

SHARP**PC8D52/PC8Q52**

PC8D52/PC8Q52

High Collector-emitter Voltage Type Photocouplers

■ 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
($V_{iso}(\text{rms})$:5kV)
4. Compact dual-in-line package
PC8D52 (2-channel type)
PC8Q52 (4-channel type)
5. Recognized by UL (NO. E64380)

■ Applications

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

■ Absolute Maximum Ratings

(T_a=25°C)

	Parameter	Symbol	Rating	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	mW
	Total power dissipation	P_{tot}	200	mW
	*2 Isolation voltage	$V_{iso}(\text{rms})$	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

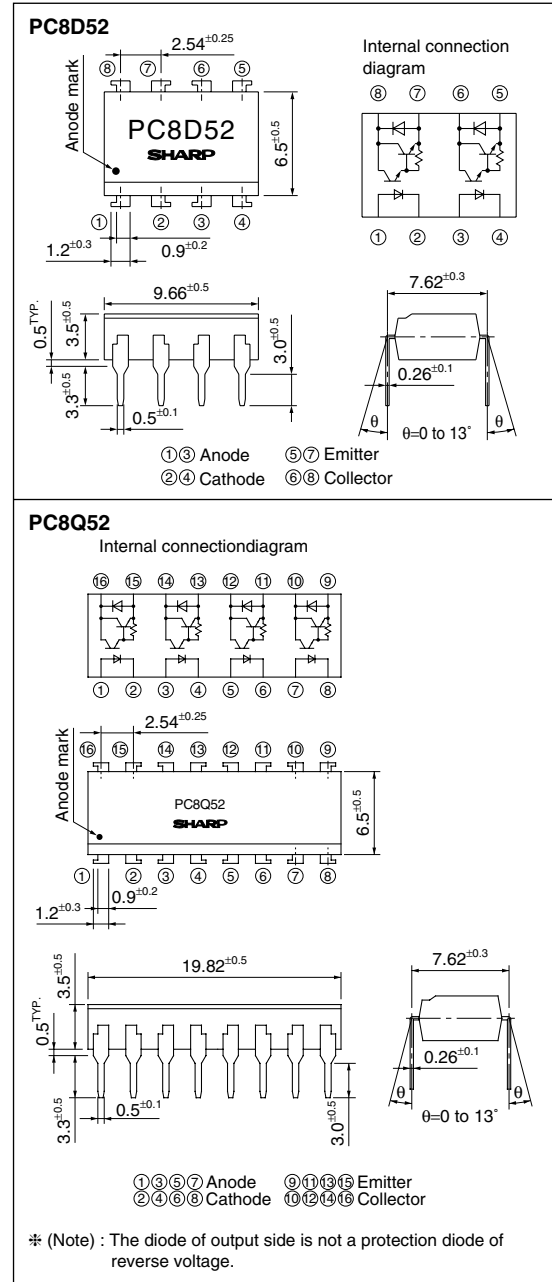
*1 Pulse width≤100μs, Duty ratio:0.001

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

*3 For 10s

■ 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 Fall time	V _{CE} =2V, I _C =20mA, R _L =100Ω	—	100	300	μs
		t _r t _f		—	20	100	μs

Fig.1 Forward Current vs. Ambient Temperature

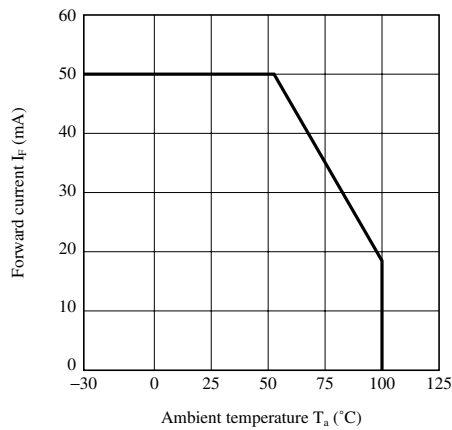


Fig.2 Collector Power Dissipation vs. Ambient Temperature

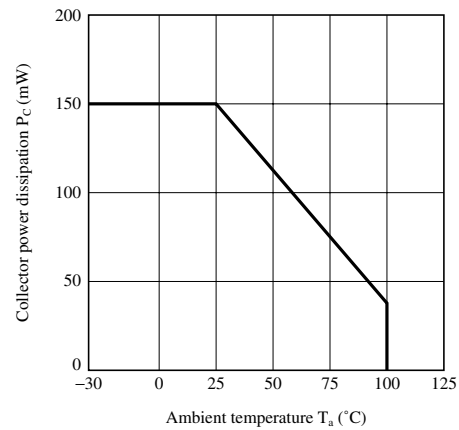


Fig.3 Peak Forward Current vs. Duty Ratio

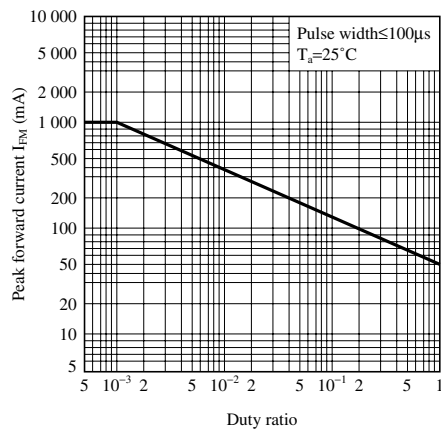


Fig.4 Forward Current vs. Forward Voltage

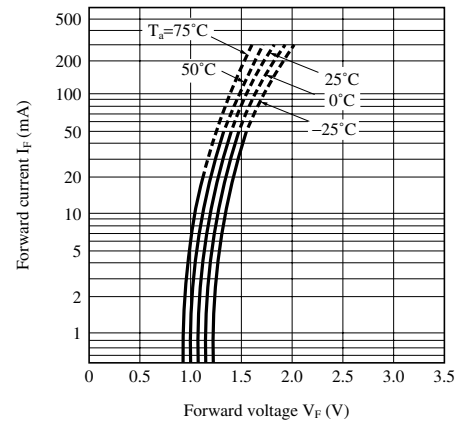


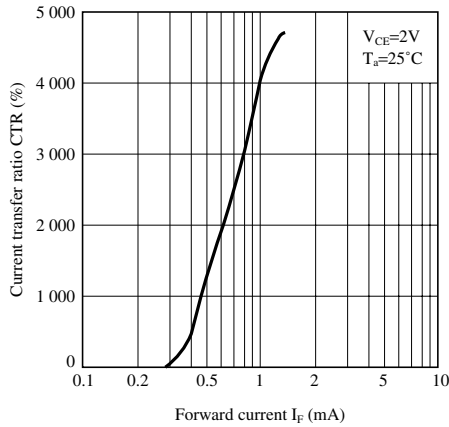
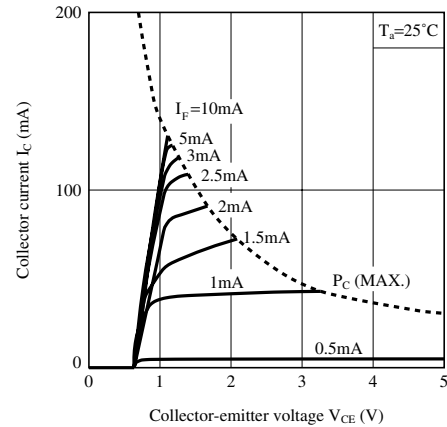
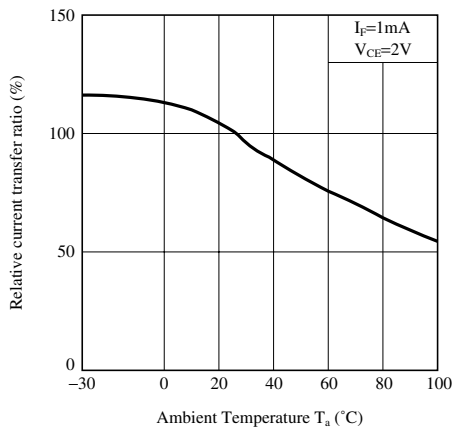
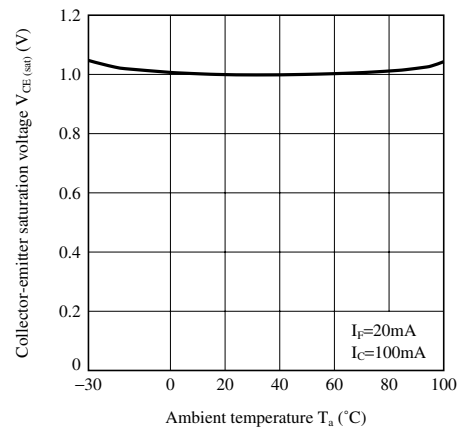
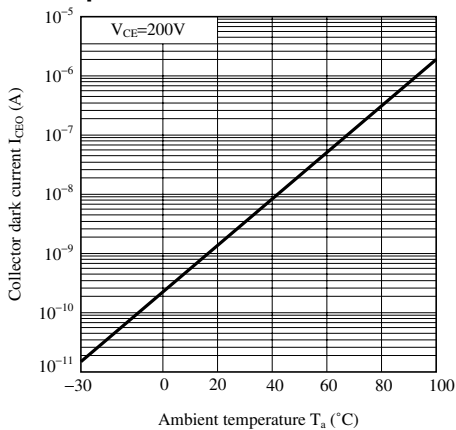
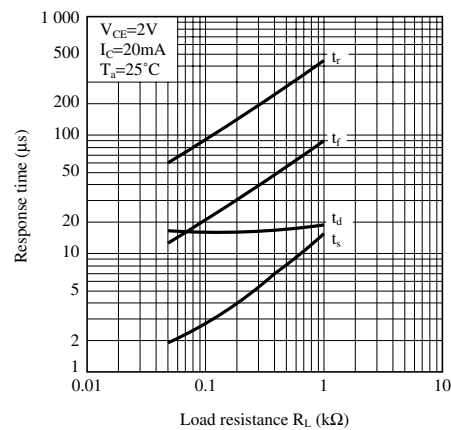
Fig.5 Current Transfer Ratio vs. Forward Current**Fig.6 Collector Current vs. Collector-emitter Voltage****Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature****Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature****Fig.9 Collector Dark Current vs. Ambient Temperature****Fig.10 Response Time vs. Load Resistance**

Fig.11 Frequency Response

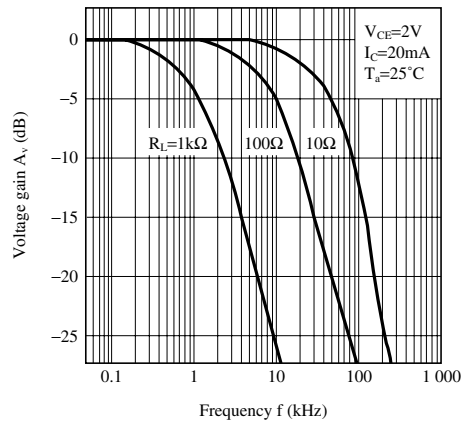
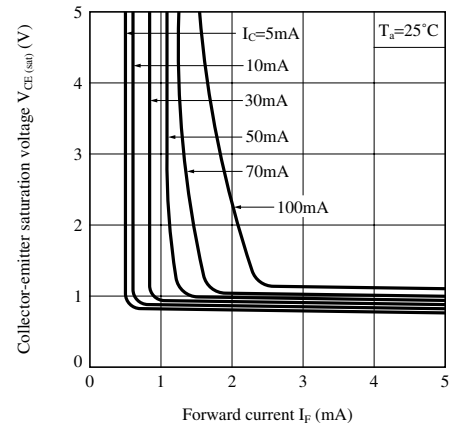


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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