PC100/PC101

Long Creepage Distance Type Photocoupler

※ DIN-VDE0884 approved type is also available as an option.

■ Features

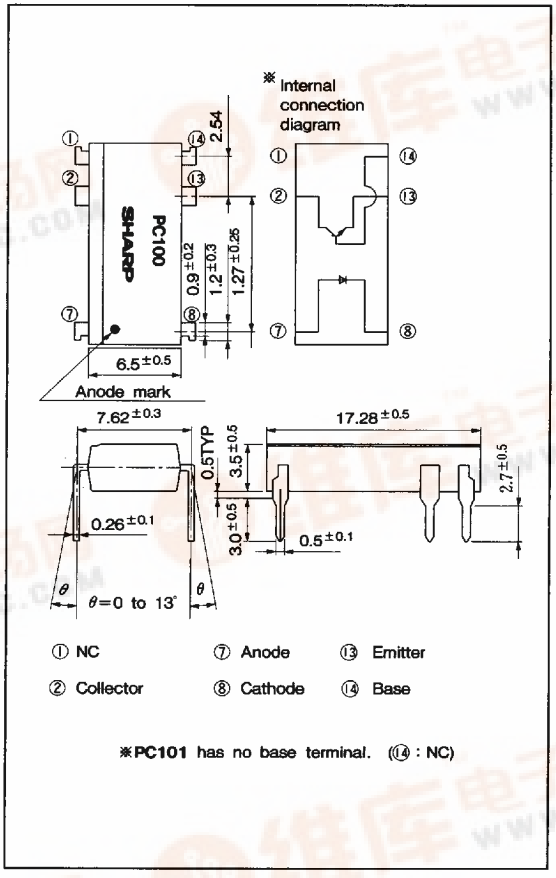
1. Long creepage distance type (Creepage distance : 8mm or more)*1
2. Internal insulation distance : 2mm or more
3. Recognized by UL, file No. E64380
   Approved by VDE (DIN-VDE0884 ; No. 77295)
   Approved by BSI
   (BS415 No. 6795, BS7002 : No. 7582)
   Approved by SEMKO
   (**PC100** No. 8710014, **PC101** No. 8710015)
   Approved by EI
   (**PC100** No. 099445-01, **PC101** No. 099446-01)
   Approved by DEMKO (No. 84859)
4. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
5. Dual-in-line package

*1 Allows pin-to-pin distance minus PWB land space to be 8mm or more.

■ Applications

1. Switching power supplies
2. Home appliances and OA equipment for export to Europe
3. System appliances, measuring instruments

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*2Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	*3Collector-base voltage	V_{CBO}	35	V
	*3Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	200	mW
*4Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	−30 to +100	℃
Storage temperature		T_{stg}	−55 to +125	℃
*5Soldering temperature		T_{sol}	260	℃

*2 Pulse width≦100 μs, Duty ratio=0.001
*3 Applies only to **PC100**.
*4 40 to 60%RH, AC for 1 minute
*5 For 10 seconds

■ Electro-optical Characteristics (Ta=25℃)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=10mA	−	1.2	1.4	V
	Peak forward voltage		V_{FM}	I_{FM}=0.5A	−	−	3.0	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}=20V, I_F=0, *6R_{BE}=∞	−	−	10^{-7}	A
Transfer characteristics	Current transfer ratio		CTR	I_F=10mA, V_{CE}=5V, *6R_{BE}=∞	25	60	180	%
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=1mA, *6R_{BE}=∞	−	0.1	0.3	V
	Isolation resistance		R_{ISO}	DC500, 40 to 60%RH	5×10^{10}	10^{12}	−	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, *6R_{BE}=∞, −3dB	−	40	−	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA	−	6	23	μs
		Fall time	t_f	R_L=100Ω, *6R_{BE}=∞	−	8	27	μs

*6 **PC100** only

Fig. 1 Forward Current vs. Ambient Temperature

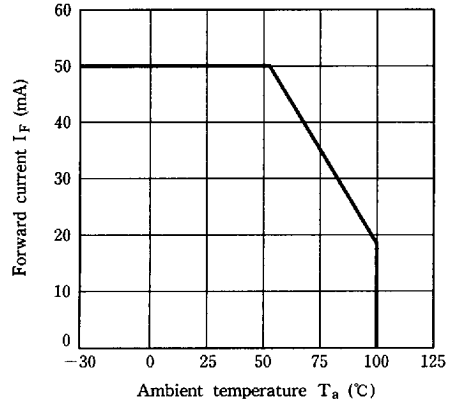


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

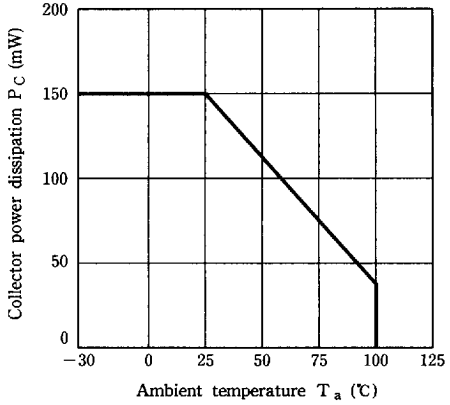


Fig. 3 Peak Forward Current vs. Duty Ratio

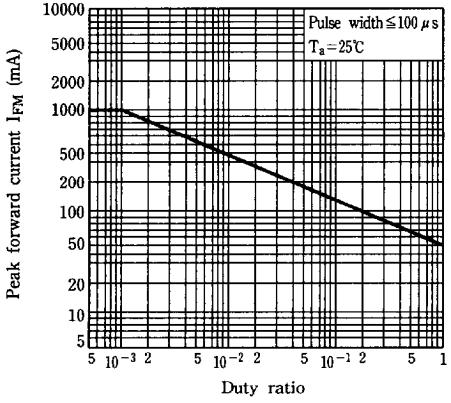


Fig. 4 Forward Current vs. Forward Voltage

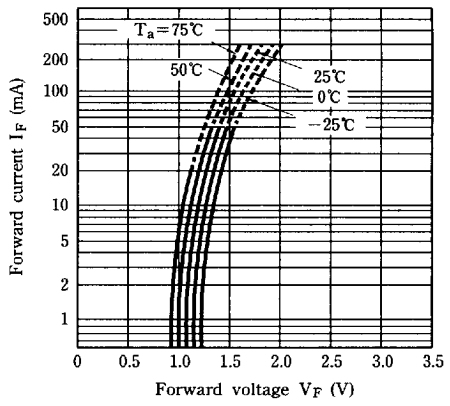


Fig. 5 Current Transfer Ratio vs. Forward Current

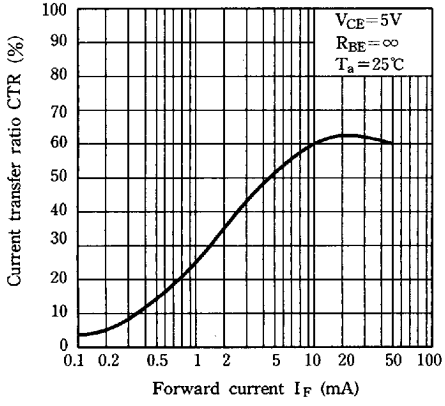


Fig. 6 Collector Current vs. Collector-emitter Voltage

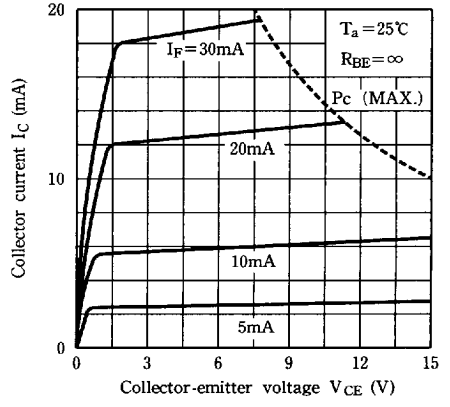


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

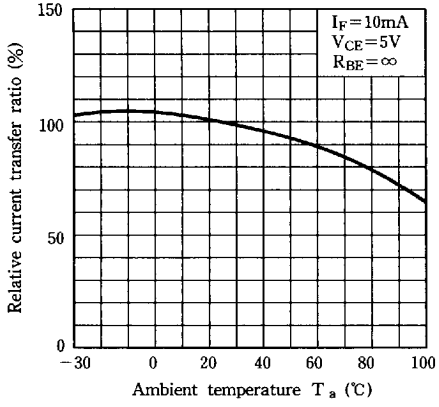


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

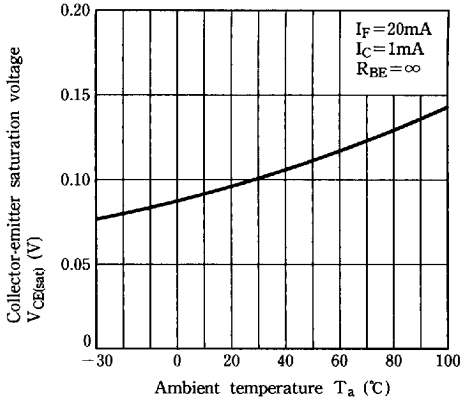


Fig. 9 Collector Dark Current vs. Ambient Temperature

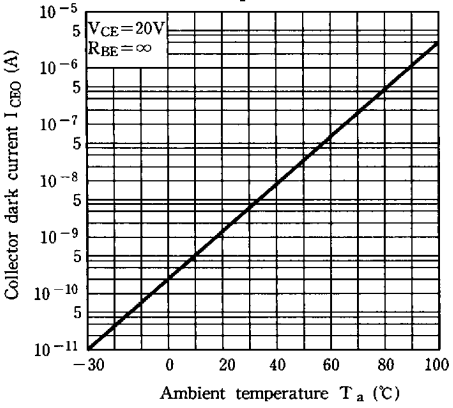


Fig.10 Response Time vs. Load Resistance

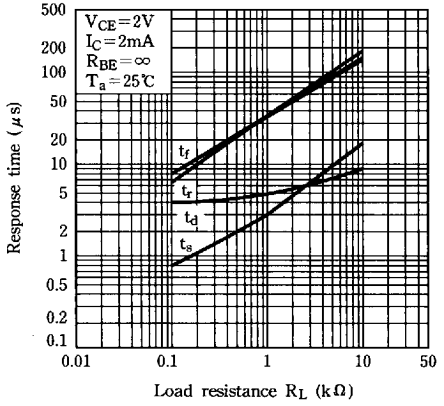
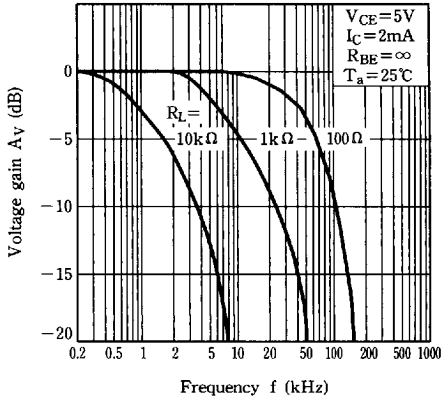
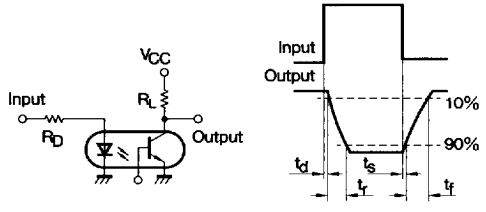


Fig.11 Frequency Response

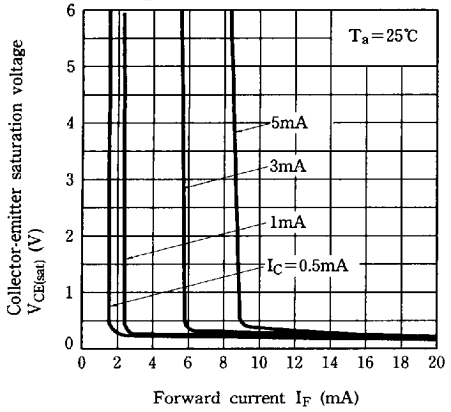


Test Circuit for Response Time

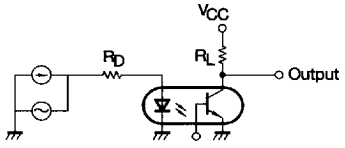


PC101 has no base terminal.

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



Test Circuit for Frequency Response



PC101 has no base terminal.

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