PC851

High Collector-emitter Voltage Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (**PC851I/PC851P**) (Page 656)

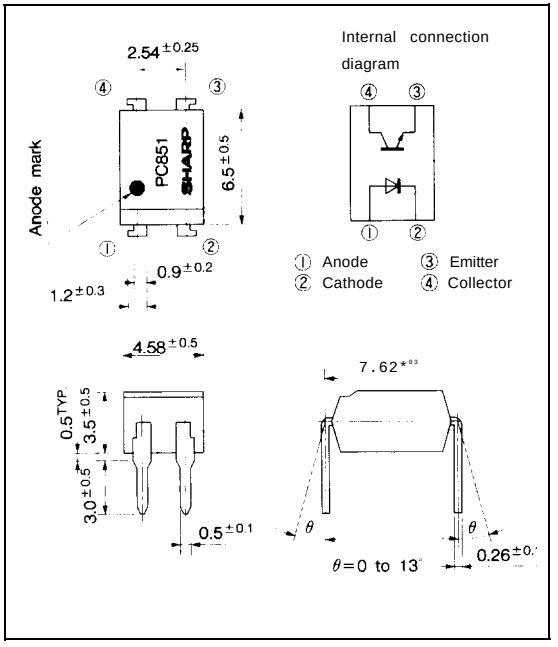
■ Features

1. High collector-emitter voltage (V_{CEO} : 300V)
2. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
3. Compact dual-in-line package
4. Recognized by UL, file No. E64380

■ Applications

1. ON-OFF switching for transmission/reception circuit for telephone
2. Interface to various power supply circuits, power patch boards
3. Copiers, facsimiles
4. Output section for numerical control machines
5. Controller for SSRS, DC motors

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (Ta = 25℃)

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}	300	V
	Emitter -collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	200	mW
*2 Isolation voltage		V_{iso}	5000	V_{rms}
Operating temperature		T_{opr}	–25 to +100	℃
Storage temperature		T_{stg}	–55 to + 125	℃
*3 Soldering temperature		T_{sol}	260	℃

*1 Pulse width≦ 100us, Duty ratio= 0.001
*2 40 to 60% RH, AC for 1 minute
*3 For 10 seconds

■ Electro-optical Characteristics

(Ta=25℃)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=20mA	–	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	–	–	10^{-6}	A
Transfer characteristics	Current transfer ratio		CTR	I_F=5mA, V_{CE}=5V	40	80	–	%
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=1mA	–	0.1	0.3	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}=5V, I_C=2mA, R_L=100Ω, -3dB	–	50	–	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA	–	4	10	μs
		Fall time	t_f	R_L=100Ω	–	5	12	μs

Fig. 1 Forward Current vs. Ambient Temperature

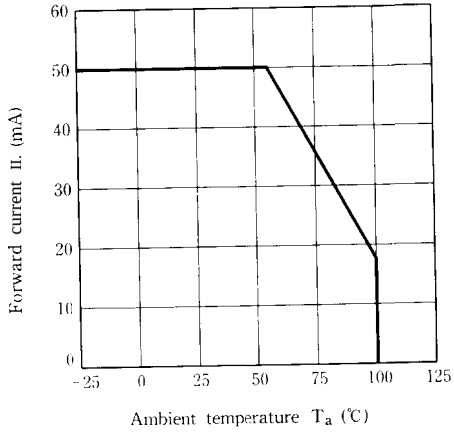


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

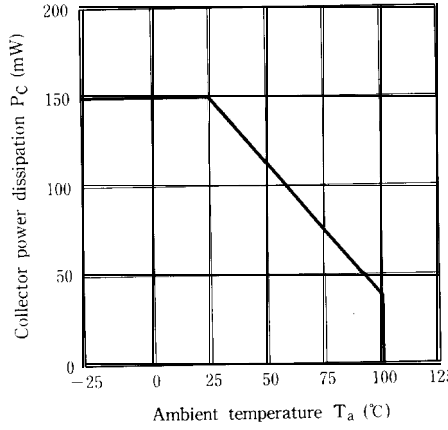


Fig. 3 Peak Forward Current vs. Duty Ratio

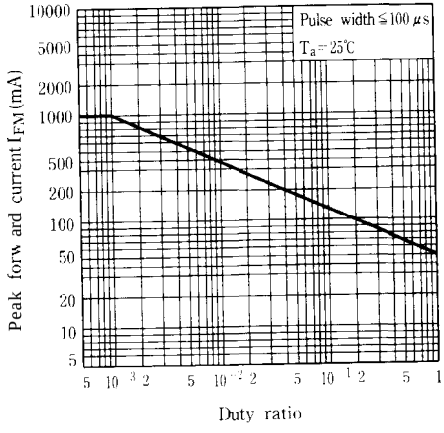


Fig. 4 Forward Current vs. Forward Voltage

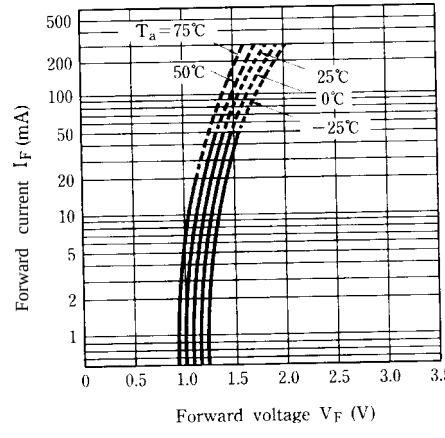


Fig. 5 Currant Transfer Ratio vs. Forward Current

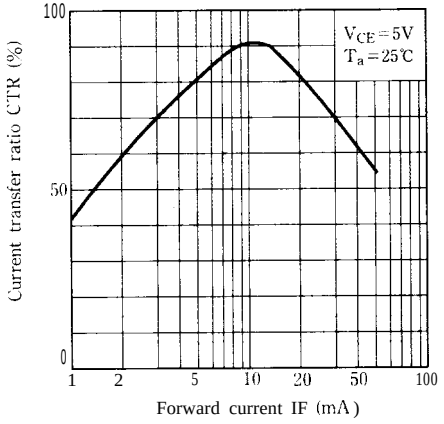


Fig. 6 Collector Current vs. Collector-emitter Voltage

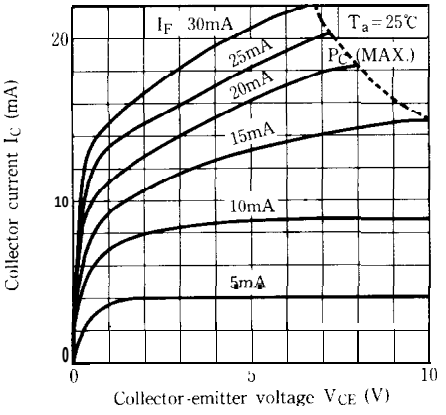


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

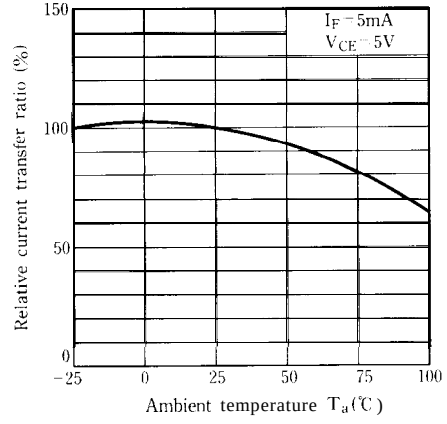


Fig. 8 **Collector-emitter Saturation voltage vs. Ambient Temperature**

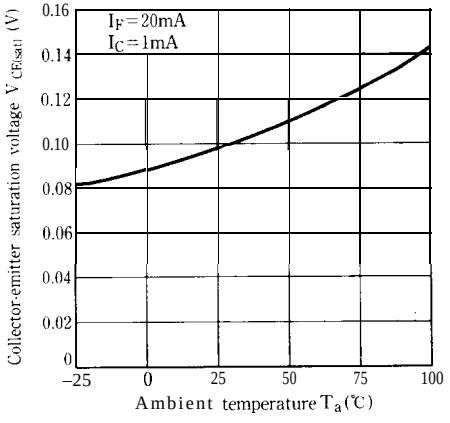


Fig. 9 Collector Dark Current vs. Ambient Temperature

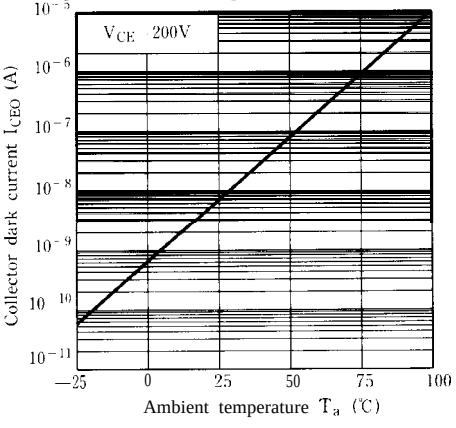
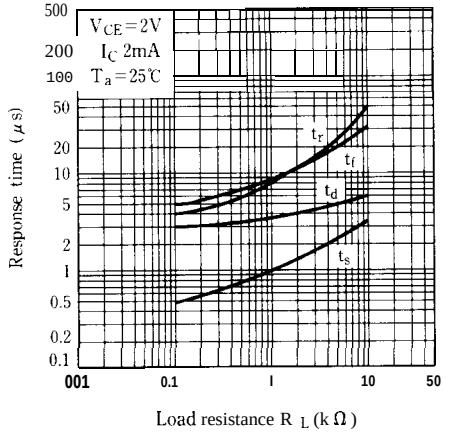


Fig.10 Response Time vs. Load Resistance



6 Photocouplers

Test Circuit for Response Time

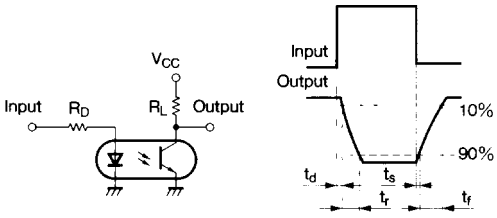


Fig.11 Frequency Response

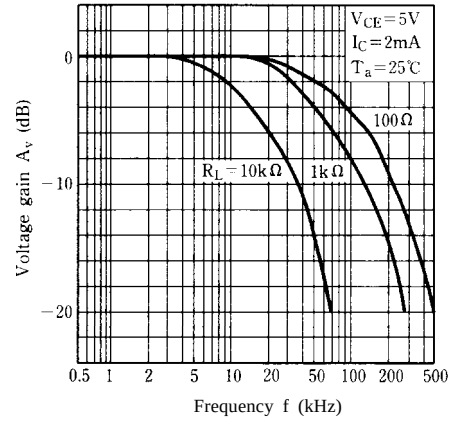
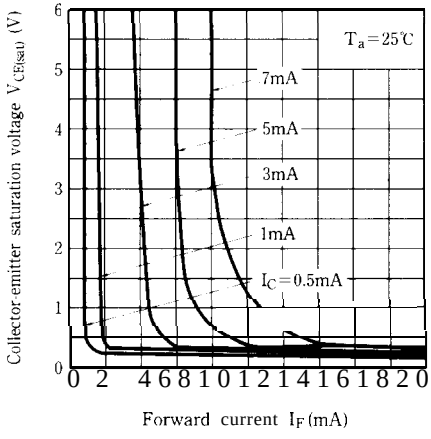
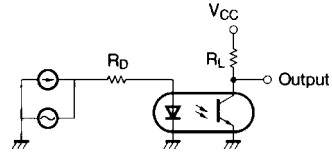


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frepuency Response



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