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**)

■ Features

1. High collector-emitter voltage
   PC852 Series, **PC853** (V_{CEO}: 300V)
   PC853H (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}: 5 000V $_{rms}$)
4. Compact dual-in-line package
   PC852, **PC853**, **PC853H** (1-channel type)
   PC8D52 (2-channel type)
   PC8Q52 (4-channel type)
5. Large collector power dissipation.
   PC853, **PC853H** (P_C: 300mW)
6. Recognized by UL (NO. E64380)

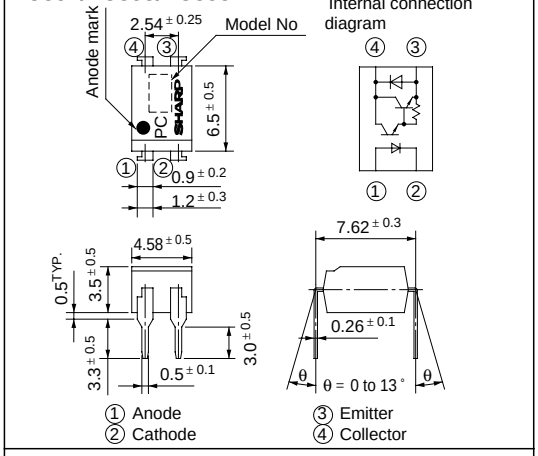
■ Applications

1. Telephone sets
2. Copiers, facsimiles
3. Interface with various power supply circuits, power distribution boards
4. Numerical control machines

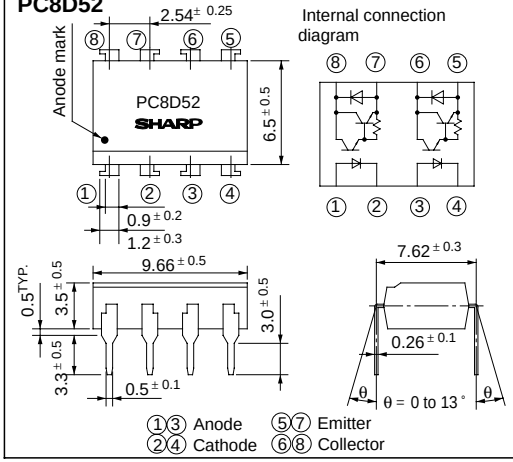
■ Outline Dimensions

(Unit: mm)

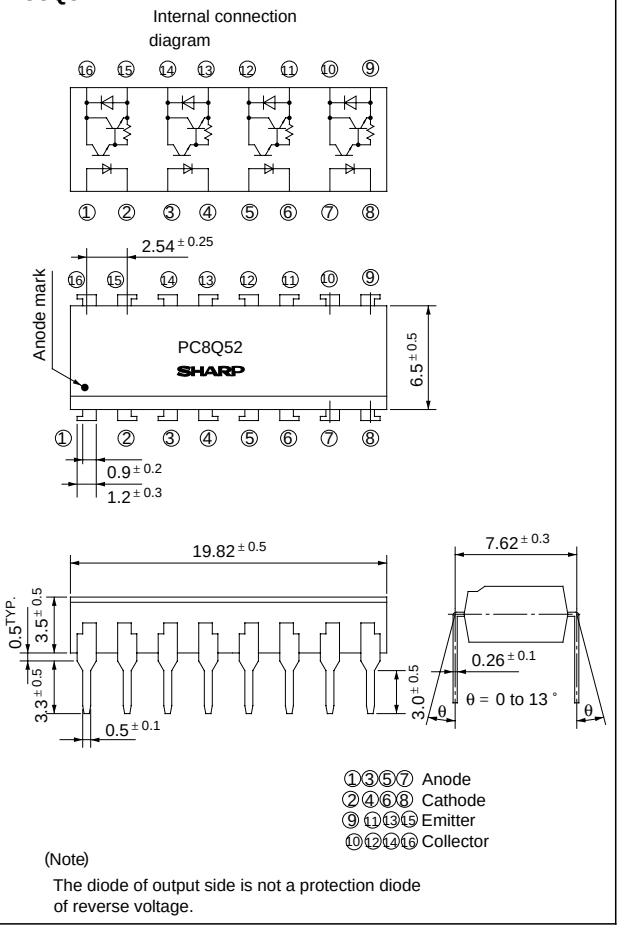
PC852/PC853/PC853H



PC8D52



PC8Q52



(Note)
The diode of output side is not a protection diode of reverse voltage.

■ Absolute Maximum Ratings (Ta= 25˚C)

Parameter		Symbol	Rating			Unit
			PC852 Series	PC853	PC853H	
Input	Forward current	I_F	50	50		mA
	*1Peak 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
*2Isolation voltage		V_{iso}	5 000	5 000		V_{rms}
Operating temperature		T_{opr}	- 30 to + 100	- 30 to + 100		˚C
Storage temperature		T_{stg}	- 55 to + 125	- 55 to + 125		˚C
*3Soldering temperature		T_{sol}	260	260		˚C

*1 Pulse width<=100μs, 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	μA
	Terminal capacitance		C_t	V = 0, f = 1kHz	-	30	250	pF
Output	Collector dark current		I_{CEO}	V_{CE} = 200V, I_F = 0	-	-	2×10^{-7}	A
Transfer characteristics	Current transfer ratio		CTR	I_F = 1mA, V_{CE} = 2V	1 000	4 000	15 000	%
	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	-	100	300	μs
		Fall time	t_f	R_L = 100Ω	-	20	100	μs

Fig. 1 Forward Current vs. Ambient Temperature

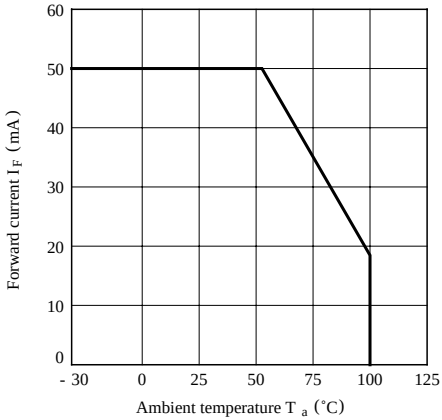


Fig. 2-a Collector Power Dissipation vs. Ambient Temperature (PC852 Series)

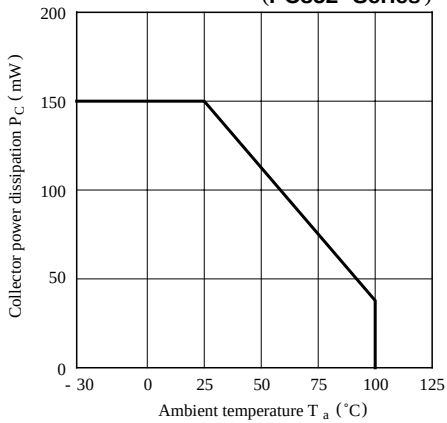


Fig. 2-b Collector Power Dissipation vs. Ambient Temperature (PC853/PC853H)

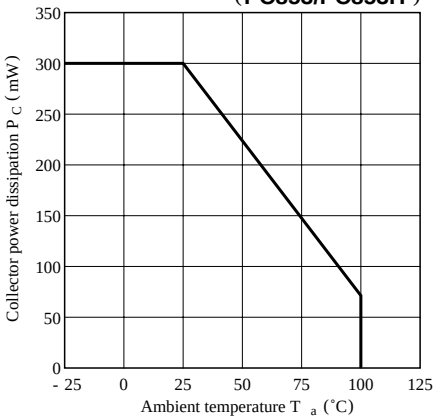


Fig. 3 Peak Forward Current vs. Duty Ratio

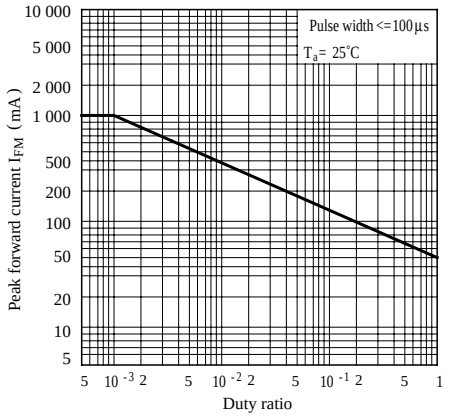


Fig. 4 Forward Current vs. Forward Voltage

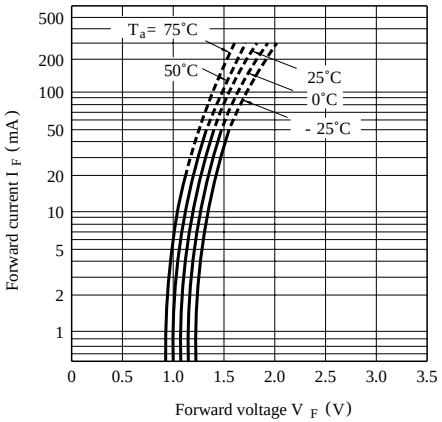


Fig. 5-a Current Transfer Ratio vs. Forward Current (PC852 Series)

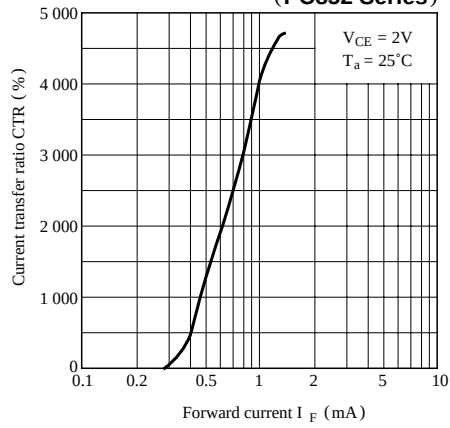


Fig. 5-b Current Transfer Ratio vs. Forward Current (PC853/PC853H)

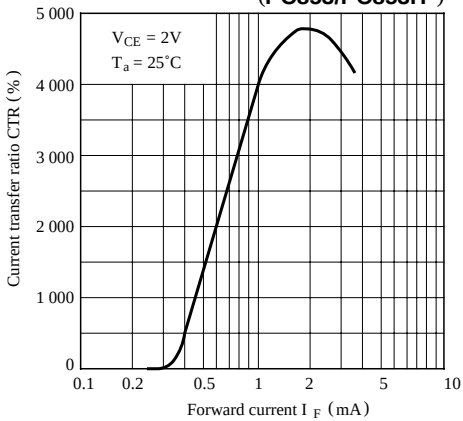


Fig. 6-a Collector Current vs. Collector-emitter Voltage (PC852 Series)

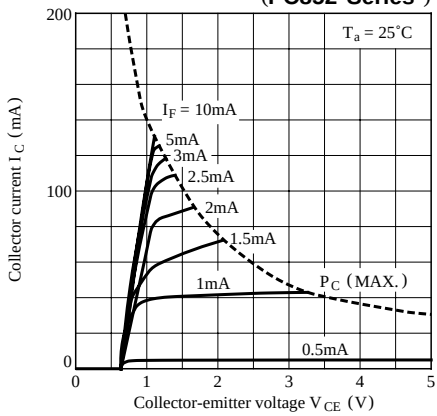


Fig. 6-b Collector Current vs. Collector-emitter Voltage (PC853 / PC853H)

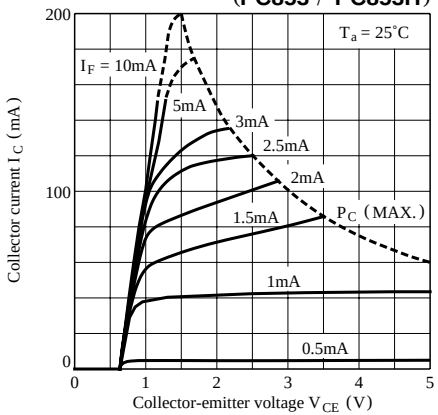


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

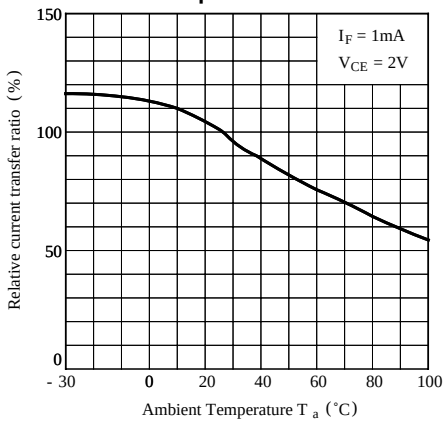


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

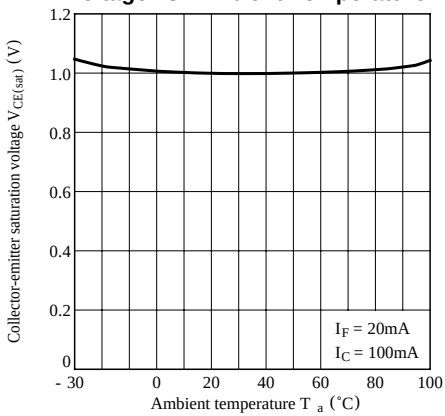


Fig. 9 Collector Dark Current vs. Ambient Temperature

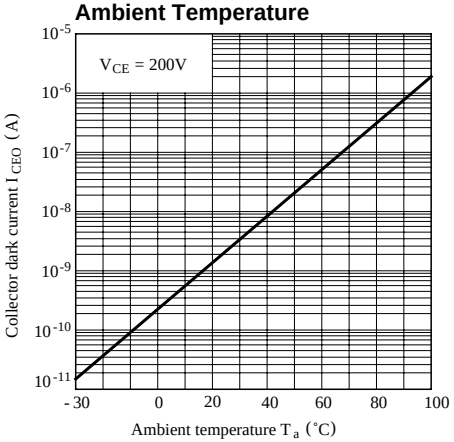


Fig.10 Response Time vs. Load Resistance

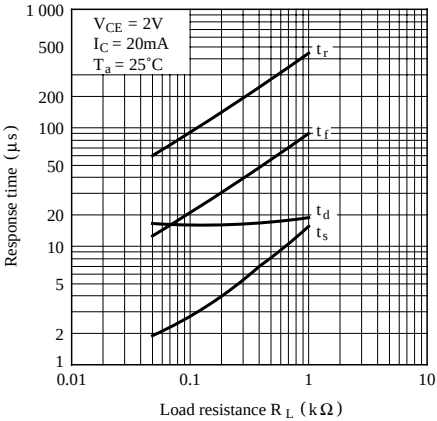


Fig.11 Frequency Response

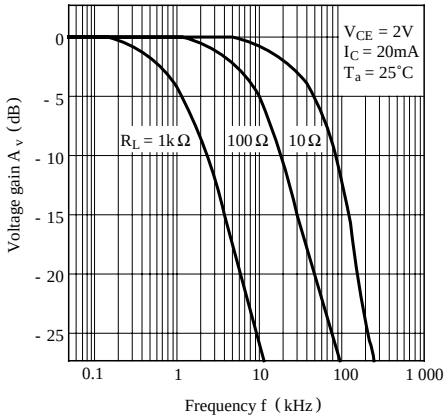
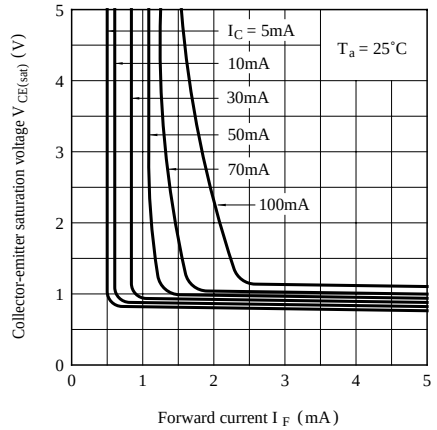


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter "Precautions for Use"