T-41-85

PC852 Series PC853/PC853H High Collector-emitter Voltage Type Photocouplers

■ Features

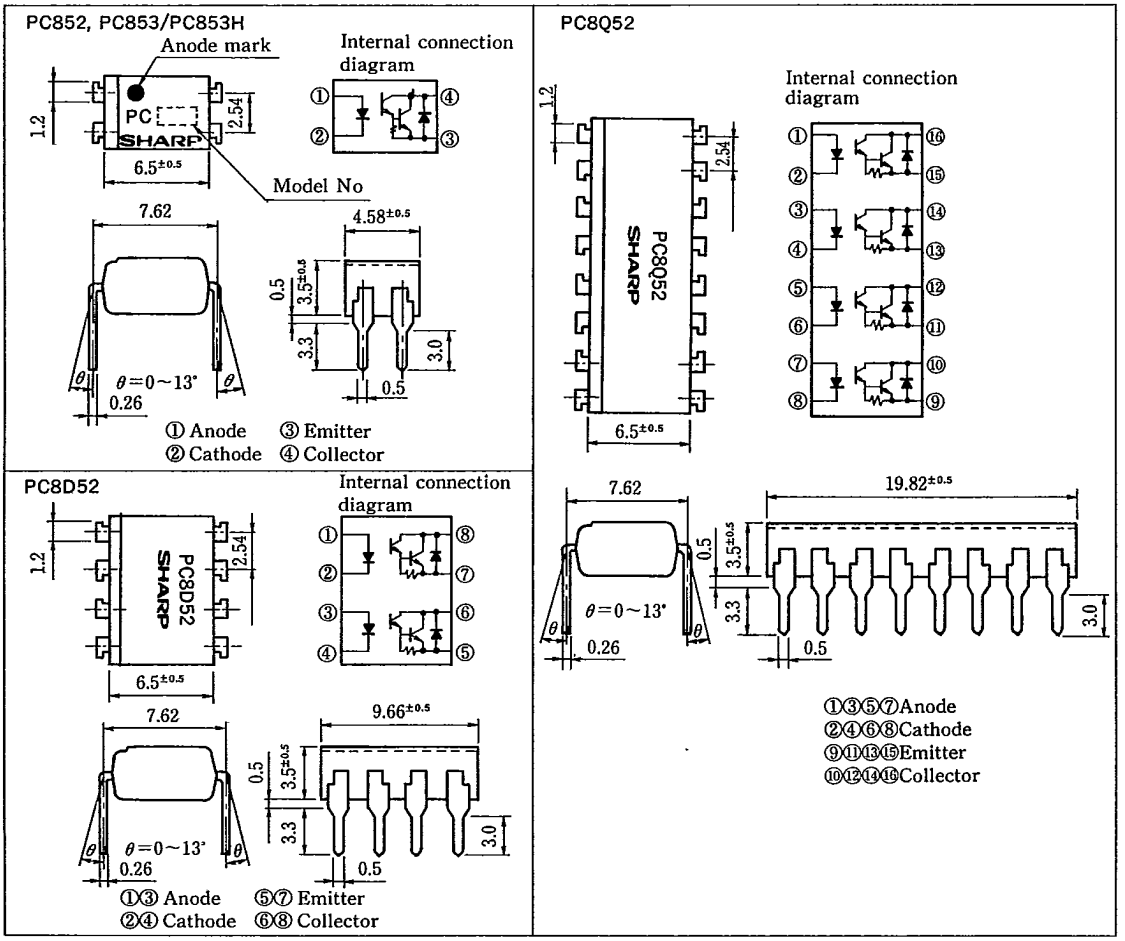
1. High collector-emitter voltage
   PC852 Series, PC853(V_{CEO}: 300V)
   PC853H (V_{CEO}: 350V)
2. High current transfer ratio
   (CTR: MIN. 1000% at I_F=1mA, V_{CE}=2V)
3. High isolation voltage between input and output (V_{iso}: 5,000V_{rms})
4. Compact dual-in-line package
   PC852,PC853,PC853H(1-channel type)
   PC8D52 (2-channel type)
   PC8Q52 (4-channel type)
5. Large collector power dissipation.
   PC853, PC853H (P_C: 300mW)

■ 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)



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■ 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}	5,000	5,000		V_{rms}
Operating temperature		T_{opr}	−30～+100	−30～+100		°C
Storage temperature		T_{stg}	−55～+125	−55～+125		°C
*3 Soldering temperature		T_{sol}	260	260		°C

*1 Pulse width ≦ 100μs, Duty ratio=0.001
*2 RH=90～60%, 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, RH=40～60%	5×10^{10}	10^{11}	—	Ω
	Floating capacitance	Cf	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency	f_C	V_{CE}=2V, I_C=20mA, R_L=100Ω	1	7	—	kHz
	Response time (Rise)	t_r	V_{CE}=2V, I_C=20mA	—	100	300	μs
	Response time (Fall)	tf	RL=100Ω	—	20	100	μs

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Fig. 1 Forward Current vs. Ambient Temperature

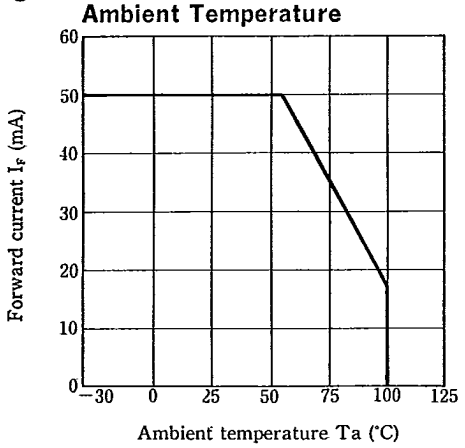

Fig. 2 Collector Power Dissipation vs. Ambient Temperature (PC852 Series)

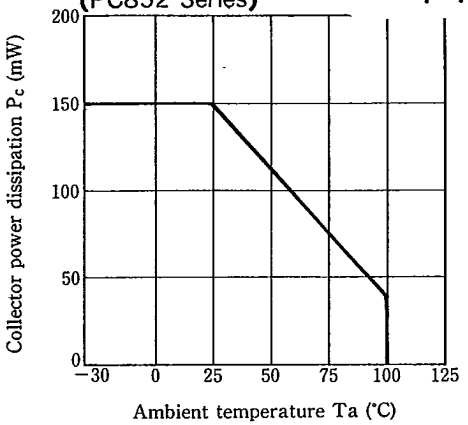

Fig. 3 Collector Power Dissipation vs. Ambient Temperature (PC853/PC853H)

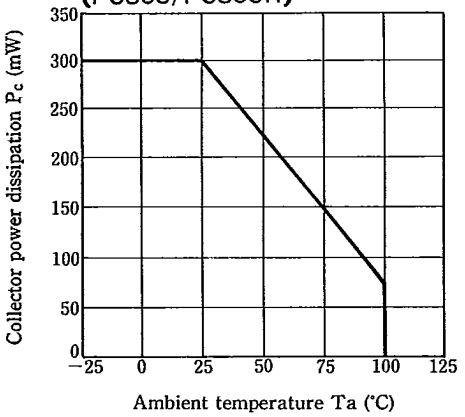

Fig. 4 Peak Forward Current vs. Duty Ratio

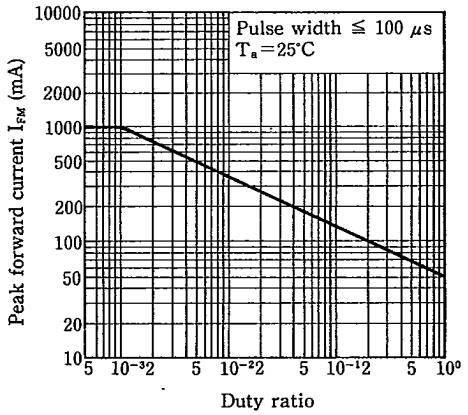

Fig. 5 Forward Current vs. Forward Voltage

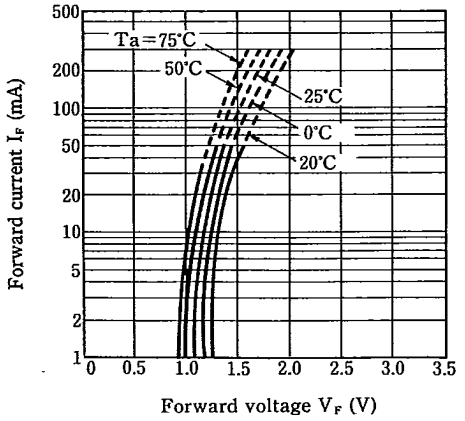

Fig. 6 Current Transfer Ratio vs. Forward Current (PC852 Series)

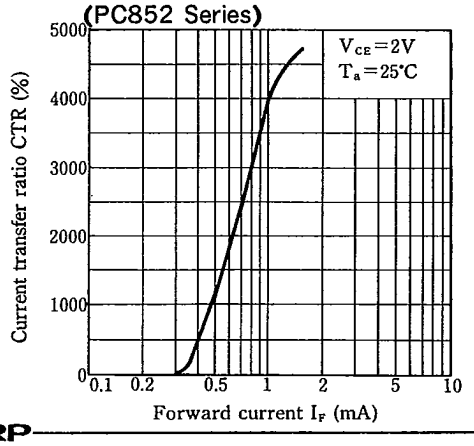

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Fig. 7 Current Transfer Ratio vs. Forward Current (PC853/PC853H)

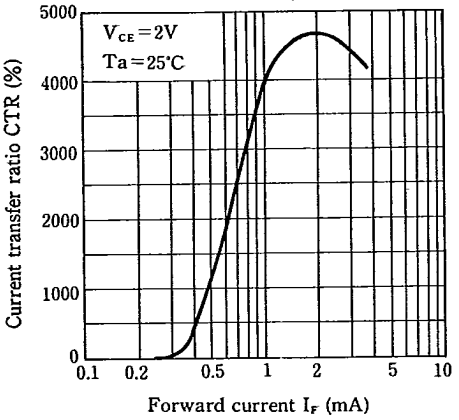


Fig. 8 Collector Current vs. Collector-emitter voltage (PC852 Series)

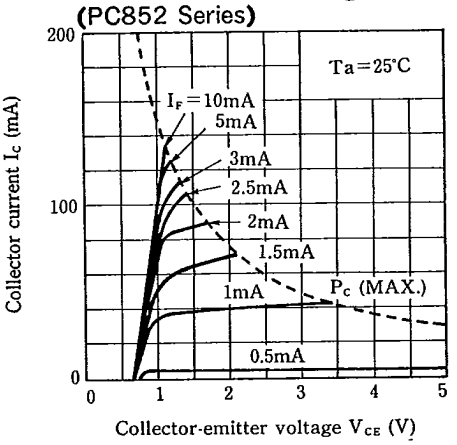


Fig. 9 Collector Current vs. Collector-emitter voltage (PC853/PC853H)

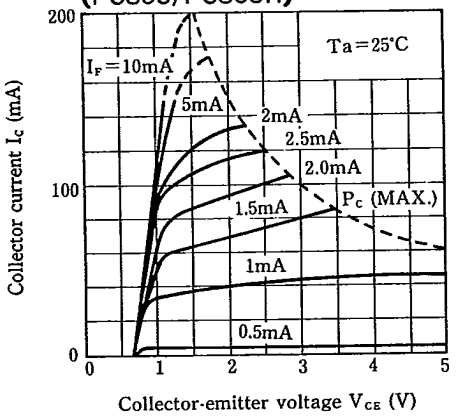


Fig. 10 Relative Current Transfer Ratio vs. Ambient Temperature

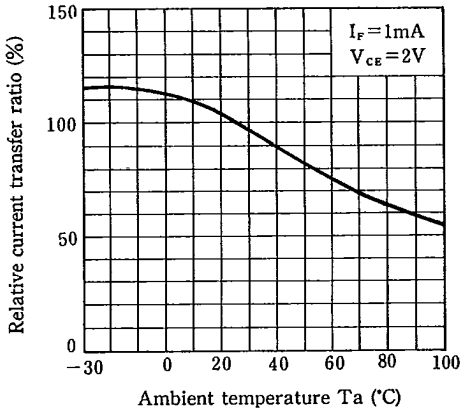


Fig. 11 Collector-emitter Saturation Voltage vs. Ambient Temperature

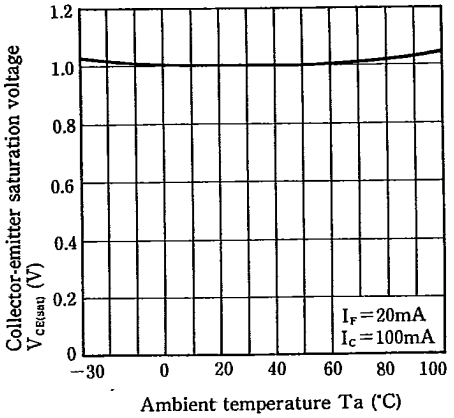


Fig. 12 Collector Dark Current vs. Ambient Temperature

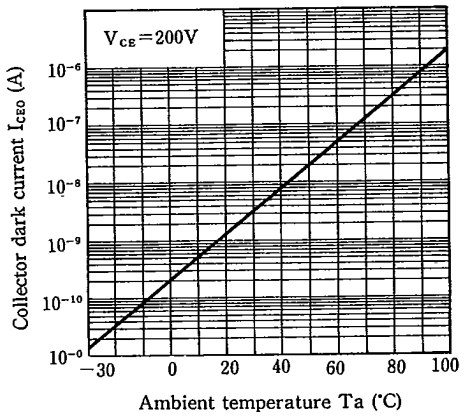


Fig. 13 Response Time vs. Load Resistance

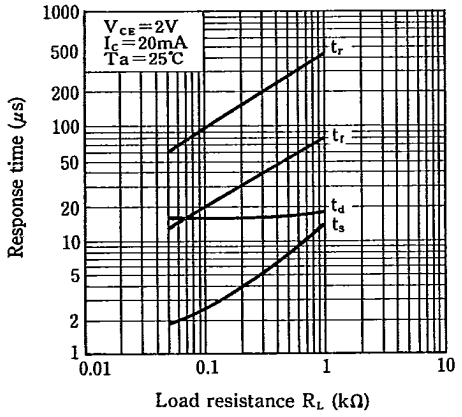


Fig. 14 Frequency Response

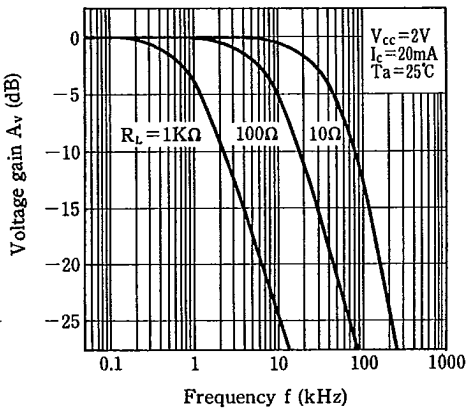
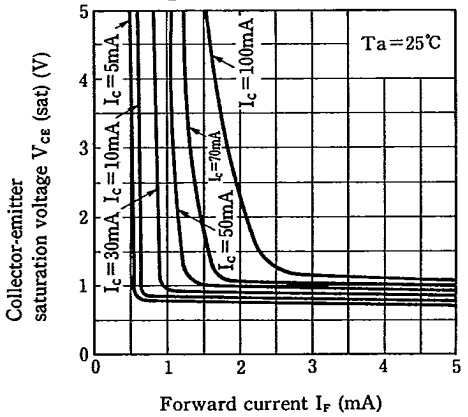


Fig. 15 Collector-emitter Saturation Voltage vs. Foward Current



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