

# PC729

## Bi-directional Output Type Photocoupler

### ■ Features

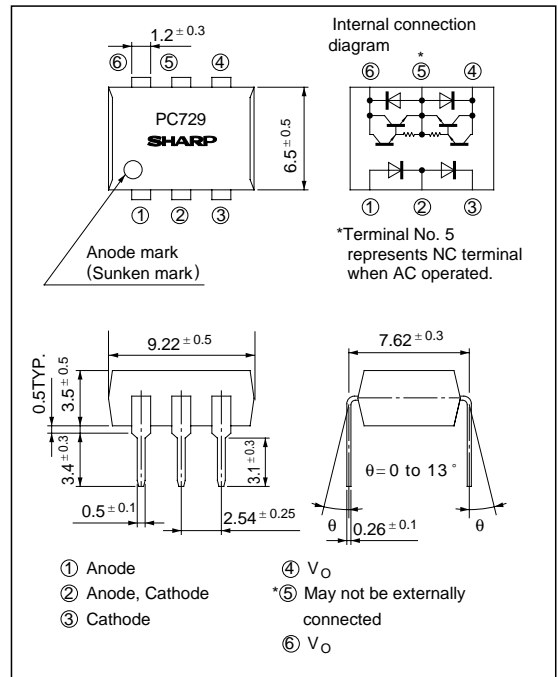
1. Bi-directional output type
2. High collector-emitter voltage ( $V_{BR} : 300V$ )
3. High collector output current ( $I_O : 150mA$ )
4. High isolation voltage between input and output ( $V_{iso} : 5\,000V_{rms}$ )

### ■ Applications

1. Telephone sets
2. Measuring instruments

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

( $T_a = 25^\circ C$ )

Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	30	mA
	*1 Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P_{13}$	80	mW
Output	Breakdown voltage	$V_{BR}$	300	V
	Output current	$I_O$	150	mA
	Power dissipation	$P_{46}$	370	mW
	Total power dissipation	$P_{tot}$	400	mW
*2 Isolation voltage		$V_{iso}$	5 000	$V_{rms}$
Operating temperature		$T_{opr}$	- 25 to + 85	$^\circ C$
Storage temperature		$T_{stg}$	- 55 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

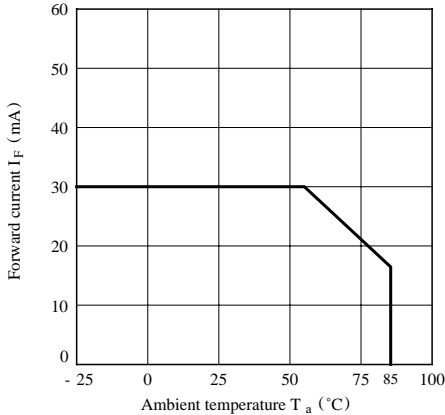
**■ Electro-optical Characteristics**

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

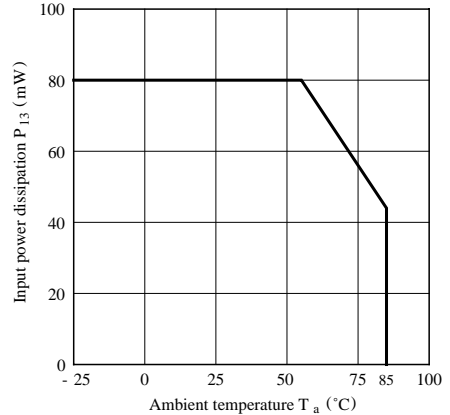
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	*4 Forward voltage	$V_F$	$I_F = 10\text{mA}$	-	1.2	1.4	V
	*4 Reverse current	$I_R$	$V_R = 4\text{V}$	-	-	10	$\mu\text{A}$
	*4 Terminal capacitance	$C_t$	$V = 0, f = 1\text{kHz}$	-	30	250	pF
Output	Collector dark current	$I_d$	$V_{46} = 200\text{V}, I_F = 0$	-	-	$10^{-6}$	A
	Breakdown voltage	$V_{BR}$	$I_O = 0.1\text{mA}, I_F = 0$	300	-	-	V
Transfer characteristics	Output current	$I_O$	$I_{F13} = 1\text{mA}, V_{46} = 3\text{V}$	10	40	150	mA
	ON-state voltage	$V_{on}$	$I_{F13} = 20\text{mA}, I_O = 100\text{mA}$	-	1.8	2.4	V
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$
	Floating capacitance	$C_f$	$V = 0, f = 1\text{MHz}$	-	1.0	-	pF
	Cut-off frequency	$f_c$	$V_{46} = 3\text{V}, I_O = 20\text{mA}$ $R_L = 100\Omega, -3\text{dB}$	1	7	-	kHz
	Response time	Rise time	$t_r$	$V_{46} = 3\text{V}, I_O = 20\text{mA}$ $R_L = 100\Omega$	-	50	300
Fall time		$t_f$	-		20	100	$\mu\text{s}$

\*4 Between terminals 1 and 2, and between terminals 2 and 3

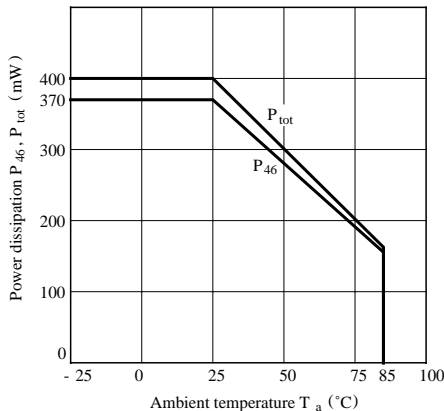
**Fig. 1 Forward Current vs. Ambient Temperature**



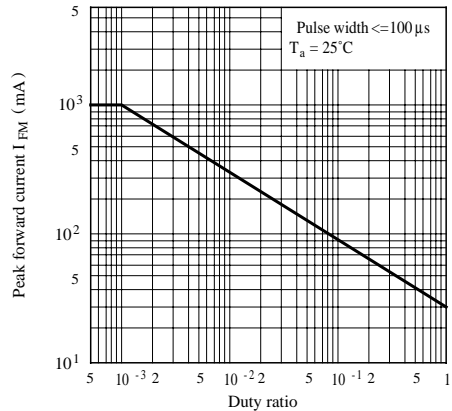
**Fig. 2 Input Power Dissipation vs. Ambient Temperature**



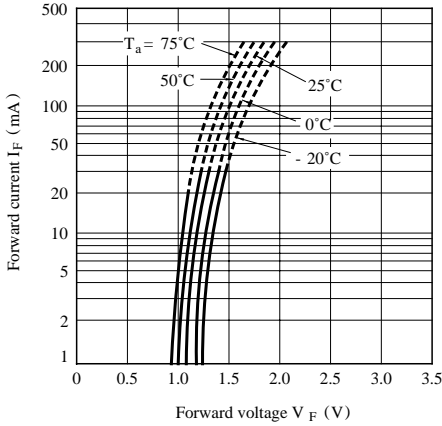
**Fig. 3 Power Dissipation vs. Ambient Temperature**



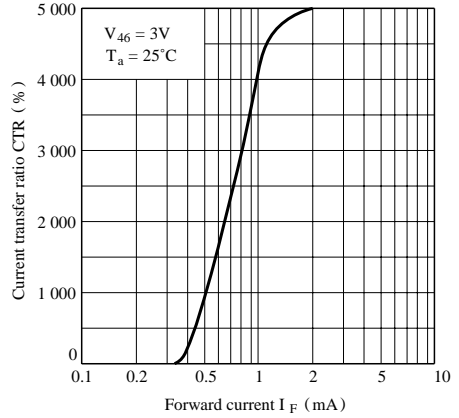
**Fig. 4 Peak Forward Current vs. Duty Ratio**



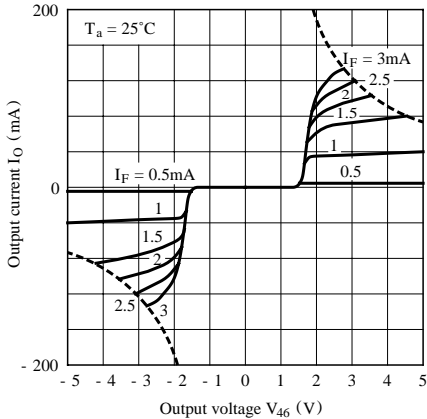
**Fig. 5 Forward Current vs. Forward Voltage**



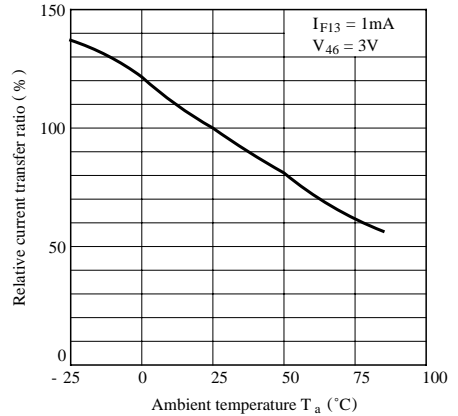
**Fig. 6 Current Transfer Ratio vs. Forward Current**



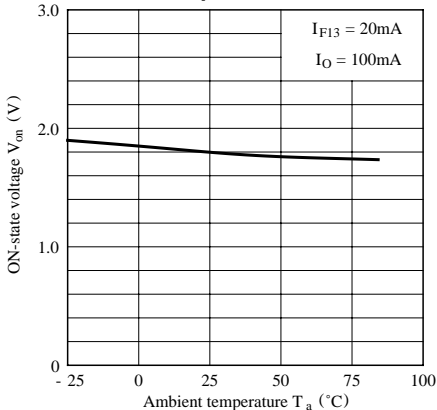
**Fig. 7 Output Current vs. Output Voltage**



**Fig. 8 Relative Current Transfer Ratio vs. Ambient Temperature**



**Fig. 9 ON-state Voltage vs. Ambient Temperature**



**Fig.10 Collector Dark Current vs. Ambient Temperature**

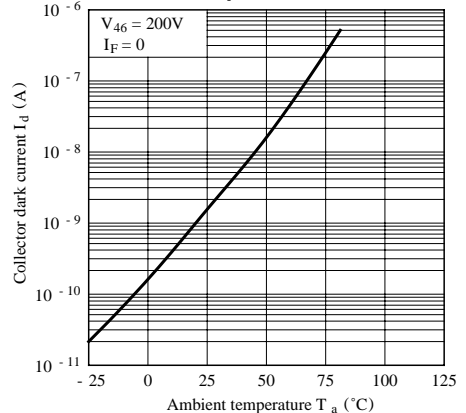


Fig.11 Response Time vs. Load Resistance

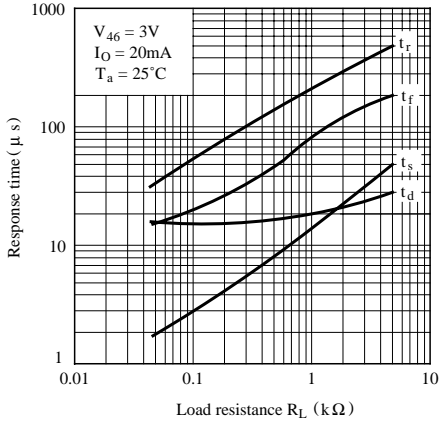


Fig.12 Output Voltage vs. Forward Current

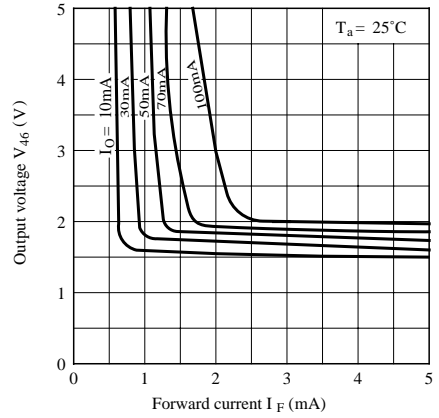
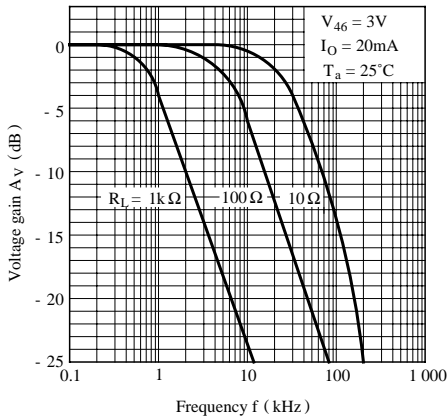


Fig.13 Frequency Response



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