

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 Safety 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 ($T_a = 25^\circ\text{C}$)

	Parameter	Symbol	Ratings	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}	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
	Isolation voltage	V_{iso}	5	kV _{rms}
	Operating temperature	T_{opr}	-30 to +100	°C
	Storage temperature	T_{stg}	-55 to +175	°C
	*3 Soldering temperature	T_{sld}	260	°C

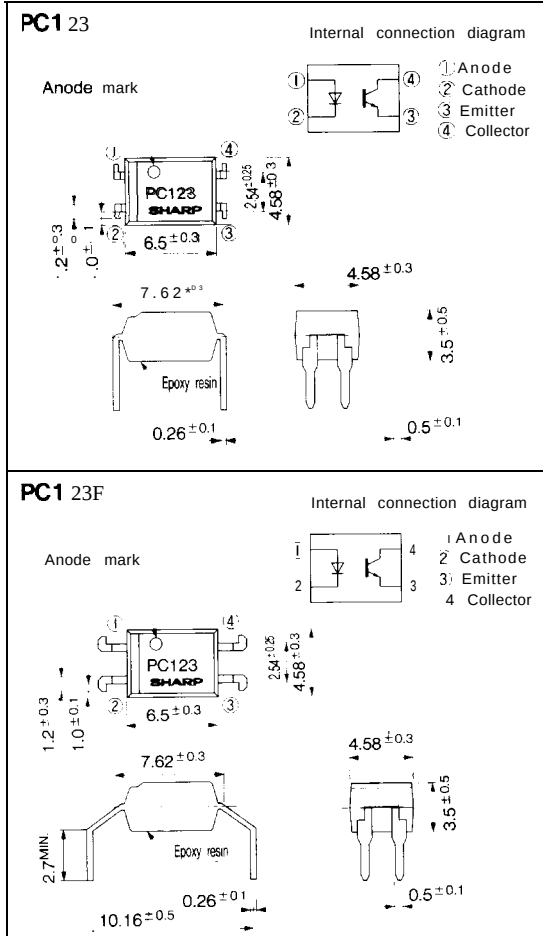
*1 Pulse width $\leq 100 \mu\text{s}$, Duty ratio : 0.001

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

*3 For 10 seconds

■ 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 = 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 = ()			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 = 10 μA, I _F = 0	6		—	V
Transfer characteristics	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 = 100 Ω, -3dB	—	80	—	kHz
Response time		Rise time	V _{CE} = 2V, I _C = 2mA R _L = 100 Ω	—	4	18	μs
		Fall time		—	3	18	μs

Fig. 1 Forward Current vs. Ambient Temperature

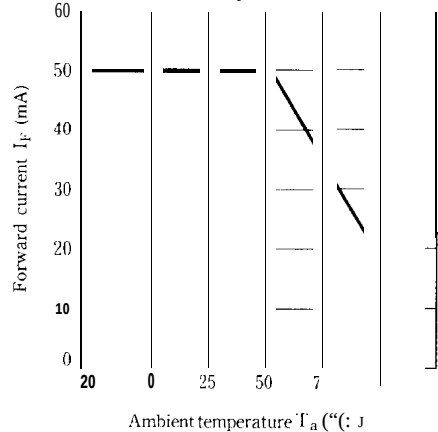


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

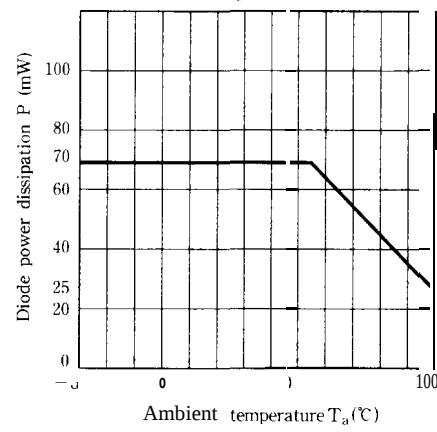


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

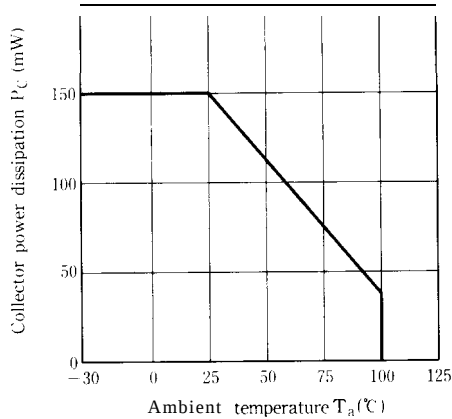


Fig. 5 Peak Forward Current vs. Duty Ratio

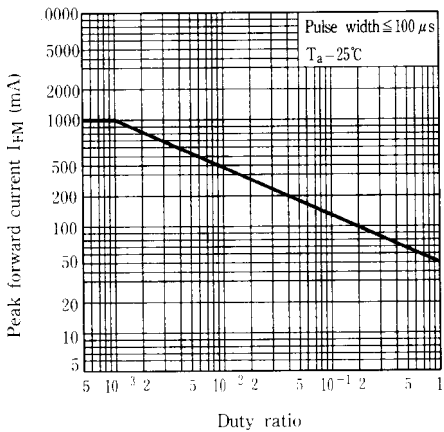


Fig. 7 Current Transfer Ratio vs. Forward Current

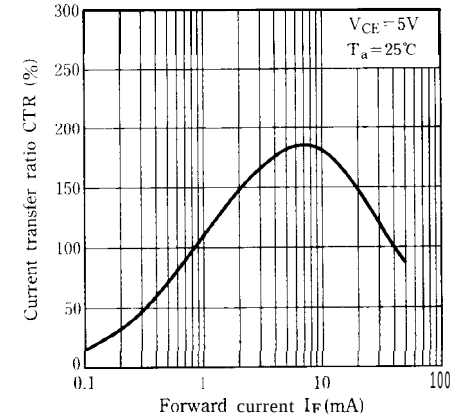


Fig. 4 Power Dissipation vs. Ambient Temperature

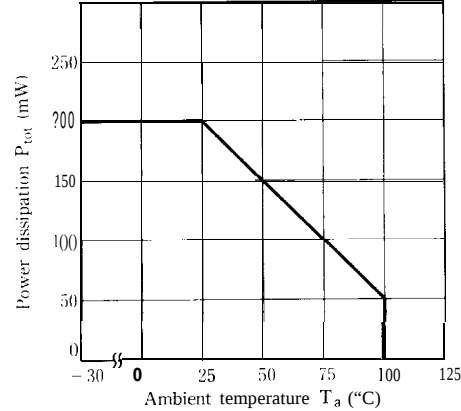


Fig. 6 Forward Current vs. Forward Voltage

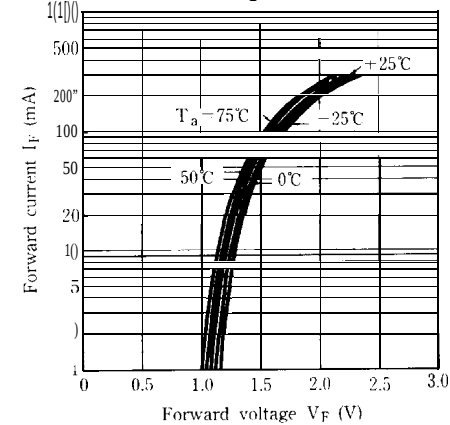


Fig. 8 Collector Current vs. Collector-emitter voltage

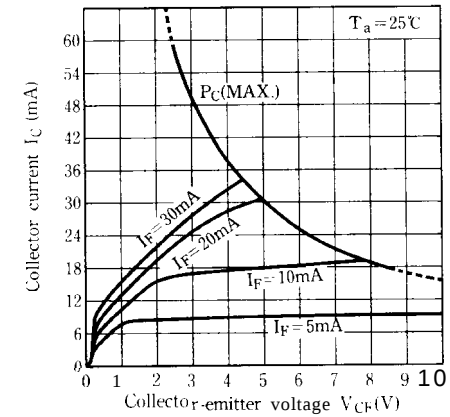
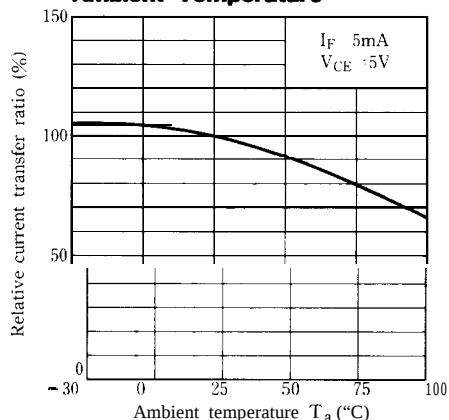
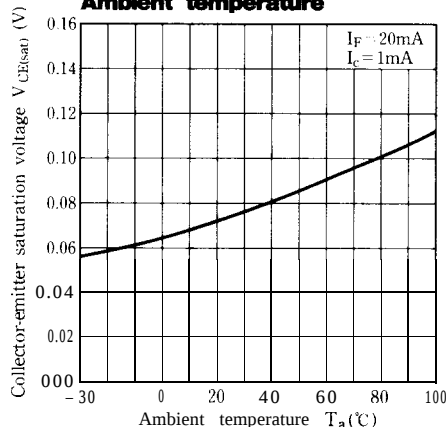
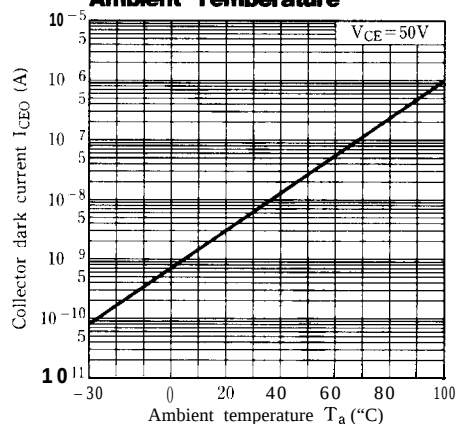
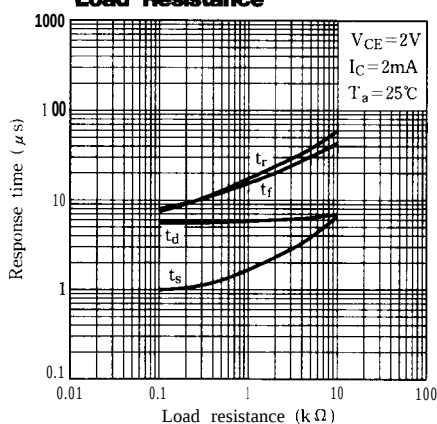
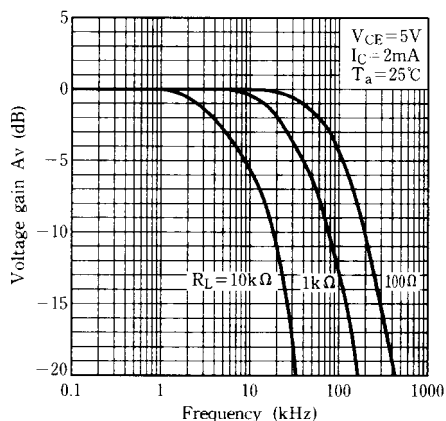
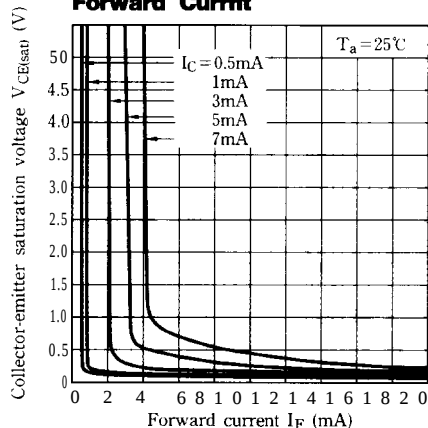


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature**Fig.10 Collector-emitter Saturation Voltage vs. Ambient temperature****Fig.11 Collector Dark Current vs. Ambient Temperature****Fig.12 Response Time vs. Load Resistance****Fig.13 Frequency Response****Fig.14 Collector-emitter Saturation Voltage vs. Forward Current**

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