

PC123/PC123F

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

■ Features

1. Conform to European Safety Standard
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 (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)
Recognized by CSA (No. CA95323)

■ Model Line-up

Model No.	*Creepage distance	*Clearance distance
PC123	6.4mm or more	6.4mm or more
PC123F	8mm or more	8mm or more

* Between input and output

■ Applications

1. Power supplies
2. OA equipment

■ Absolute Maximum Ratings

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

	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}	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
	*2 Isolation voltage	$V_{iso (rms)}$	5	kV
	Operating temperature	T_{opr}	-30 to +100	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$
	*3 Soldering temperature	T_{sol}	260	$^\circ\text{C}$

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

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

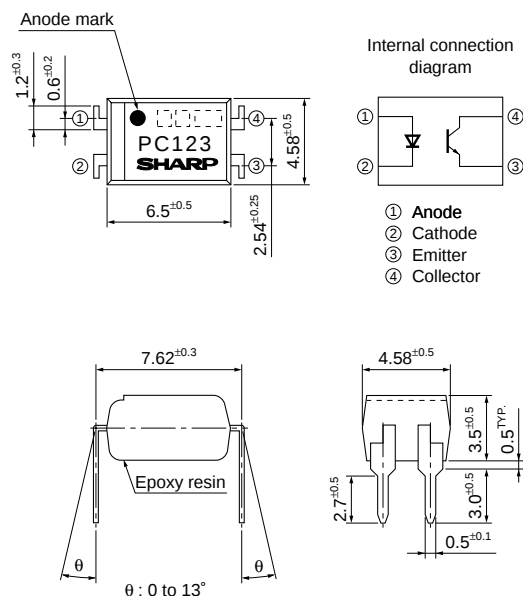
*3 For 10s

European Safety Standard Approved Type Long Creepage Distance Photocoupler

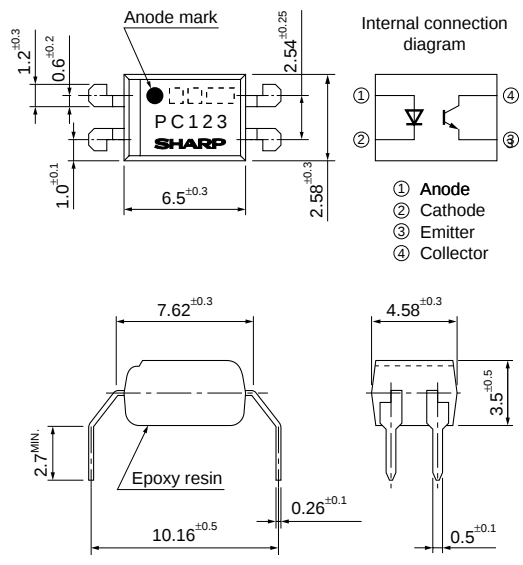
■ Outline Dimensions

(Unit : mm)

PC123



PC123F



■ 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 =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 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 =100Ω, -3dB	—	80	—	kHz
	Response time	Rise time	V _{CE} =2V, I _C =2mA, R _L =100Ω	—	4	18	μs
		Fall time		—	3	18	μs

■ Rank Table

(I_F=5mA, V_{CE}=5V, T_a=25°C)

Model No.	Rank mark	I _C (mA)
PC123 / PC123Y / PC123F / PC123FY	A, B, S or no mark	2.5 to 20.0
PC123A / PC123Y1 / PC123F1 / PC123FY1	A	2.5 to 7.5
PC123B / PC123Y2 / PC123F2 / PC123FY2	B	5.0 to 12.5
PC123C / PC123Y5 / PC123F5 / PC123FY5	no mark	10.0 to 20.0
PC123S / PC123YS / PC123FS / PC123FY8	S	5.0 to 10.0

Fig.1 Forward Current vs. Ambient Temperature

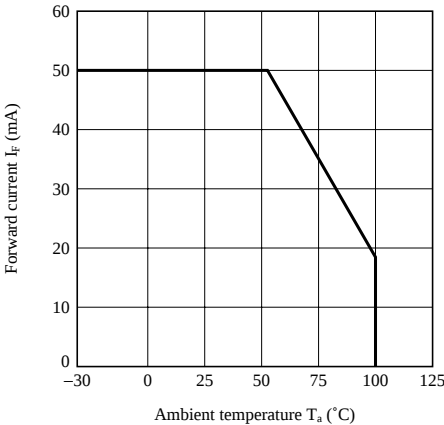


Fig.2 Diode Power Dissipation vs. Ambient Temperature

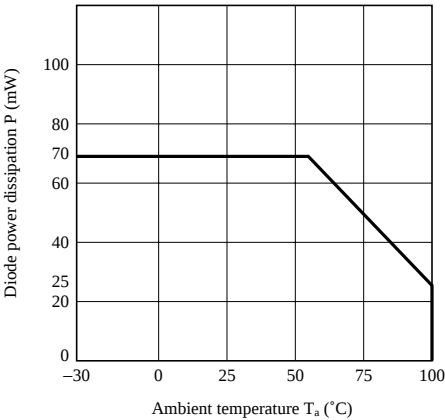


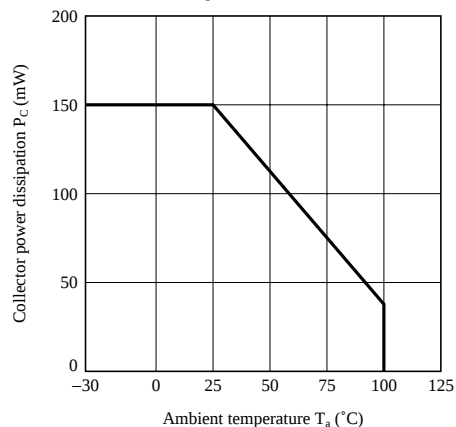
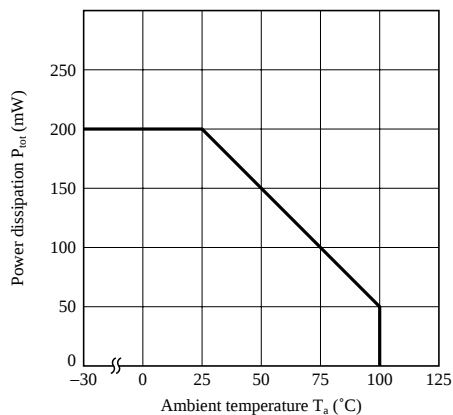
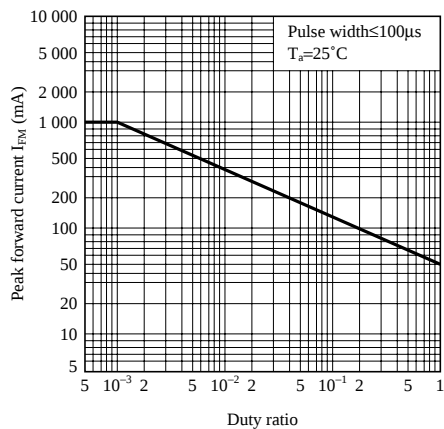
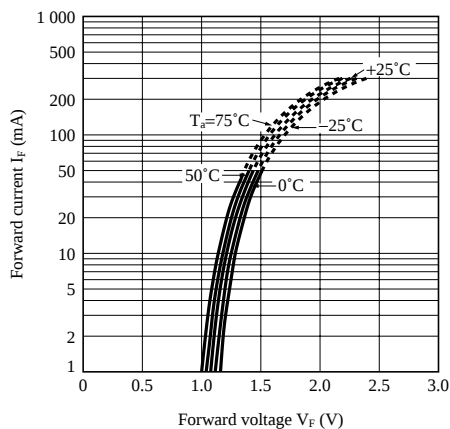
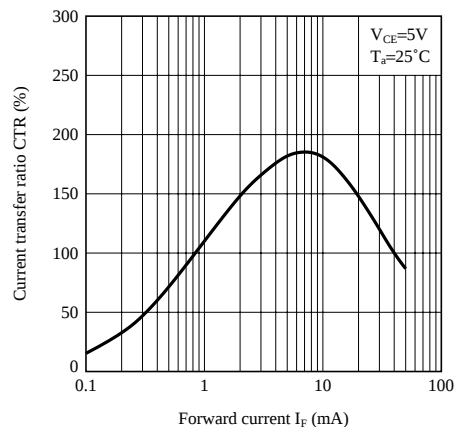
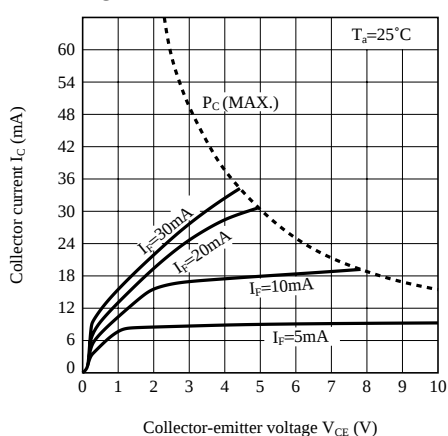
Fig.3 Collector Power Dissipation vs. Ambient Temperature**Fig.4 Power Dissipation vs. Ambient Temperature****Fig.5 Peak Forward Current vs. Duty Ratio****Fig.6 Forward Current vs. Forward Voltage****Fig.7 Current Transfer Ratio vs. Forward Current****Fig.8 Collector Current vs. Collector-emitter Voltage**

Fig.9 Relative Current Transfer Ratio vs. Ambient Temperature

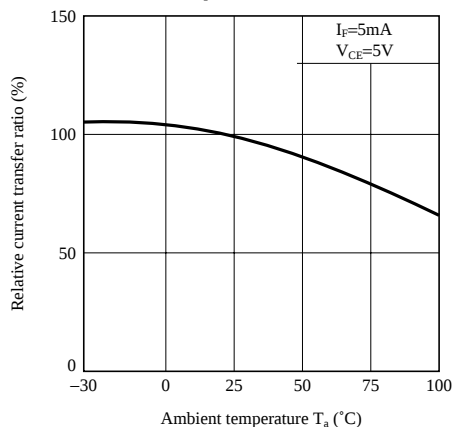


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

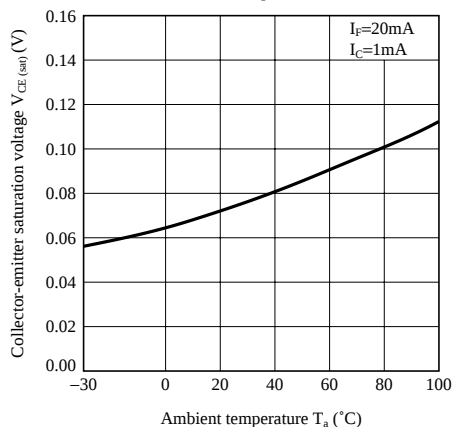


Fig.11 Collector Dark Current vs. Ambient Temperature

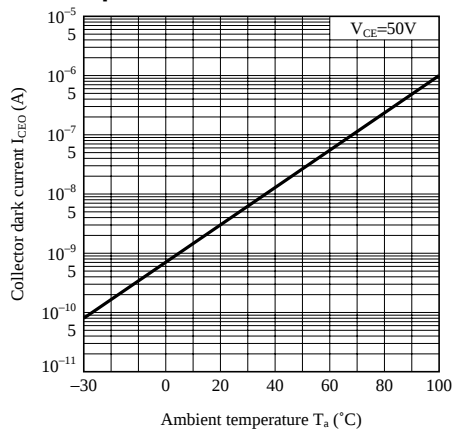


Fig.12 Response Time vs. Load Resistance

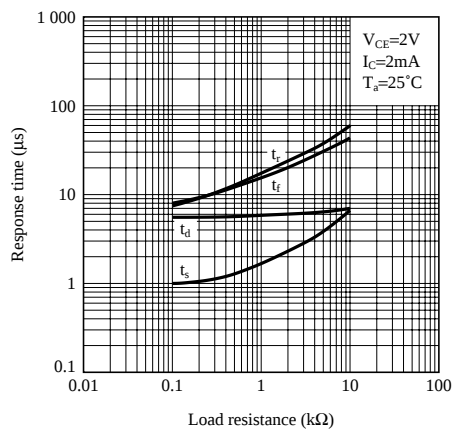


Fig.13 Frequency Response

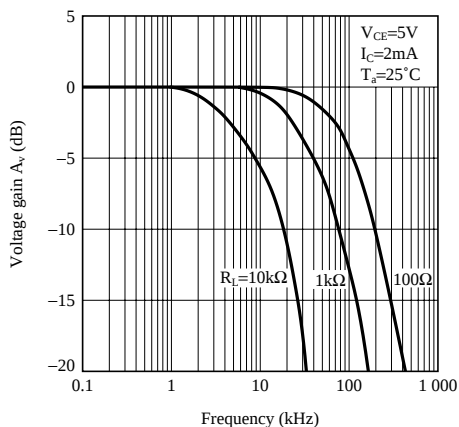


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current

