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=1mA, V_{CE}=2V)
3. High isolation voltage between input and output
   ($V_{iso\ (rms)}$: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)

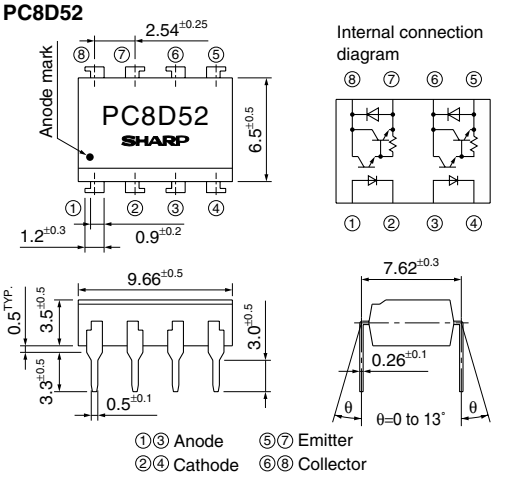
	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	350	V
	Emitter-collector voltage	V_{ECO}	0.1	V
	Collector current	I_C	150	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	200	mW
*2 Isolation voltage		$V_{iso\ (rms)}$	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

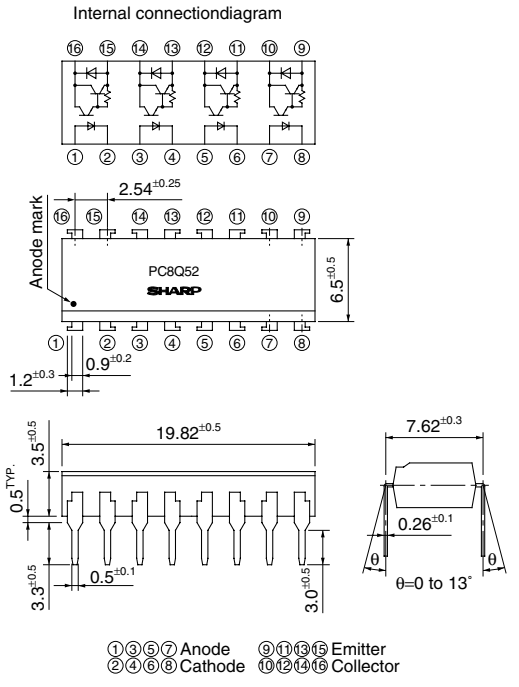
■ Outline Dimensions

(Unit : mm)

PC8D52



PC8Q52



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

■ 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	μs
		Fall time	t_f		–	20	100	μs

Fig.1 Forward Current vs. Ambient Temperature

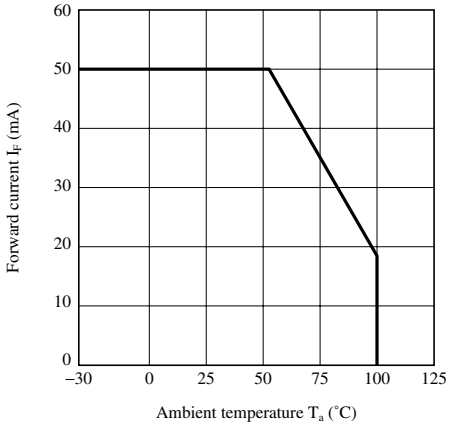


Fig.2 Collector Power Dissipation vs. Ambient Temperature

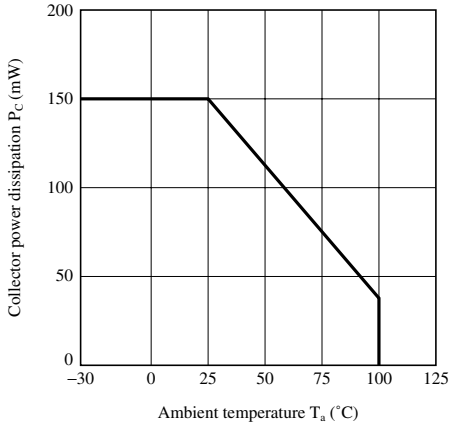


Fig.3 Peak Forward Current vs. Duty Ratio

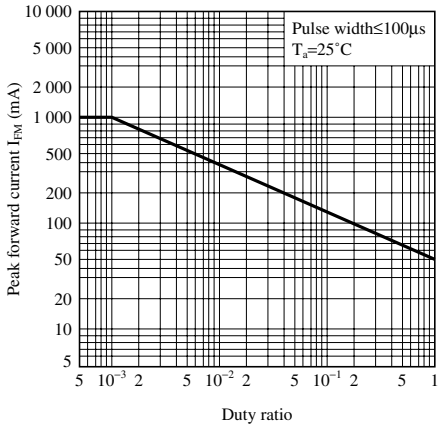


Fig.4 Forward Current vs. Forward Voltage

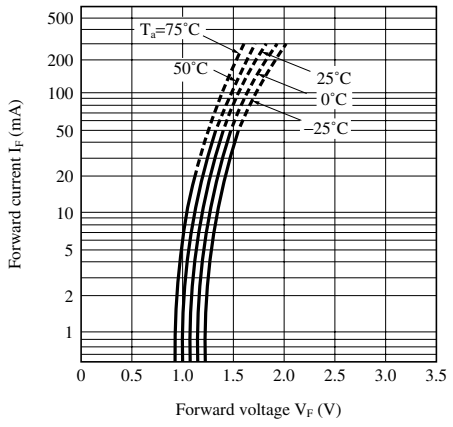


Fig.5 Current Transfer Ratio vs. Forward Current

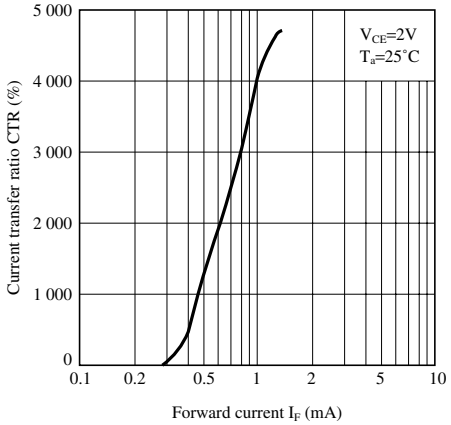


Fig.6 Collector Current vs. Collector-emitter Voltage

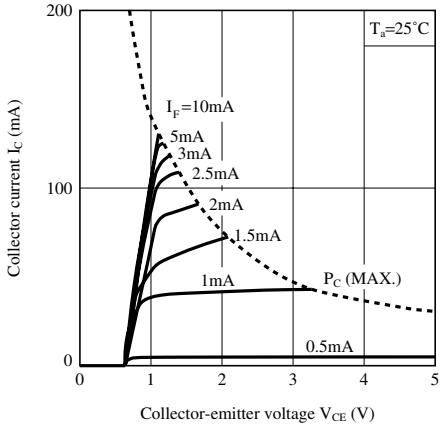


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

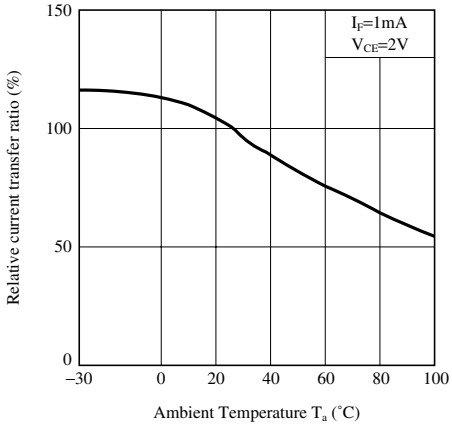


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

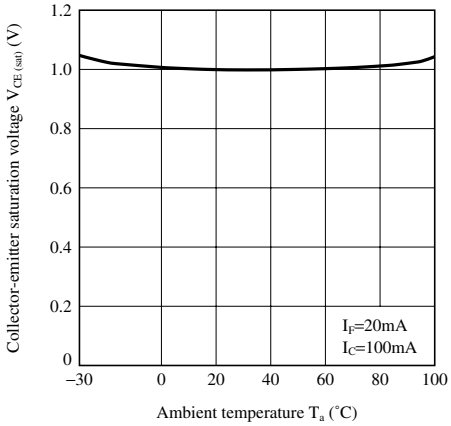


Fig.9 Collector Dark Current vs. Ambient Temperature

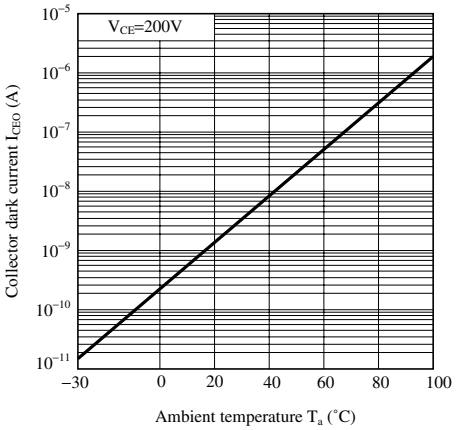


Fig.10 Response Time vs. Load Resistance

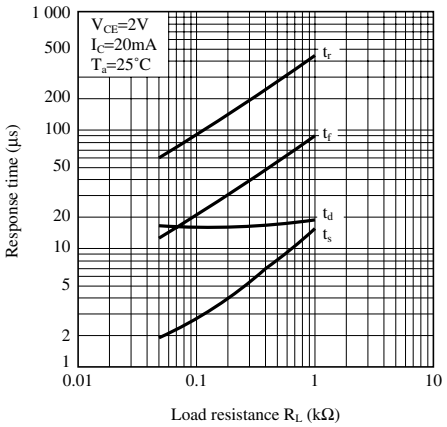


Fig.11 Frequency Response

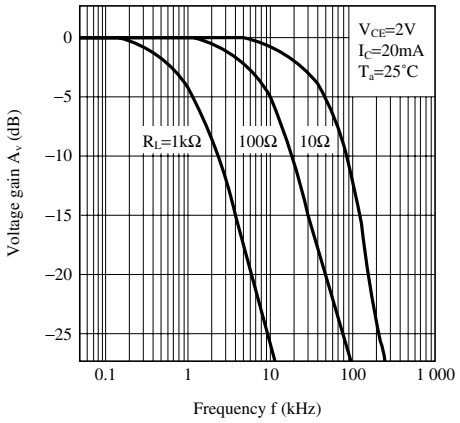
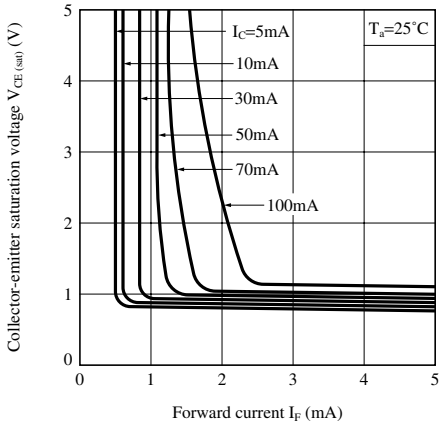


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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