

# PC733H

## High Input Current, AC Input Type Photocoupler

\* Lead forming type (I type) and taping reel type (P type) are also available. (PC733HI/PC733HP)

### ■ Features

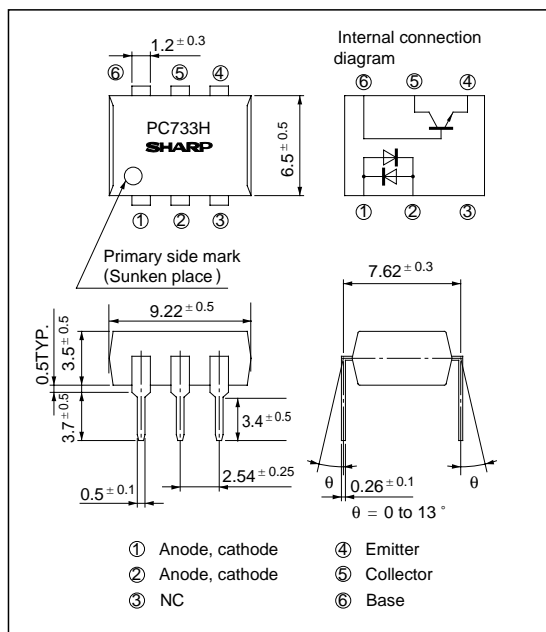
1. AC input response
2. High input current ( $I_F$ : MAX. 150mA)
3. High isolation voltage between input and output  
( $V_{iso}$ : 5 000  $V_{rms}$ )
4. Low collector dark current  
( $I_{CEO}$ : MAX.  $10^{-7}$ A at  $V_{CE} = 20V$ )
5. TTL compatible output
6. Recognized by UL, file No. E64380

### ■ Applications

1. Telephone sets
2. System appliances, measuring instruments
3. 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	$I_F$	$\pm 150$	mA
	*1 Peak forward current	$I_{FM}$	$\pm 1$	A
	Power dissipation	P	230	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	$I_C$	80	mA
	Collector power dissipation	$P_C$	160	mW
	Total power dissipation	$P_{tot}$	320	mW
*2 Isolation voltage	$V_{iso}$	5 000	$V_{rms}$	
Operating temperature	$T_{opr}$	- 25 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 width  $\leq 100\mu\text{s}$ , Duty ratio : 0.001

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

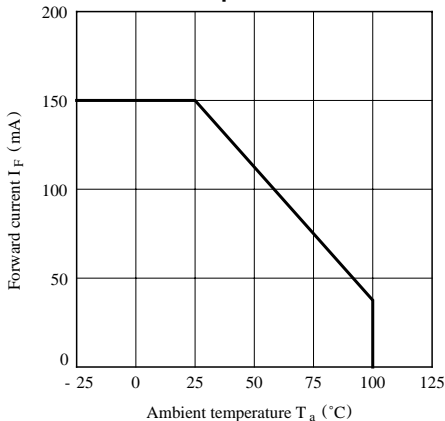
\*3 For 10 seconds

**■ Electro-optical Characteristics**

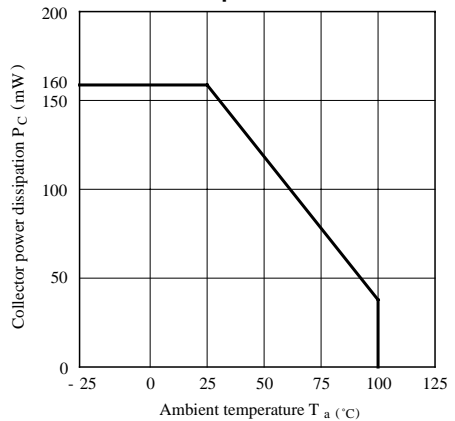
( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = \pm 100\text{mA}$	-	1.4	1.7	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	$I_{CEO}$	$V_{CE} = 20\text{V}, I_F = 0, R_{BE} = \infty$	-	-	$10^{-7}$	A	
	Current transfer ratio	CTR	$I_F = \pm 100\text{mA}, V_{CE} = 2\text{V}, R_{BE} = \infty$	20	-	80	%	
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = \pm 100\text{mA}, I_C = 1\text{mA}, R_{BE} = \infty$	-	0.1	0.2	V	
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$	
	Floating capacitance	$C_f$	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF	
	Cut-off frequency	$f_c$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, R_{BE} = \infty, -3\text{dB}$	-	15	80	-	kHz
				-	-	15	80	-
	Response time	Rise time	$t_r$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, R_{BE} = \infty$	-	4	18	$\mu\text{s}$
Fall time		$t_f$	-		3	18	$\mu\text{s}$	

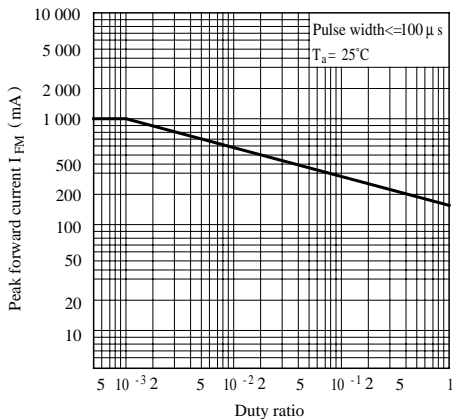
**Fig. 1 Forward Current vs. Ambient Temperature**



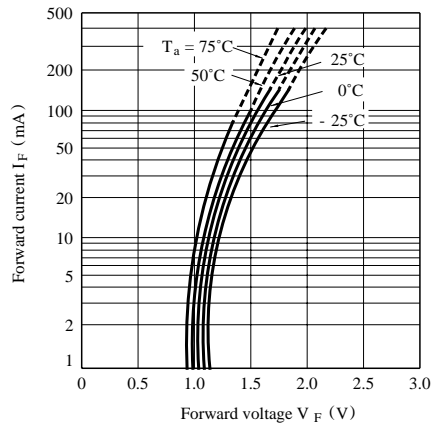
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



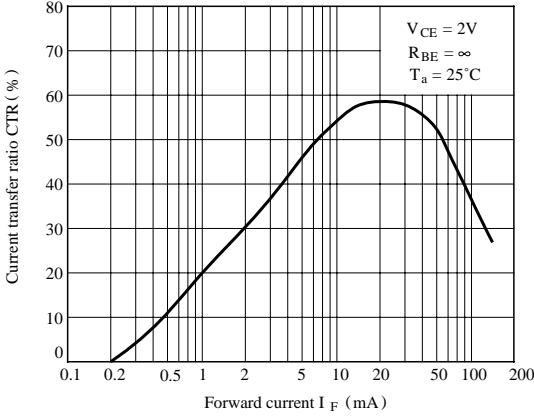
**Fig. 3 Peak Forward Current vs. Duty Ratio**



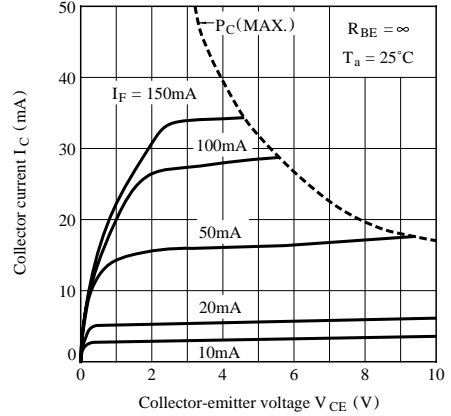
**Fig. 4 Forward Current vs. Forward Voltage**



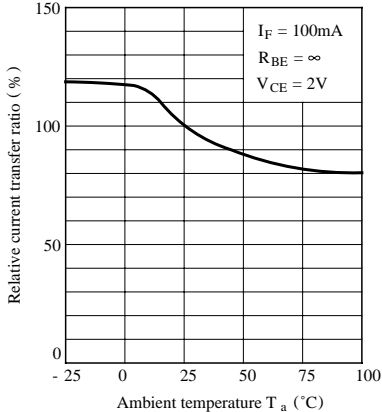
**Fig. 5 Current Transfer Ratio vs. Forward Current**



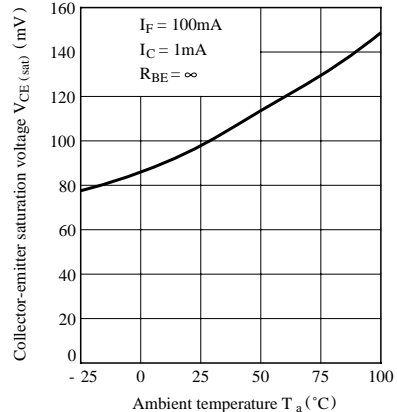
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



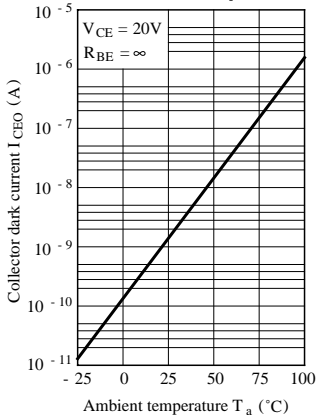
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Fig. 9-a Collector Dark Current vs. Ambient Temperature**



**Fig. 9-b Collector-base Dark Current vs. Ambient Temperature**

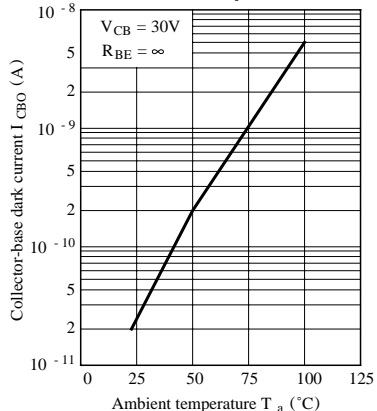
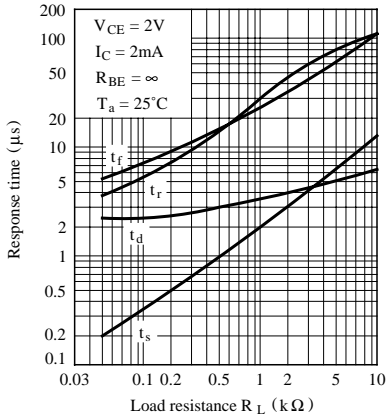
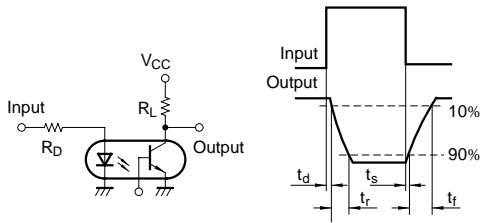


Fig.10 Response Time vs. Load Resistance



Test Circuit for Response Time



Test Circuit for Frequency Response

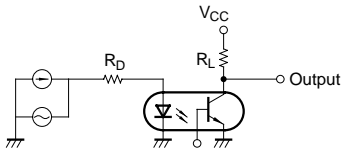


Fig.11 Frequency Response

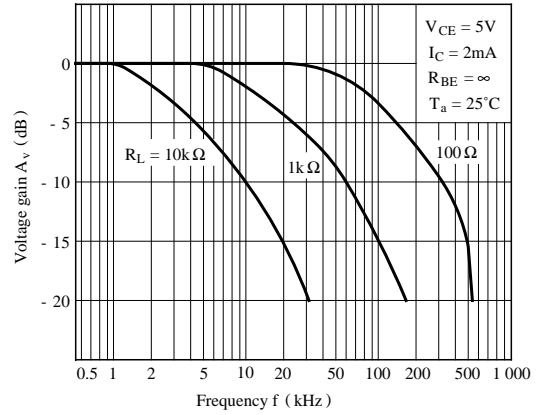
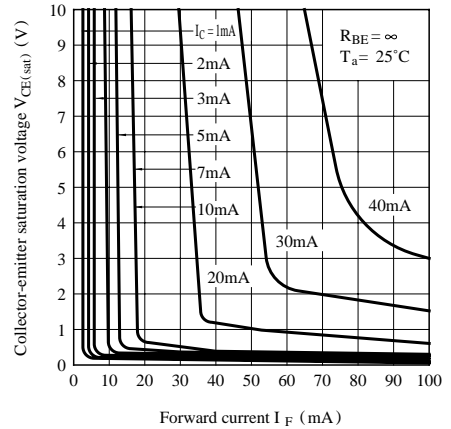


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter “Precautions for Use”.

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