

# PC852 Series PC853/PC853H

## High Collector-emitter Voltage Type Photocouplers

\*Lead forming type (I type) and taping reel type (P type) are also available. (PC852I/PC852P/PC853I/PC853P) (Page 656)

### Features

- High collector-emitter voltage  
**PC852 Series, PC853** ( $V_{CEO} : 300V$ )  
**PC853H** ( $V_{CEO} : 350V$ )
- High current transfer ratio  
 (CTR : MIN. 1 000% at  $I_F = 1mA, V_{CE} = 2V$ )
- High isolation voltage between input and output ( $V_{iso} : 5 000V_{rms}$ )
- Compact dual-in-line package  
**PC852, PC853, PC853H** (1-channel type)

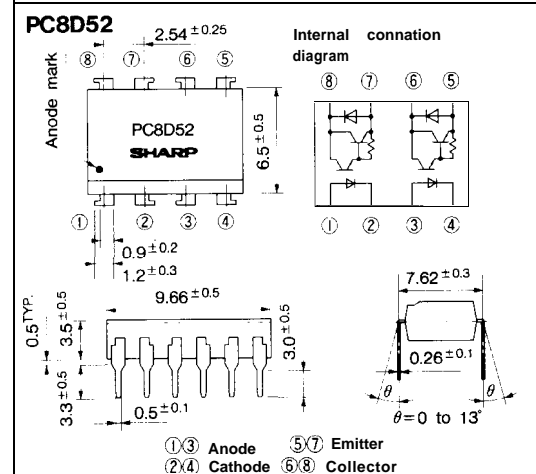
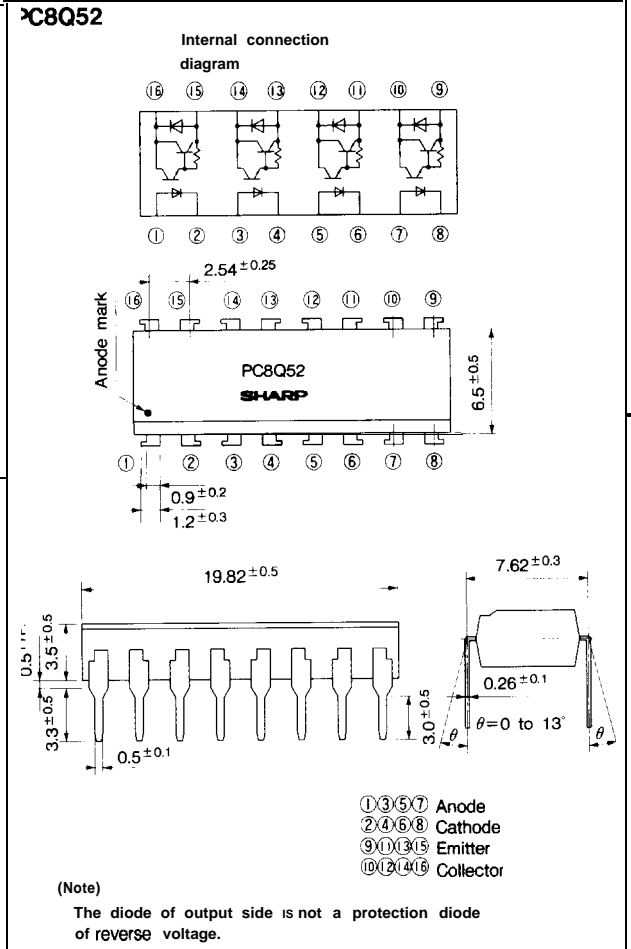
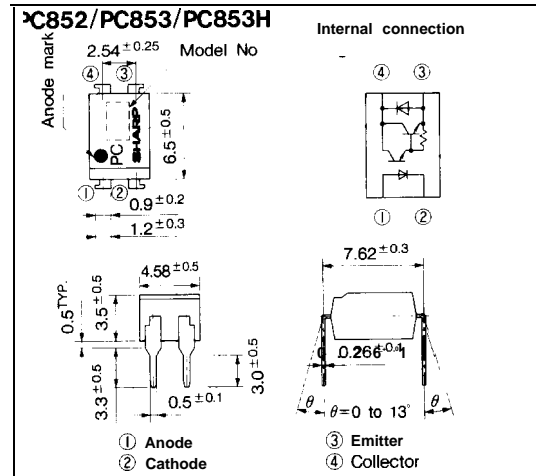
- PC8D52** (2-channel type)
  - PC8Q52** (4-channel type)
- Large collector power dissipation.  
**PC853, PC853H** ( $P_c : 300mW$ )

### Application

- Telephone sets
- Copiers, facsimiles
- Interface with various power supply circuits, power distribution boards
- Numerical control machines

### Outline Dimensions

(Unit : mm)



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Photocouplers

### ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating			Unit
		PC852 Series	PC853	PC853H	
Input	Forward current	$I_F$	50	50	mA
	*1 Peak forward current	$I_{FM}$	1	1	A
	Reverse voltage	$V_R$	6	6	v
	power dissipation	P	70	70	mW
output	Collector -emitter voltage	$V_{CEO}$	300	300   350	v
	Emitter-collector voltage	$V_{ECO}$	0.1	0.1	v
	Collector current	$I_C$	150	150	mA
	Collector power dissipation	$P_C$	150	300	mW
	Total power dissipation	$P_{tot}$	200	320	mW
*2 Isolation voltage	$V_{iso}$	5000	5000	$V_{rms}$	
Operating temperature	$T_{opr}$	-30 to +100	-30 to +100	°C	
Storage temperature	$T_{stg}$	-55 to +125	-55 to +125	°C	
*3 soldering temperature	$T_{sol}$	260	260	°C	

\*1 Pulse width  $\leq 100 \mu s$ , Duty ratio = 0.001

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

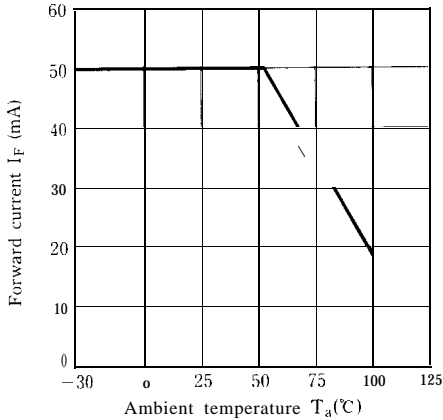
\*3 For 10 seconds

### ■ Electro-optical Characteristics

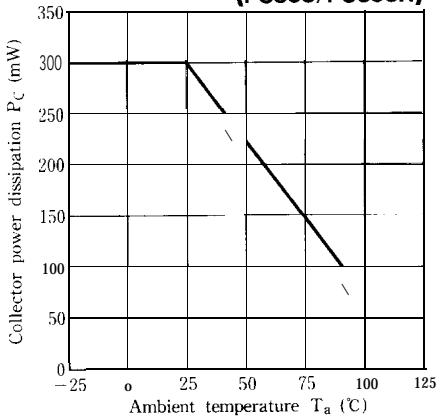
(Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 10mA$	—	1.2	1.4	v
	Reverse current	$I_R$	$V_R = 4V$	—	—	10	$\mu A$
	Terminal capacitance	$C_t$	$V=O, f=1kHz$	—	30	250	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 200V, I_F = O$	—	—	$2 \times 10^{-7}$	A
	Current transfer ratio	CTR	$I_F = 1mA, V_{CE} = 2V$	1 000	4 000	15 000	%
Transfer charac - teristics	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	$5 \times 10^{10}$	$10^{11}$	—	$\Omega$
	Floating capacitance	$C_f$	$V=O, f=1MHz$	—	0.6	1.0	pF
	Cut -off frequency	$f_c$	$V_{CE} = 2V, I_C = 20mA, R_L = 100\Omega, -3dB$	1	7	—	kHz
	Response time	Rise time	$t_r$	$V_{CE} = 2V, I_C = 20mA$ $R_L = 100\Omega$	—	100	300
Fall time		$t_f$	—		20	100	$\mu s$

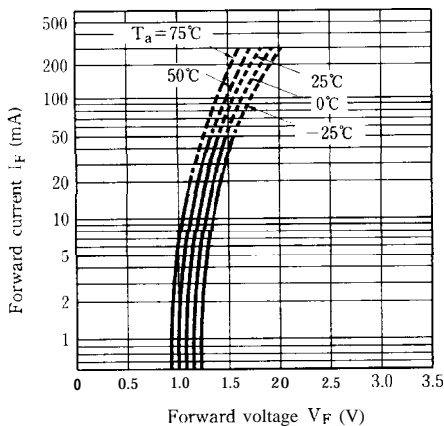
**Fig. 1 Forward Current vs. Ambient Temperature**



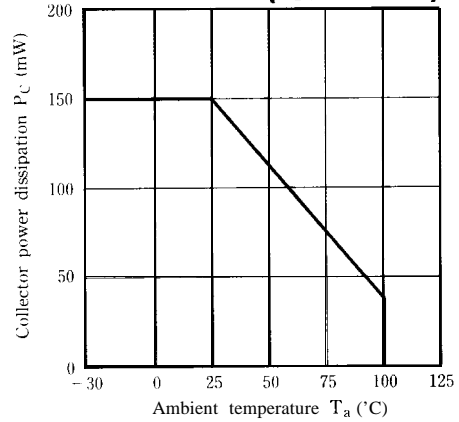
**Fig. 2-b Collector Power Dissipation vs. Ambient Temperature (PC853/PC853H)**



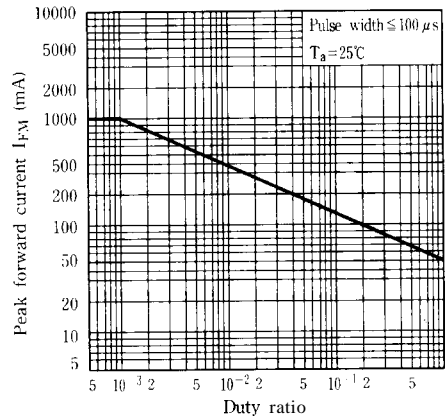
**Fig. 4 Forward Current vs. Forward Voltage**



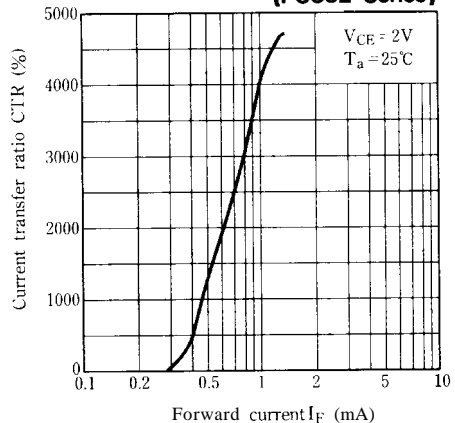
**Fig. 2-a Collector Power Dissipation vs. Ambient Temperature (PC852 Series)**



**Fig. 3 Peak Forward Current vs. Duty Ratio**

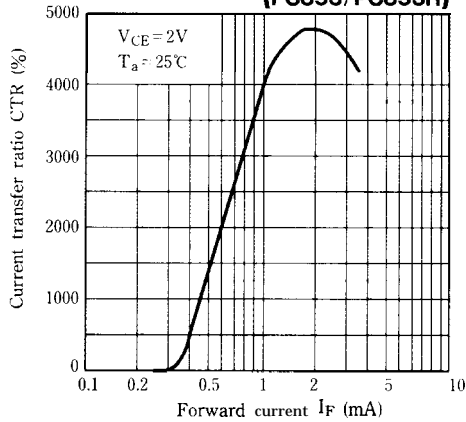


**Fig. 5-a Current Transfer Ratio vs. Forward Current (PC852 Series)**

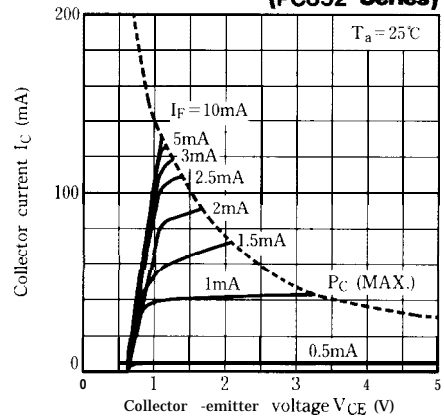


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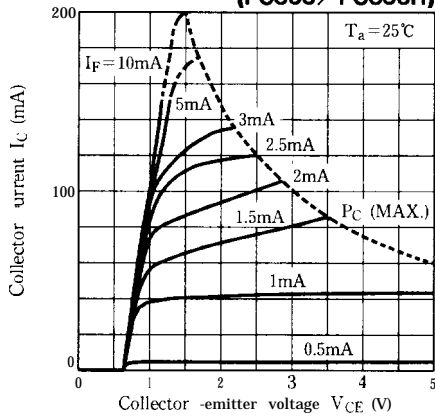
**Fig. 5-b Current Transfer Ratio vs. Forward Current**  
(PC853/PC853H)



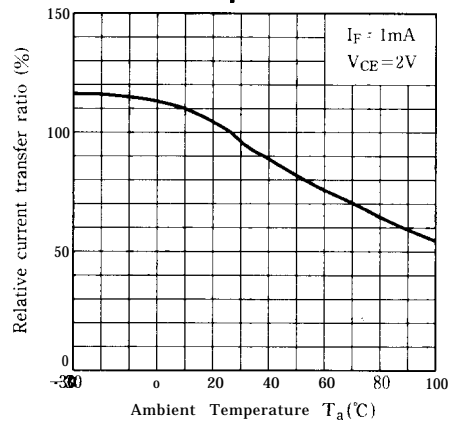
**Fig. 6-a Collector Current vs. Collector-emitter Voltage**  
(PC852 Series)



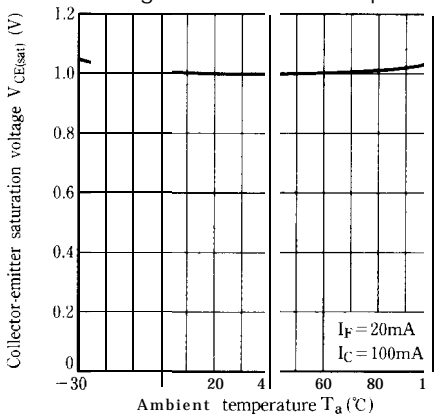
**Fig. 6-b Collector Current vs. Collector-emitter Voltage**  
(PC853/PC853H)



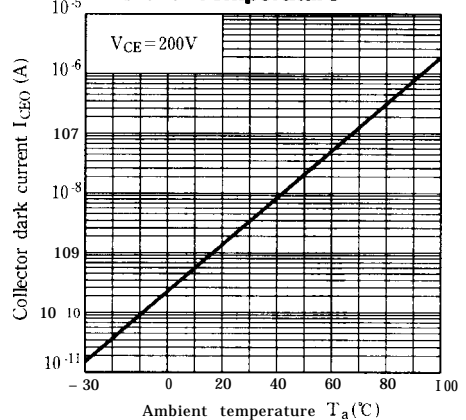
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



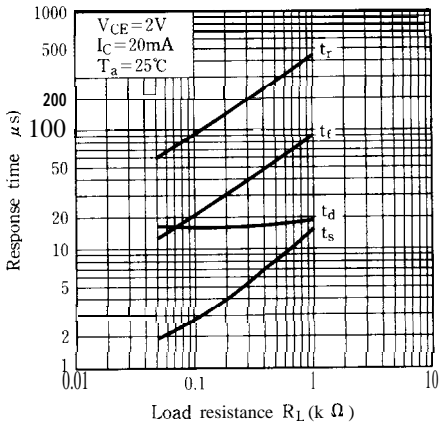
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



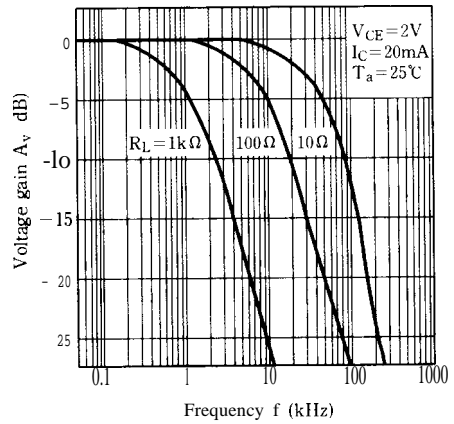
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



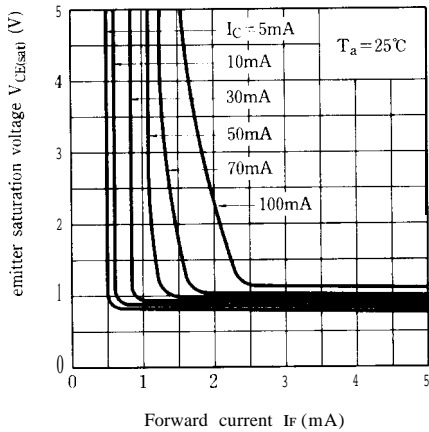
**Fig.10 Response Time vs. Load Resistance**



**Fig.11 Frequency Response**



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



● Please refer to the chapter “Precautions for Use” (Page 78 to 93)