

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 $I_F=1\text{mA}$, $V_{CE}=2\text{V}$)
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

■ Absolute Maximum Ratings

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

Parameter	Symbol	Rating		Unit
		PC852X	PC853X	
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}	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		$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +125		$^\circ\text{C}$
*3 Soldering temperature	T_{sol}	260		$^\circ\text{C}$

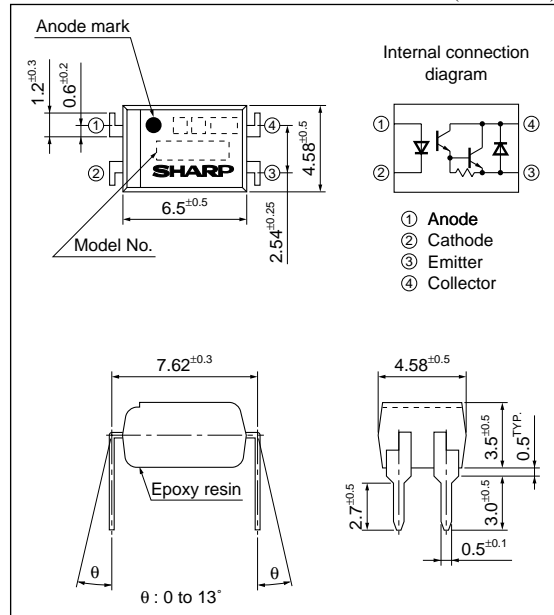
*1 Pulse width \leq 100 μ s, Duty ratio:0.001

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

*3 For 10s

■ Outline Dimensions

(Unit : mm)



■ 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
Fall time		t _f	—		20	100	μs

Fig.1 Forward Current vs. Ambient Temperature

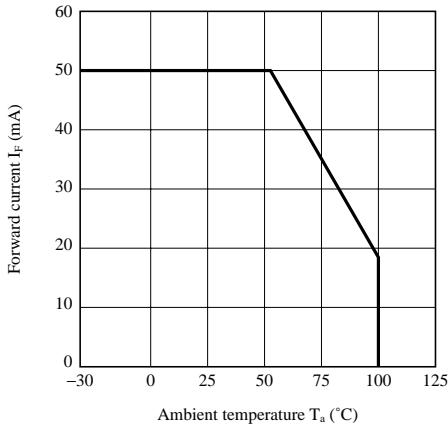


Fig.2-a Collector Power Dissipation vs. Ambient Temperature (PC852X)

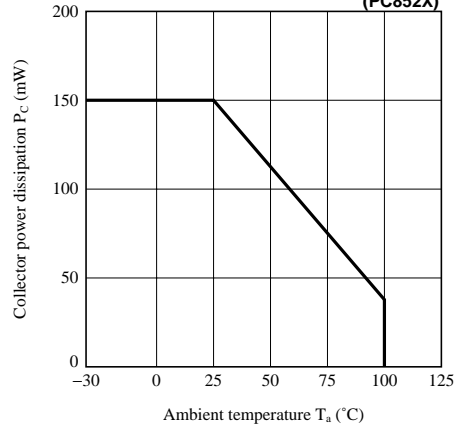


Fig.2-b Collector Power Dissipation vs. Ambient Temperature (PC853X)

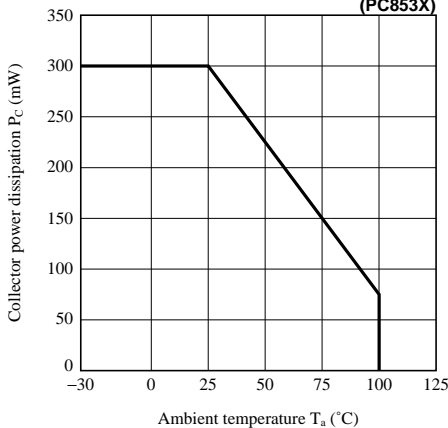


Fig.3 Peak Forward Current vs. Duty Ratio

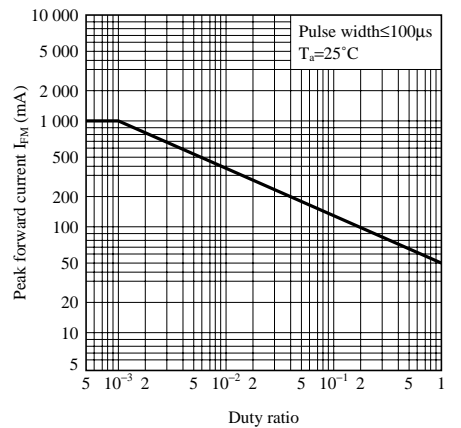


Fig.4 Forward Current vs. Forward Voltage

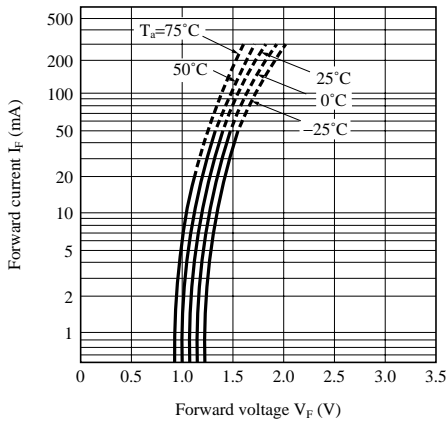


Fig.5-a Current Transfer Ratio vs. Forward Current

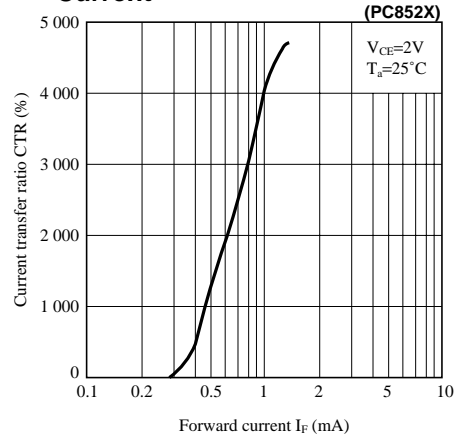


Fig.5-b Current Transfer Ratio vs. Forward Current

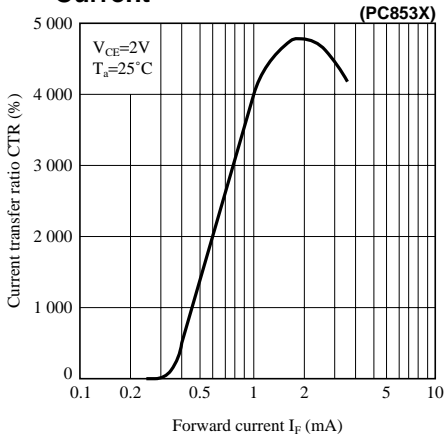


Fig.6-a Collector Current vs. Collector-emitter Voltage

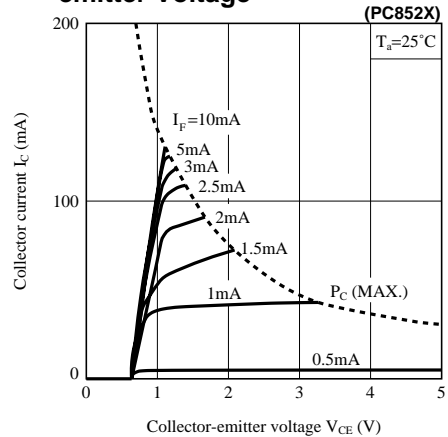


Fig.6-b Collector Current vs. Collector-emitter Voltage

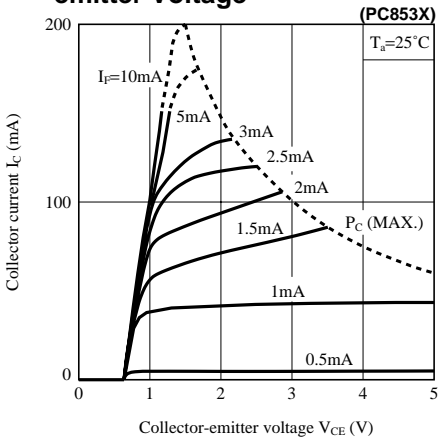


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

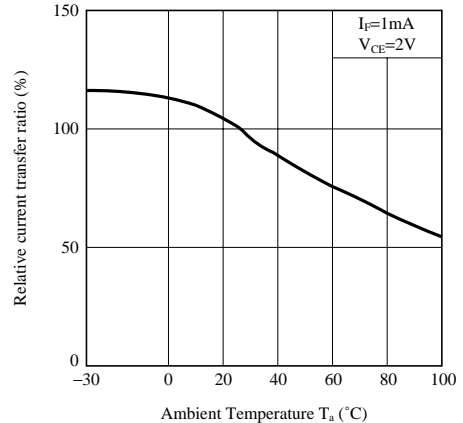


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

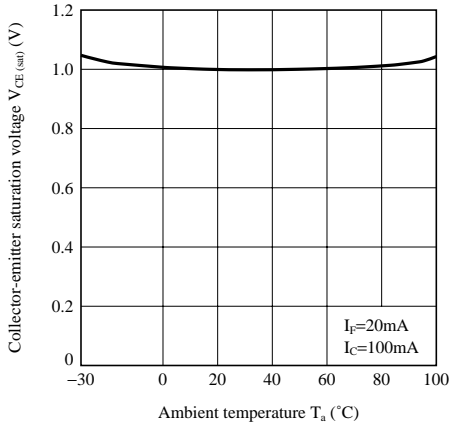


Fig.9 Collector Dark Current vs. Ambient Temperature

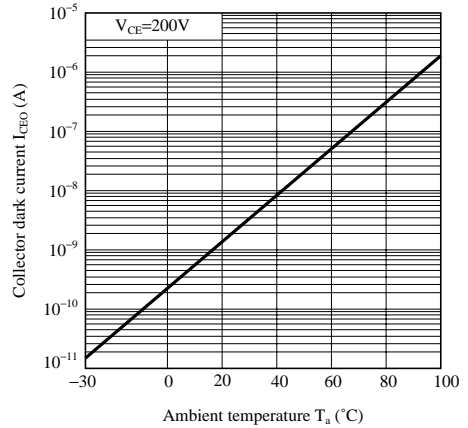


Fig.10 Response Time vs. Load Resistance

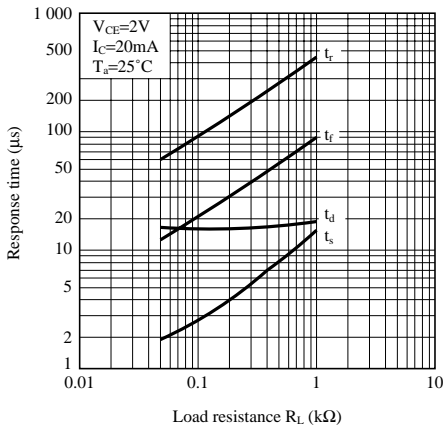


Fig.11 Frequency Response

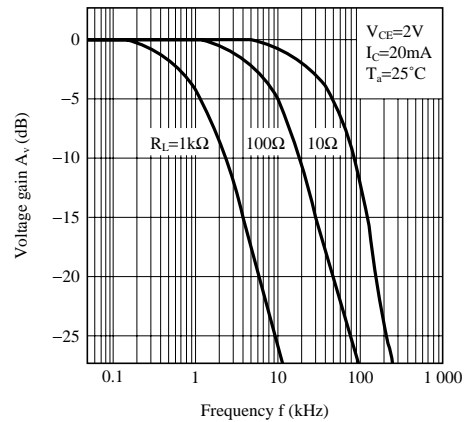
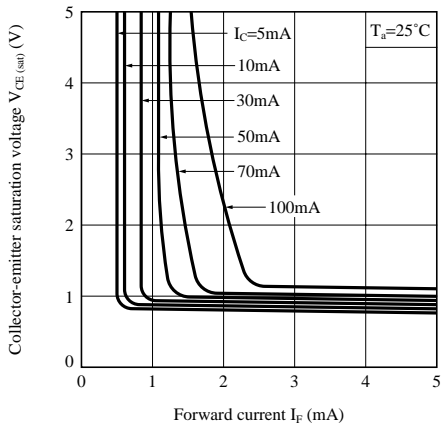


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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