

PC733

AC Input Type Photocoupler

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

Features

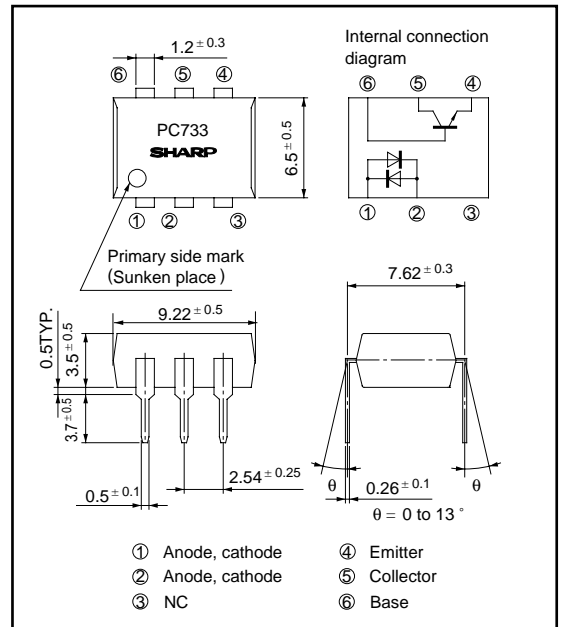
1. AC input response
2. High isolation voltage between input and output ($V_{iso} : 5\,000V_{rms}$)
3. Current transfer ratio
CTR : MIN. 15% at $I_F = \pm 1mA$, $V_{CE} = 5V$
4. Low collector dark current
($I_{CEO} : MAX. 10^{-7}A$ at $V_{CE} = 20V$)
5. TTL compatible output
6. Recognized by UL, file 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

($T_a = 25^\circ C$)

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	Vrms	
Operating temperature	T_{opr}	- 25 to + 100	$^\circ C$	
Storage temperature	T_{stg}	- 40 to + 125	$^\circ C$	
*3 Soldering temperature	T_{sol}	260	$^\circ C$	

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

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

*3 For 10 seconds

Electro-optical Characteristics

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

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	Response time	f_c	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	15	80	-	kHz
					t_r	t_f	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-
$R_L = 100\Omega$	-	3	18	μs				

Fig. 1 Forward Current vs. Ambient Temperature

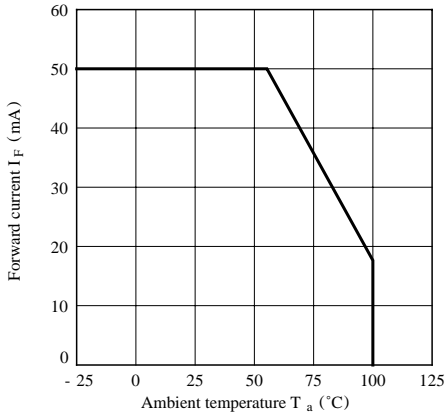


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

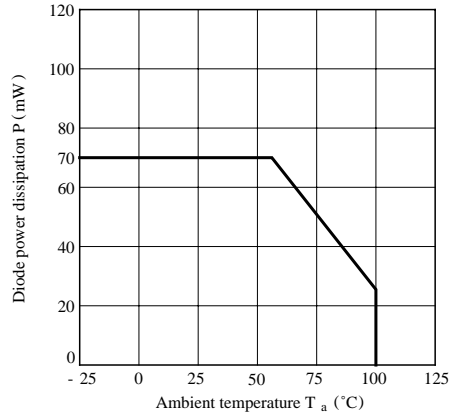


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

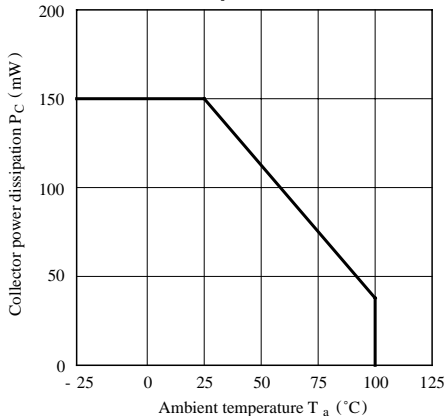


Fig. 4 Power Dissipation vs. Ambient Temperature

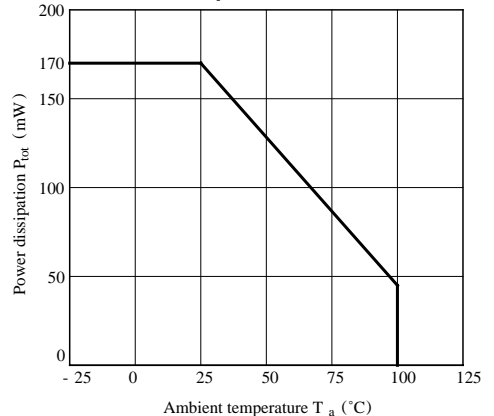


Fig. 5 Peak Forward Current vs. Duty Ratio

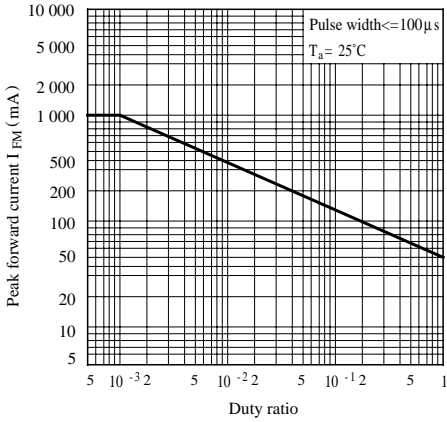


Fig. 6 Forward Current vs. Forward Voltage

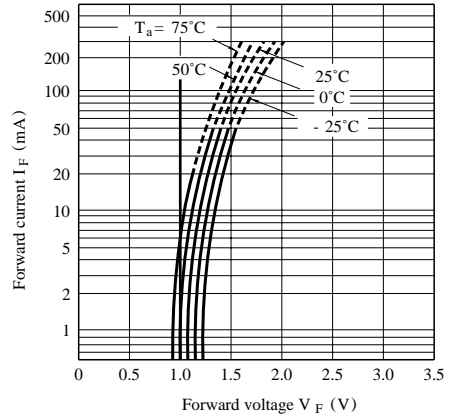


Fig. 7 Current Transfer Ratio vs. Forward Current

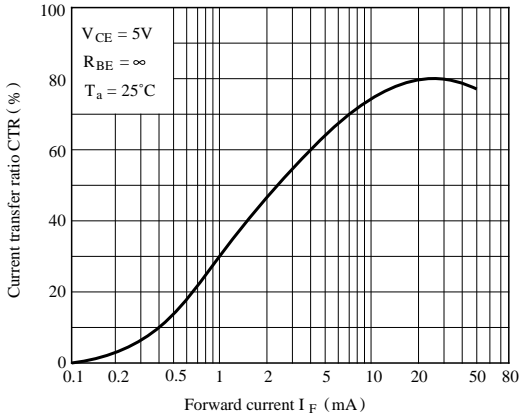


Fig. 8 Collector Current vs. Collector-emitter Voltage

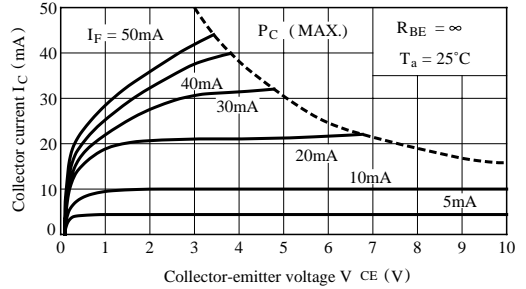


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

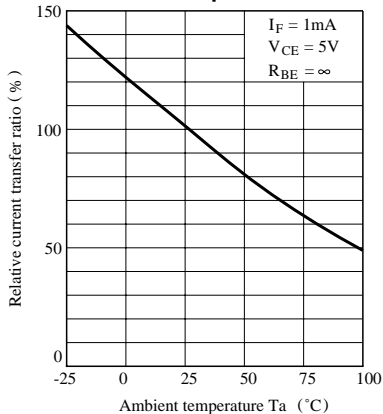


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

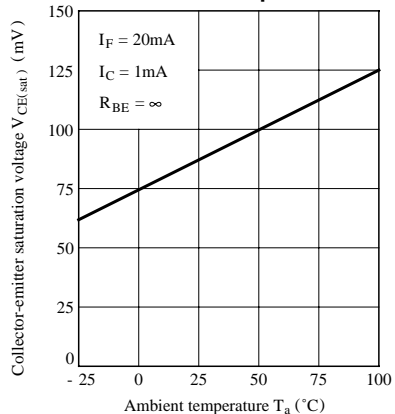


Fig.11-a Collector Dark Current vs. Ambient Temperature

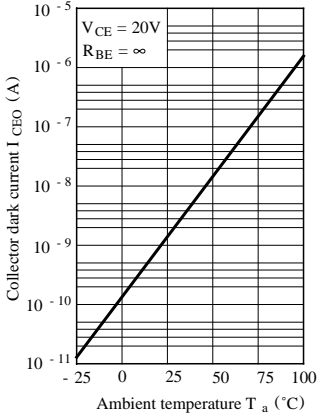


Fig.11-b Collector-base Dark Current vs. Ambient Temperature

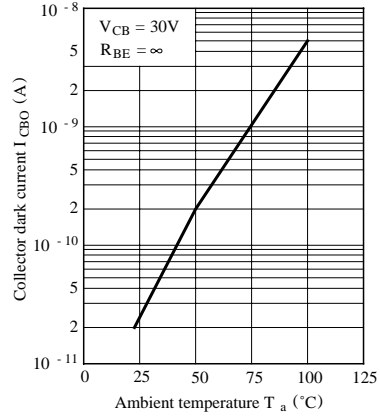


Fig.12 Response Time vs. Load Resistance

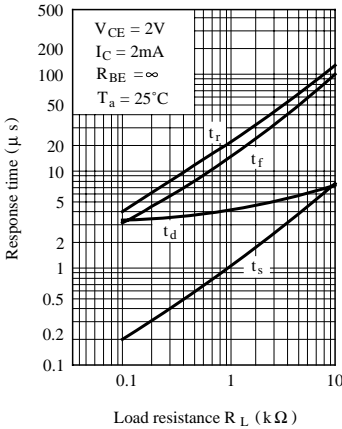
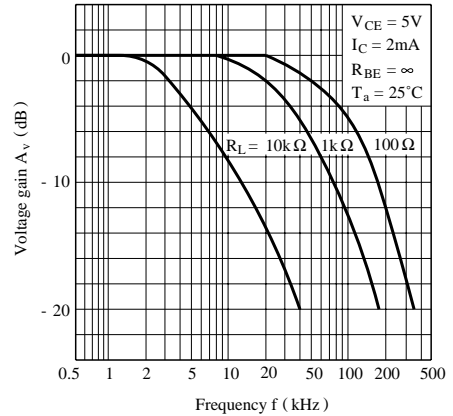
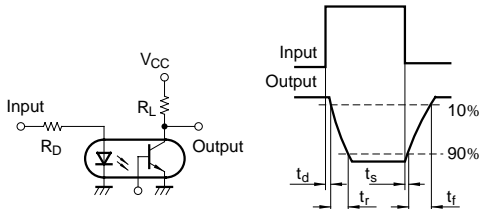


Fig.13 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

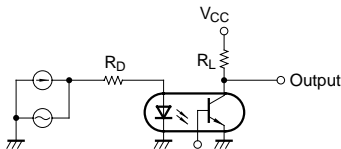
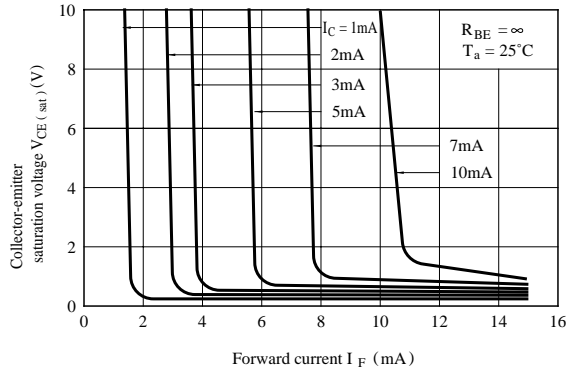


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current



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