

PC733

AC Input Type Photocoupler

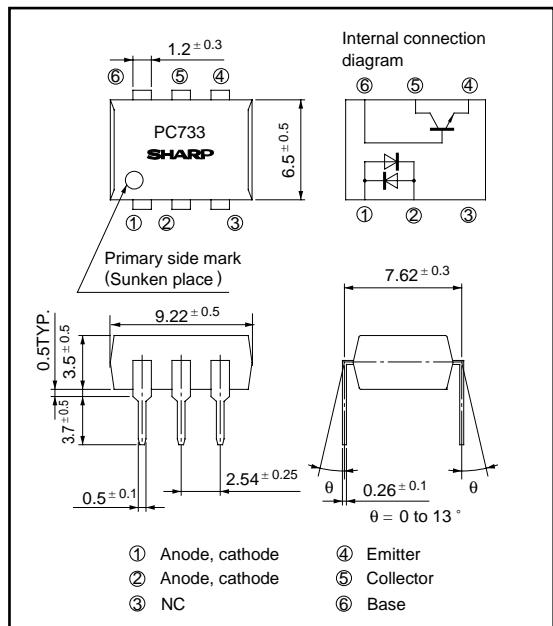
* Lead forming type (I type) is also available. (PC733I)

■ Features

1. AC input response
2. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
3. Current transfer ratio
CTR : MIN. 15% at $I_F = \pm 1\text{mA}$, $V_{CE} = 5\text{V}$
4. Low collector dark current
(I_{CEO} : MAX. 10^{-7}A at $V_{CE} = 20\text{V}$)
5. TTL compatible output
6. Recognized by UL, file No. E64380

■ Outline Dimensions

(Unit : mm)



■ Applications

1. Telephone sets
2. Programmable controllers
3. System appliances, measuring instruments
4. Signal transmission between circuits of different potentials and impedances

■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	± 50
	*1 Peak forward current	I _{FM}	± 1
	Power dissipation	P	70
Output	Collector-emitter voltage	V _{CEO}	35
	Emitter-collector voltage	V _{ECO}	6
	Collector-base voltage	V _{CBO}	35
	Emitter-base voltage	V _{EBO}	6
	Collector current	I _C	50
	Collector power dissipation	P _C	150
Total power dissipation		P _{tot}	mW
*2 Isolation voltage		V _{iso}	5 000 V _{rms}
Operating temperature		T _{opr}	- 25 to + 100 °C
Storage temperature		T _{stg}	- 40 to + 125 °C
*3 Soldering temperature		T _{sol}	260 °C

*1 Pulse width <= 100μs, Duty ratio : 0.001

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

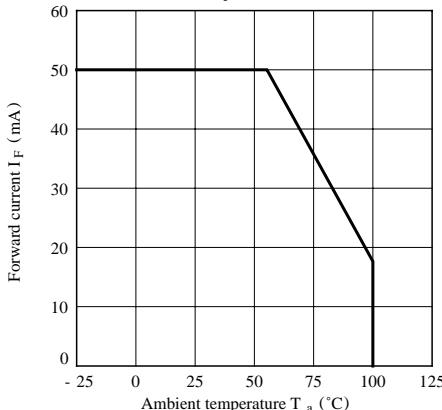
*3 For 10 seconds

■ Electro-optical Characteristics

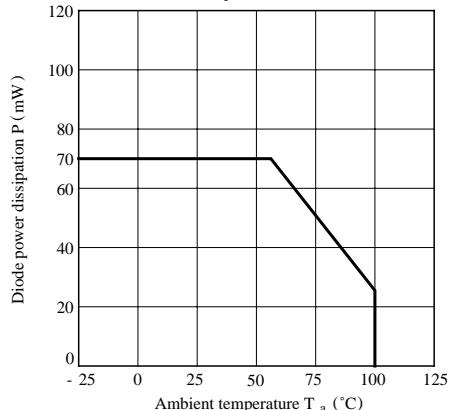
(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V _F	I _F = ± 20mA	-	1.2	1.4	V
	Peak forward voltage	V _{FM}	I _{FM} = ± 0.5A	-	-	3.0	V
	Terminal capacitance	C _t	V = 0, f = 1kHz	-	50	400	pF
Output	Collector dark current	I _{CEO}	V _{CE} = 20V, I _F = 0	-	-	10 ⁻⁷	A
Transfer characteristics	Current transfer ratio	CTR	I _F = ± 1mA, V _{CE} = 5V	15	-	300	%
	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 x 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	15	80	-	kHz
	Response time	t _r	V _{CE} = 2V, I _C = 2mA	-	4	18	μs
	Fall time	t _f	R _L = 100Ω	-	3	18	μs

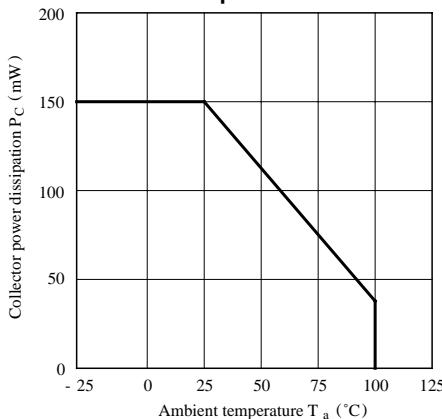
**Fig. 1 Forward Current vs.
Ambient Temperature**



**Fig. 2 Diode Power Dissipation vs.
Ambient Temperature**



**Fig. 3 Collector Power Dissipation VS.
Ambient Temperature**



**Fig. 4 Power Dissipation vs.
Ambient Temperature**

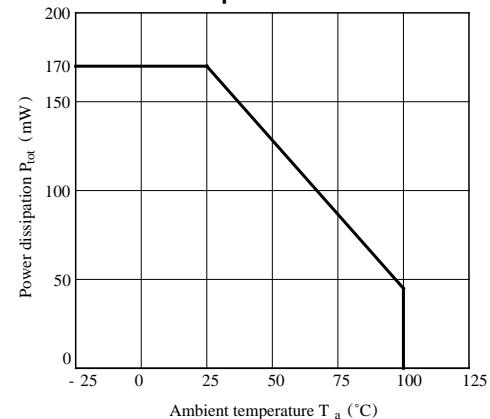


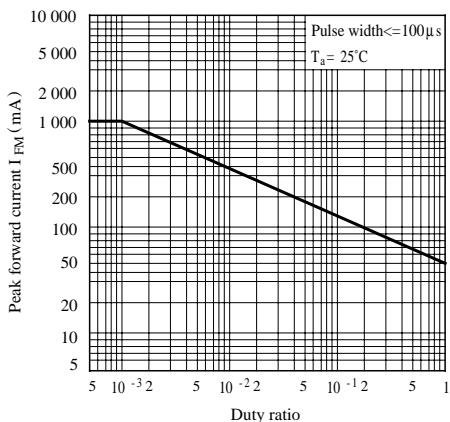
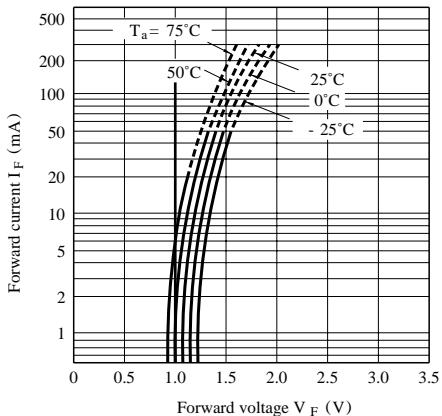
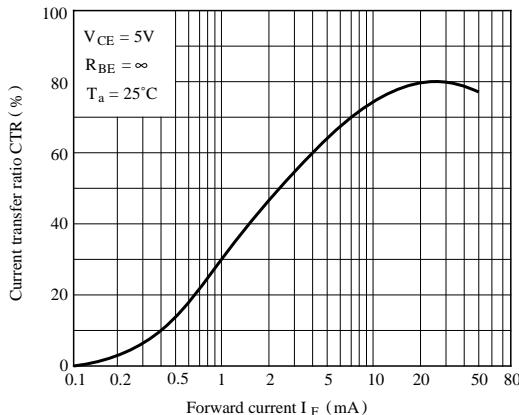
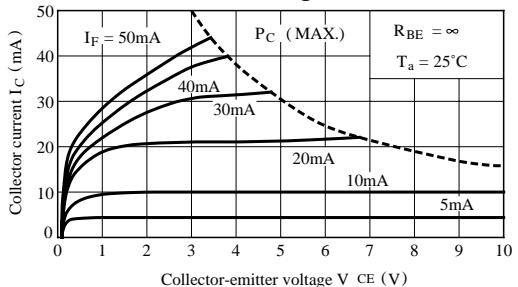
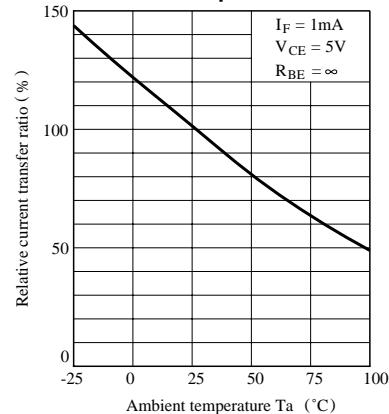
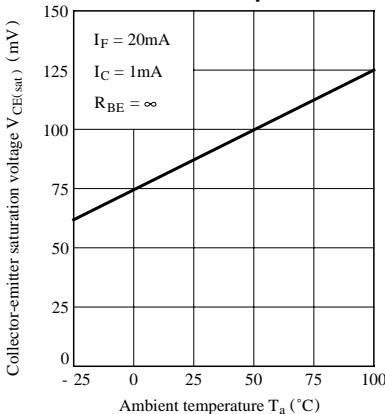
Fig. 5 Peak Forward Current vs. Duty Ratio**Fig. 6 Forward Current vs. Forward Voltage****Fig. 7 Current Transfer Ratio vs. Forward Current****Fig. 8 Collector Current vs. Collector-emitter Voltage****Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature****Fig. 10 Collector-emitter Saturation Voltage vs. Ambient Temperature**

Fig.11-a Collector Dark Current vs. Ambient Temperature

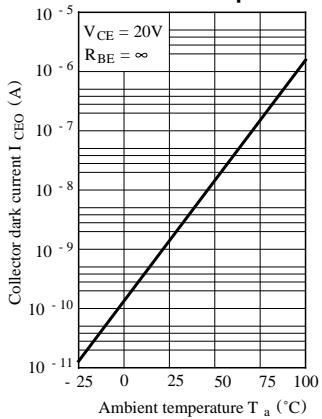


Fig.11-b Collector-base Dark Current vs. Ambient Temperature

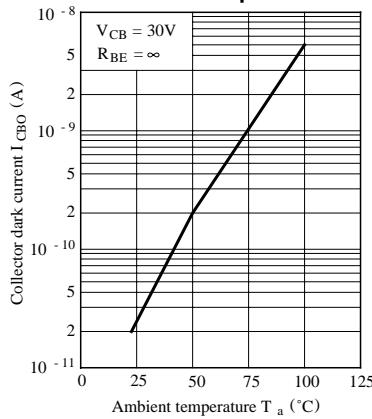


Fig.12 Response Time vs. Load Resistance

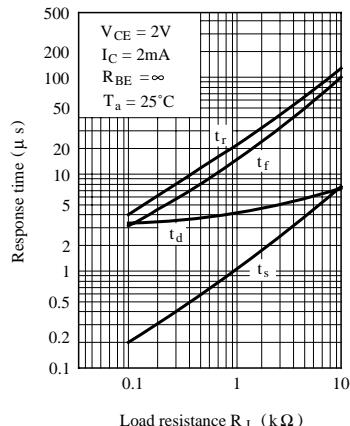
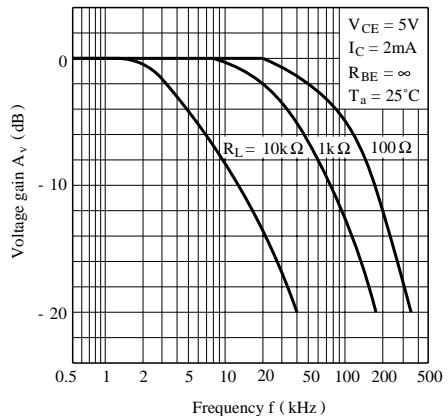
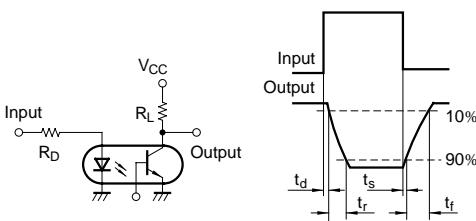


Fig.13 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

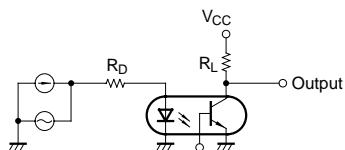
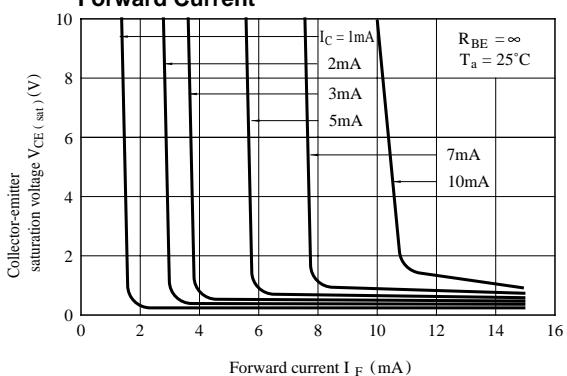


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter "Precautions for Use".