

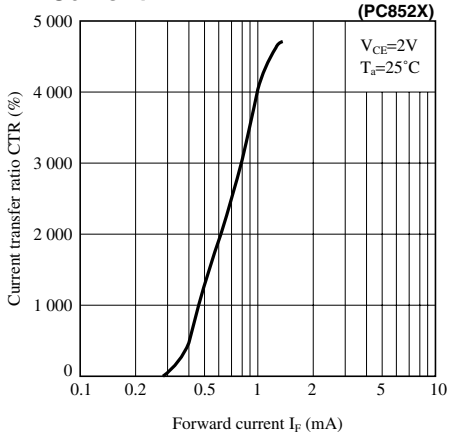


Fig.5-b Current Transfer Ratio vs. Forward Current

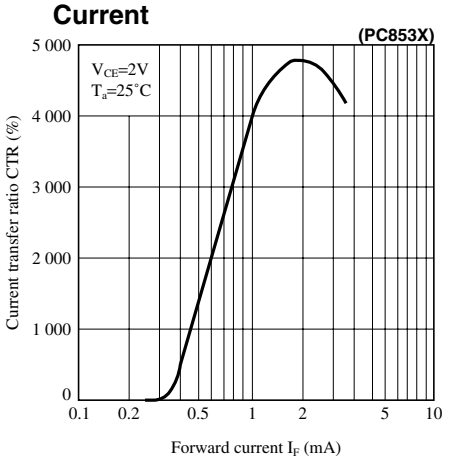


Fig.6-a Collector Current vs. Collector-emitter Voltage

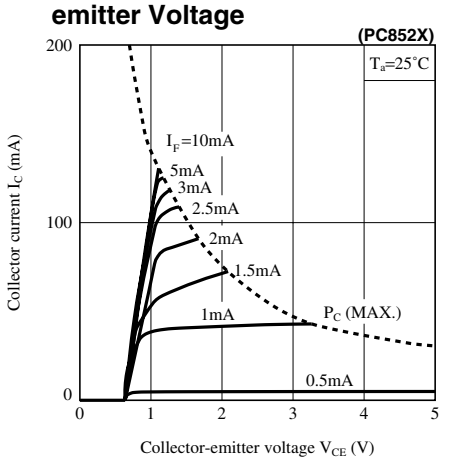


Fig.6-b Collector Current vs. Collector-emitter Voltage

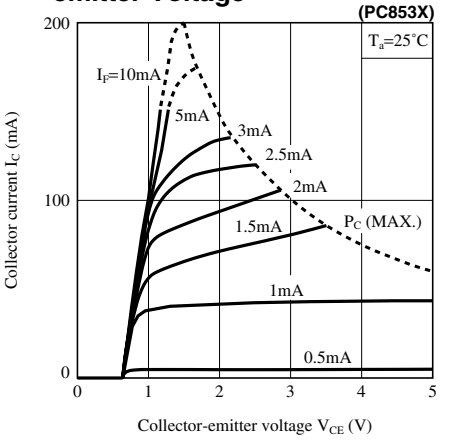


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

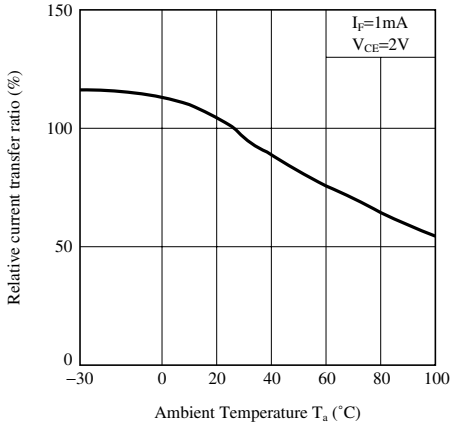


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

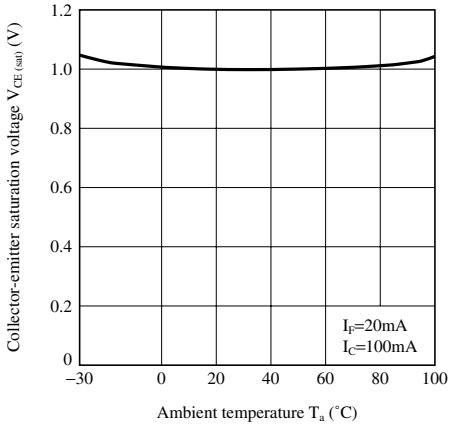


Fig.9 Collector Dark Current vs. Ambient Temperature

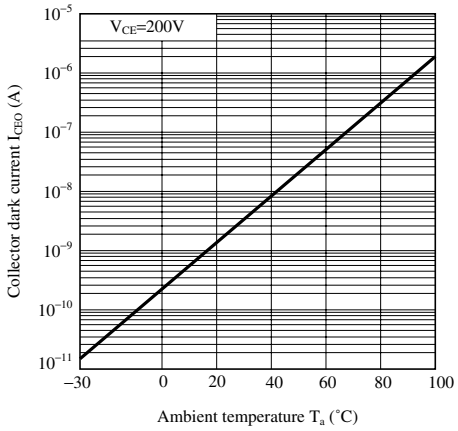


Fig.10 Response Time vs. Load Resistance

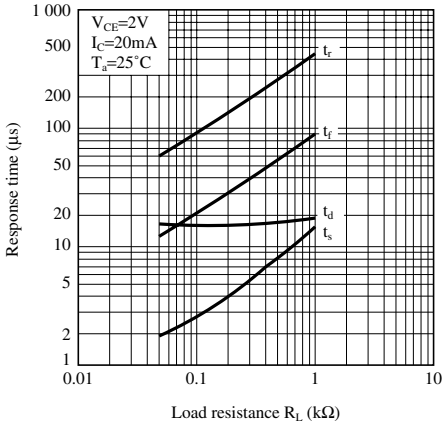


Fig.11 Frequency Response

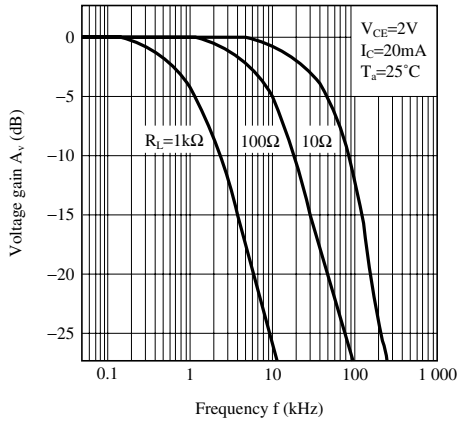
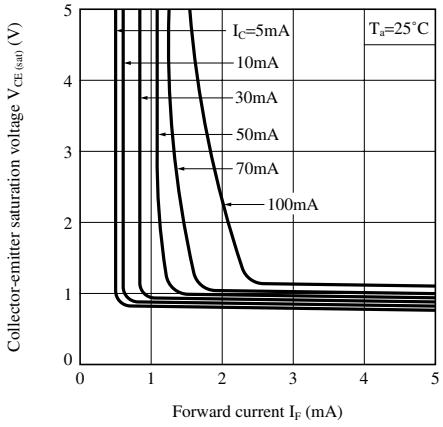


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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SHARP®

NORTH AMERICA

SHARP Microelectronics of the Americas
5700 NW Pacific Rim Blvd.
Camas, WA 98607, U.S.A.
Phone: (1) 360-834-2500
Fax: (1) 360-834-8903
Fast Info: (1) 800-833-9437
www.sharpsma.com

EUROPE

SHARP Microelectronics Europe
Division of Sharp Electronics (Europe) GmbH
Sonninstrasse 3
20097 Hamburg, Germany
Phone: (49) 40-2376-2286
Fax: (49) 40-2376-2232
www.sharpsme.com

JAPAN

SHARP Corporation
Electronic Components & Devices
22-22 Nagaike-cho, Abeno-Ku
Osaka 545-8522, Japan
Phone: (81) 6-6621-1221
Fax: (81) 6117-725300/6117-725301
www.sharp-world.com

TAIWAN

SHARP Electronic Components
(Taiwan) Corporation
8F-A, No. 16, Sec. 4, Nanking E. Rd.
Taipei, Taiwan, Republic of China
Phone: (886) 2-2577-7341
Fax: (886) 2-2577-7326/2-2577-7328

SINGAPORE

SHARP Electronics (Singapore) PTE., Ltd.
438A, Alexandra Road, #05-01/02
Alexandra Technopark,
Singapore 119967
Phone: (65) 271-3566
Fax: (65) 271-3855

KOREA

SHARP Electronic Components
(Korea) Corporation
RM 501 Geosung B/D, 541
Dohwa-dong, Mapo-ku
Seoul 121-701, Korea
Phone: (82) 2-711-5813 ~ 8
Fax: (82) 2-711-5819

CHINA

SHARP Microelectronics of China
(Shanghai) Co., Ltd.
28 Xin Jin Qiao Road King Tower 16F
Pudong Shanghai, 201206 P.R. China
Phone: (86) 21-5854-7710/21-5834-6056
Fax: (86) 21-5854-4340/21-5834-6057
Head Office:
No. 360, Bashen Road,
Xin Development Bldg. 22
Waigaoqiao Free Trade Zone Shanghai
200131 P.R. China
Email: smc@china.global.sharp.co.jp

HONG KONG

SHARP-ROXY (Hong Kong) Ltd.
3rd Business Division,
17/F, Admiralty Centre, Tower 1
18 Harcourt Road, Hong Kong
Phone: (852) 28229311
Fax: (852) 28660779
www.sharp.com.hk
Shenzhen Representative Office:
Room 13B1, Tower C,
Electronics Science & Technology Building
Shen Nan Zhong Road
Shenzhen, P.R. China
Phone: (86) 755-3273731
Fax: (86) 755-3273735