PC123/PC123F

European Safety Standard Approved Type Long Creepage Distance Photocoupler

※ DIN-VDE0884 approved type (**PC123Y/PC123FY**) is also available as an option.

■ Features

1. Conform to European Safetty Standard (Refer to page 38)
2. Internal isolation distance : 0.4mm or more
3. High collector-emitter voltage (V_{CEO} : 70V)
4. Long creepage distance type
5. Recognized by UL, file No. E64380
   Approved by VDE (DIN-VDE83601)
   Approved by BSI
   (BS415 No. 7087, BS7002 No. 7409)
   Approved by SEMCO (No. 9216212)
   Approved by DEMCO (No. 108954)
   Approved by EI (No. 155030)

	Creepage distance	Space distance
PC123	6.4mm or more	6.4mm or more
PC123F	8mm or more	8mm or more

■ Applications

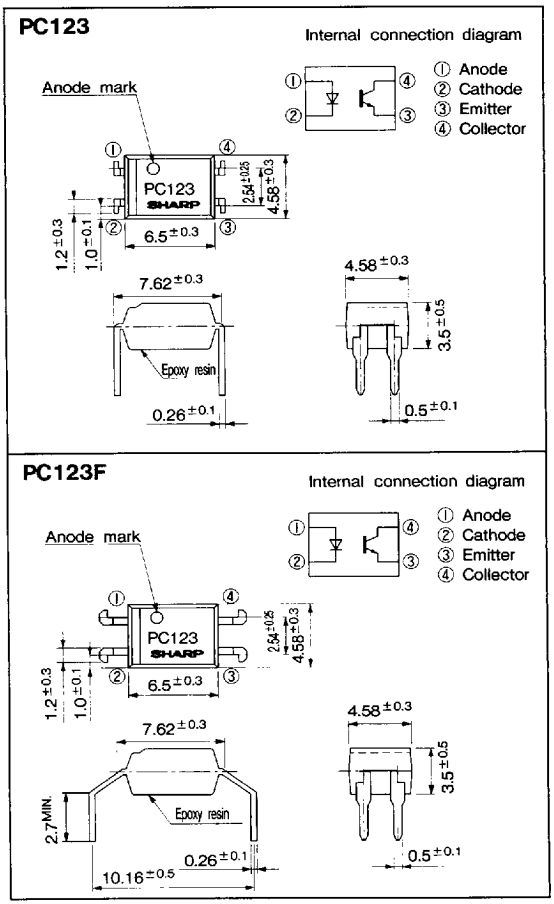
1. Power supplies
2. OA equipment

■ Absolute Maximum Ratings (Ta = 25℃)

	Parameter	Symbol	Ratings	Unit
Input	Forward current	I_F	50	mA
	*1Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	70	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
	*2Isolation voltage	V_{iso}	5	kV_{rms}
	Operating temperature	T_{opr}	−30 to +100	℃
	Storage temperature	T_{stg}	−55 to +125	℃
	*3Soldering temperature	T_{sol}	260	℃

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

■ Outline Dimensions (Unit : mm)



6 Photocouplers

■ 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}=50V, I_F=0	–	–	100	nA
	Collector-emitter breakdown voltage		BV_{CEO}	I_C=0.1mA, I_F=0	70	–	–	V
	Emitter-collector breakdown voltage		BV_{ECO}	I_E=10μA, I_F=0	6	–	–	V
Transfer characte-risitics	Collector current		I_C	I_F=5mA, V_{CE}=5V	2.5	–	20	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=1mA	–	0.1	0.2	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}=5V, I_C=2mA R_L=100Ω, −3dB	–	80	–	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA	–	4	18	μs
		Fall time	t_f	R_L=100Ω	–	3	18	μs

Fig. 1 Forward Current vs. Ambient Temperature

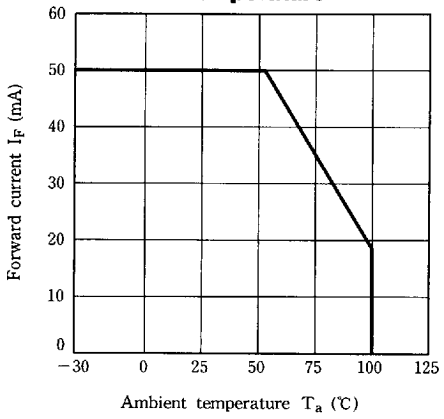


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

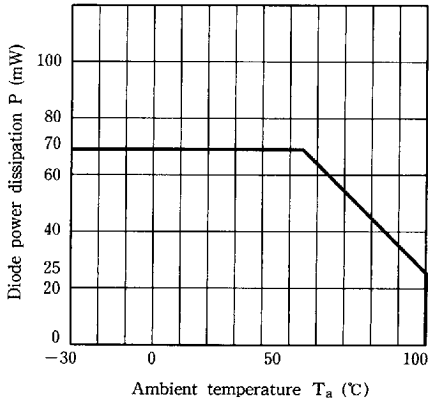


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

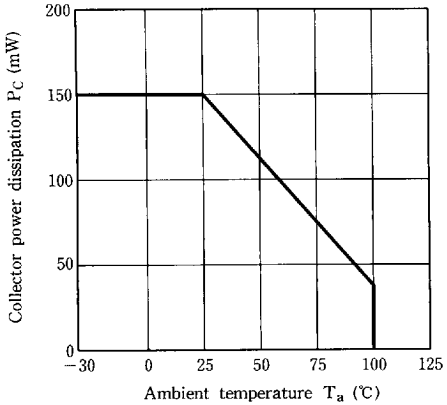


Fig. 4 Power Dissipation vs. Ambient Temperature

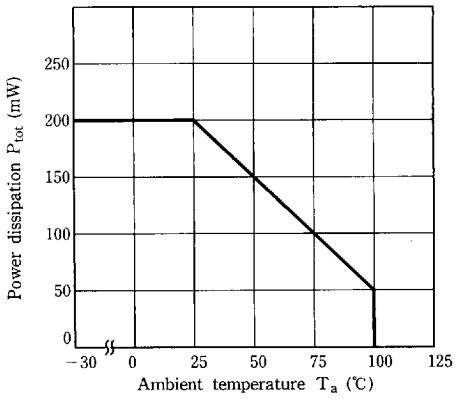


Fig. 5 Peak Forward Current vs. Duty Ratio

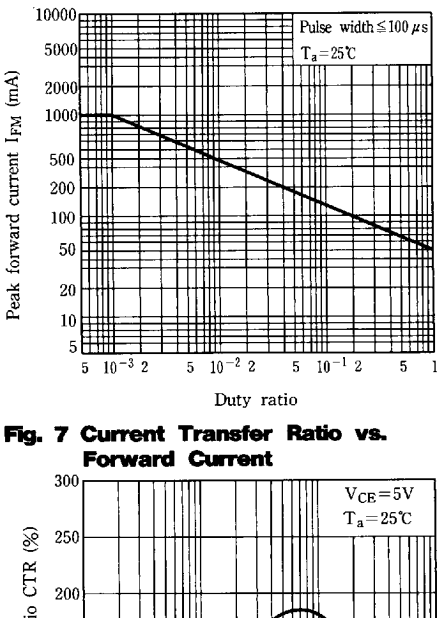


Fig. 6 Forward Current vs. Forward Voltage

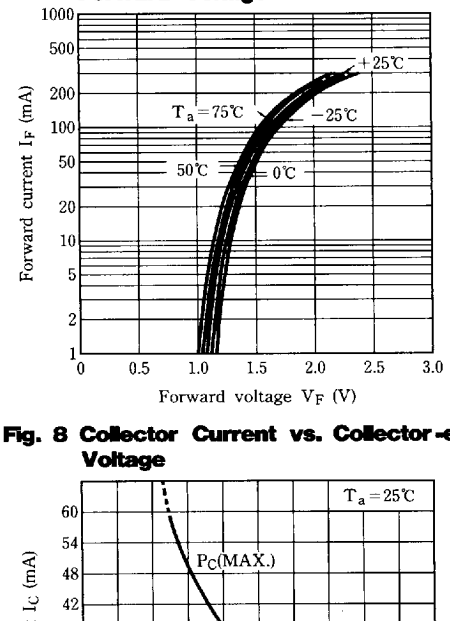


Fig. 7 Current Transfer Ratio vs. Forward Current

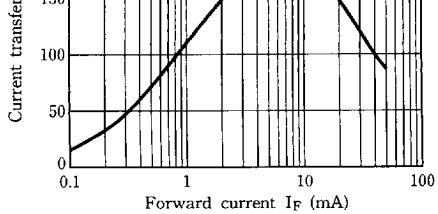


Fig. 8 Collector Current vs. Collector-emitter Voltage

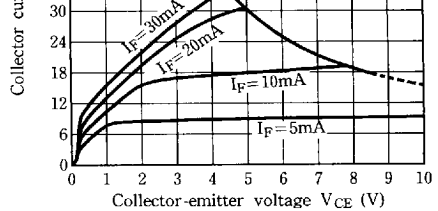


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

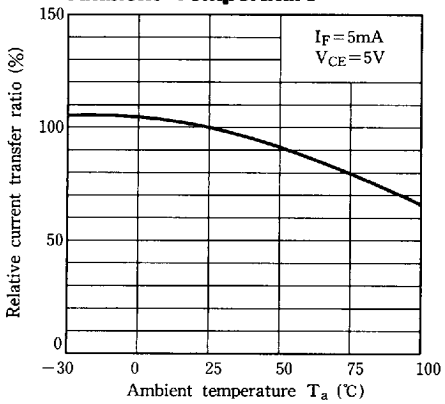


Fig.10 Collector-emitter Saturation Voltage vs. Ambient temperature

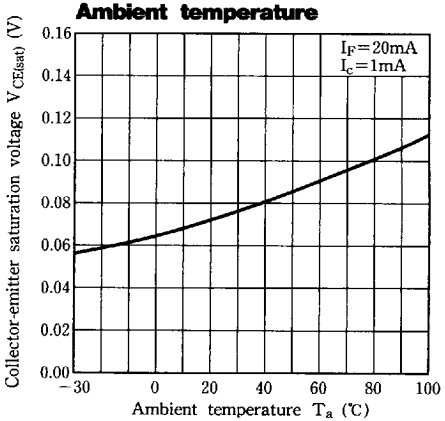


Fig.11 Collector Dark Current vs. Ambient Temperature

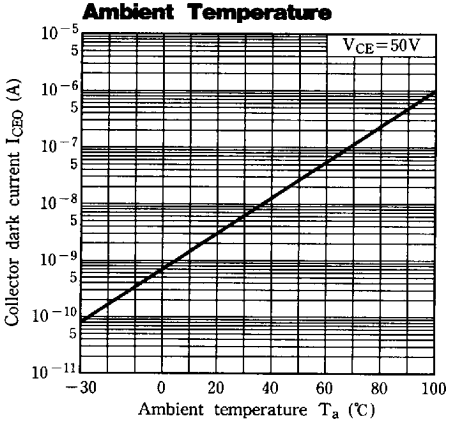


Fig.12 Response Time vs. Load Resistance

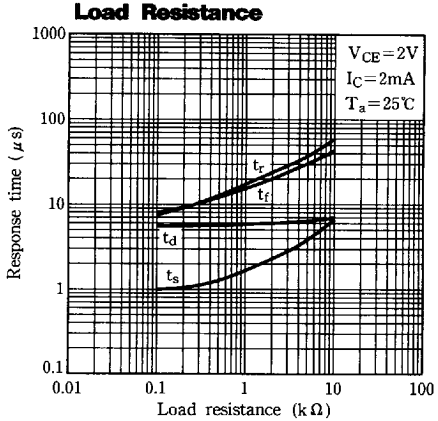


Fig.13 Frequency Response

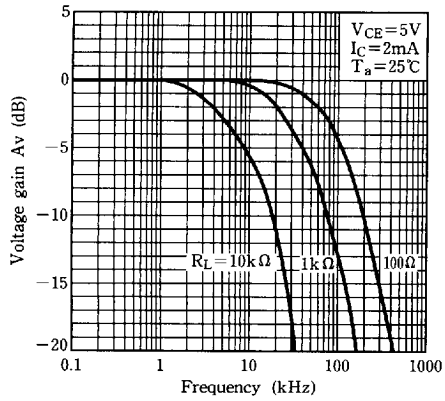
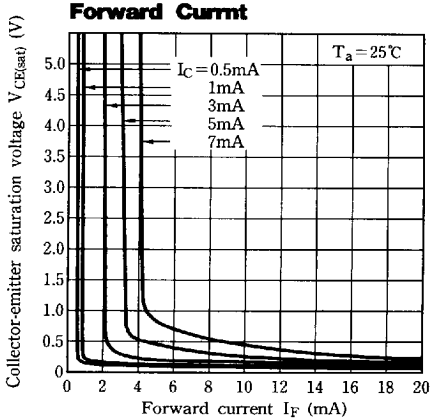


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current



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