

PC733

AC Input Type Photocoupler

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

■ Features

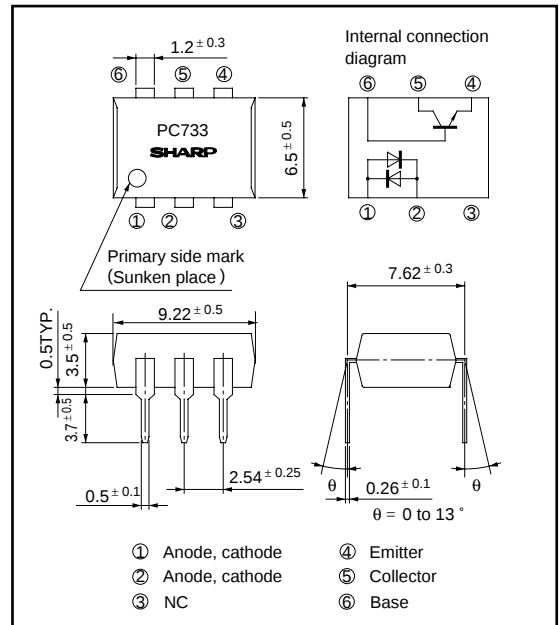
1. AC input response
2. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
3. Current transfer ratio
CTR : MIN. 15% at $I_F = \pm 1\text{mA}$, $V_{CE} = 5\text{V}$
4. Low collector dark current
(I_{CEO} : MAX. 10^{-7}A at $V_{CE} = 20\text{V}$)
5. TTL compatible output
6. Recognized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

■ Applications

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

■ Outline Dimensions

(Unit : mm)



■ 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
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector-base voltage	V_{CBO}	35	V
	Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
	Total power dissipation	P_{tot}	170	mW
*2 Isolation voltage		V_{iso}	5 000	V _{rms}
Operating temperature		T_{opr}	- 25 to + 100	$^\circ\text{C}$
Storage temperature		T_{sig}	- 40 to + 125	$^\circ\text{C}$
*3 Soldering temperature		T_{sol}	260	$^\circ\text{C}$

*1 Pulse width $\leq 100\mu\text{s}$, 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	$I_F = \pm 20\text{mA}$	-	1.2	1.4	V
	Peak forward voltage	V_{FM}	$I_{FM} = \pm 0.5\text{A}$	-	-	3.0	V
	Terminal capacitance	C_t	$V = 0, f = 1\text{kHz}$	-	50	400	pF
Output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}, I_F = 0$	-	-	10^{-7}	A
Transfer characteristics	Current transfer ratio	CTR	$I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$	15	-	300	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = \pm 20\text{mA}, I_C = 1\text{mA}$	-	0.1	0.2	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	f_C	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	15	80	-	kHz
	Response time	Rise time	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	4	18	μs
		Fall time		-	3	18	μs

Fig. 1 Forward Current vs. Ambient Temperature

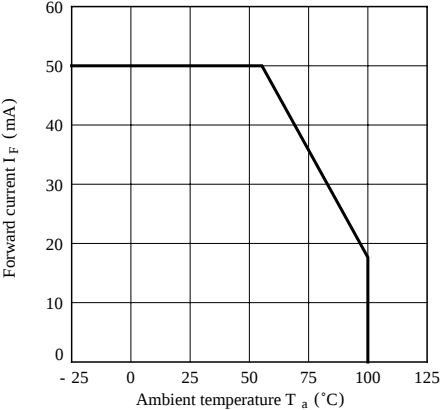


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

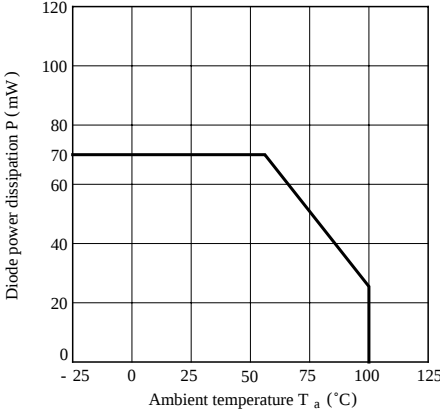


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

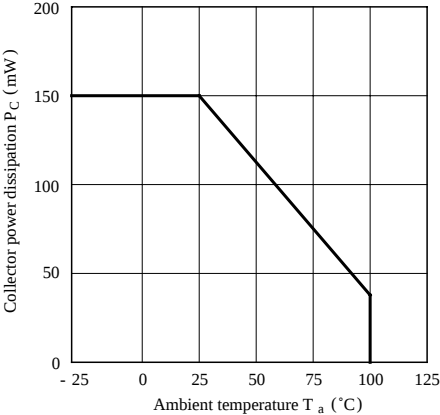


Fig. 4 Power Dissipation vs. Ambient Temperature

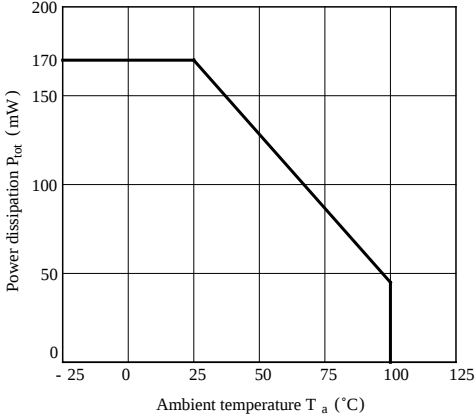


Fig. 5 Peak Forward Current vs. Duty Ratio

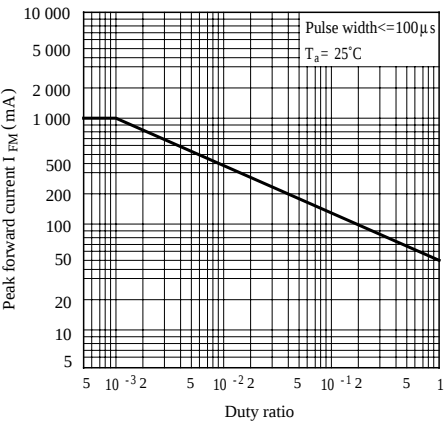


Fig. 6 Forward Current vs. Forward Voltage

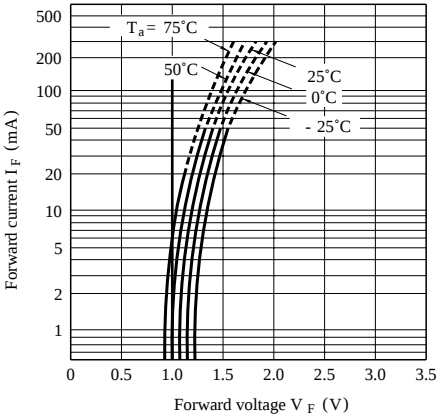


Fig. 7 Current Transfer Ratio vs. Forward Current

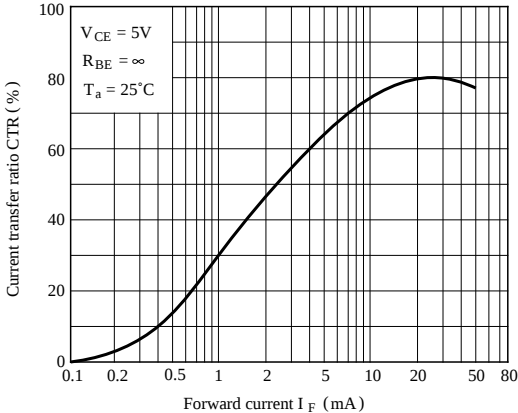


Fig. 8 Collector Current vs. Collector-emitter Voltage

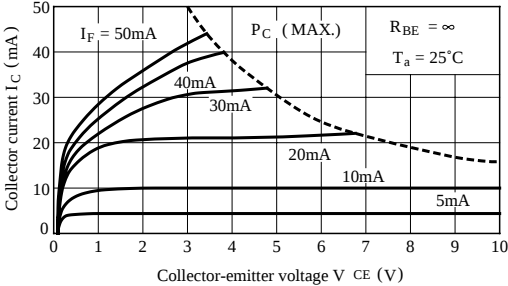


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

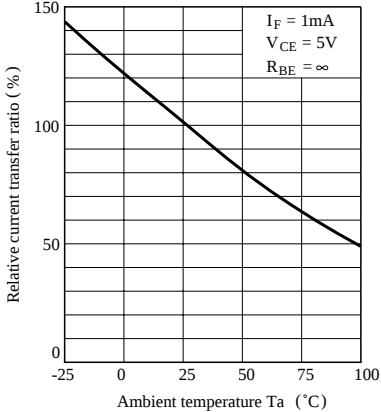


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

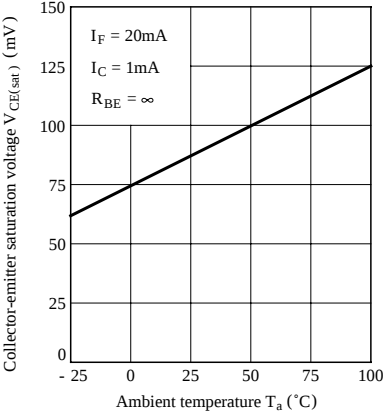


Fig.11-a Collector Dark Current vs. Ambient Temperature

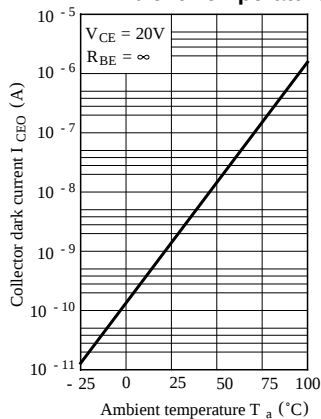


Fig.11-b Collector-base Dark Current vs. Ambient Temperature

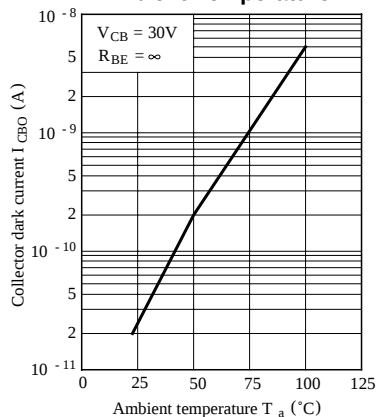
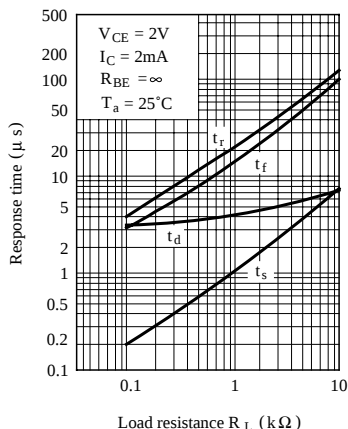
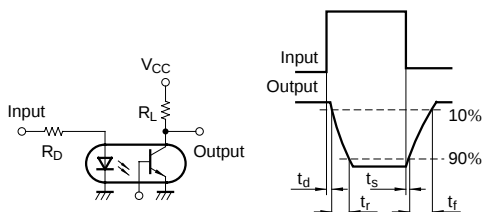


Fig.12 Response Time vs. Load Resistance



Test Circuit for Response Time



Test Circuit for Frequency Response

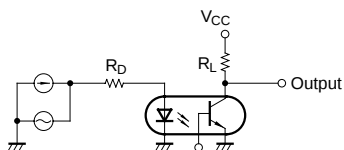


Fig.13 Frequency Response

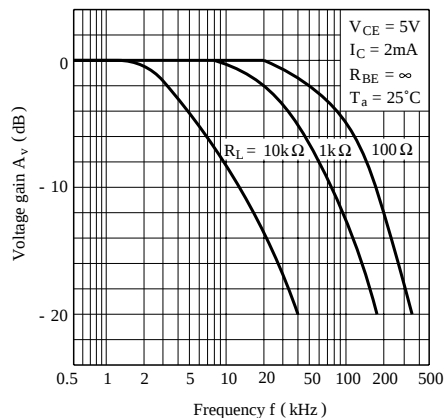
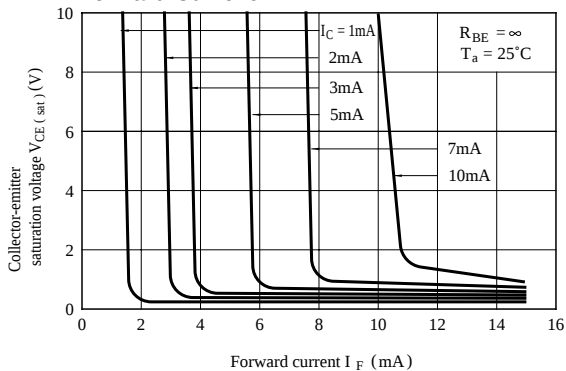


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current



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