

# PC729

## Bi-directional Output Type Photocoupler

### Features

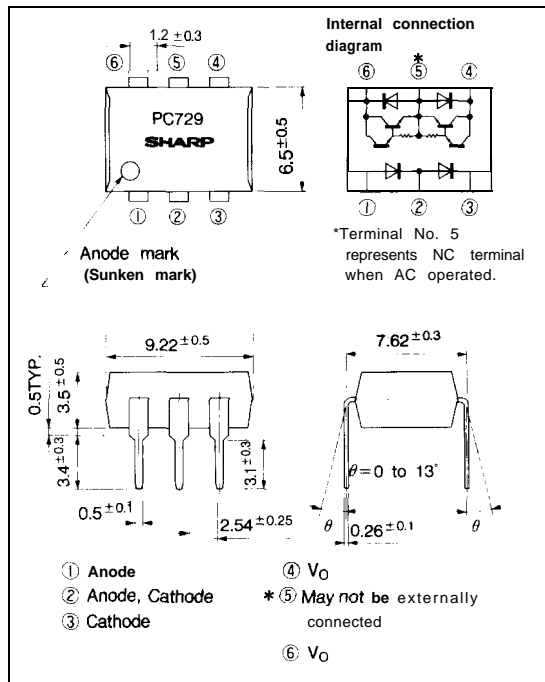
1. Bi-directional output type
2. High collector-emitter voltage ( $V_{BR}: 300V$ )
3. High collector output current ( $I_O: 150mA$ )
4. High isolation voltage between input and output ( $V_{iso}: 5000V_{rms}$ )

### Applications

1. Telephone sets
2. Measuring instruments

### Outline Dimensions

(Unit : mm)



### Absolute Maximum Ratings

(Ta = 25°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	$V_{iso}$	5000	$V_{rms}$
	Operating temperature	$T_{opr}$	-25 to +85	°C
	Storage temperature	$T_{stg}$	-55 to +125	°C
*3 Soldering temperature	$T_{sol}$	260	°C	

\*1 Pulse width  $\leq 100 \mu s$ , Duty ratio = 0.001 (Refer to Fig. 4)

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

\*3 For 10 seconds

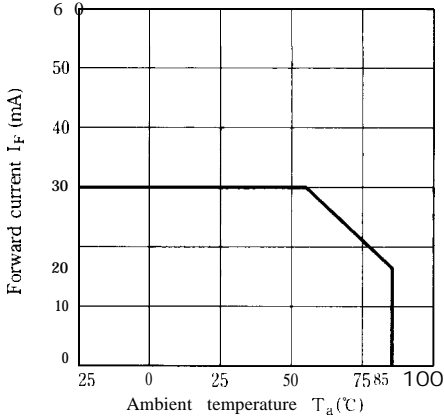
**Electro-optical Characteristics**

(T<sub>a</sub> = 25°C)

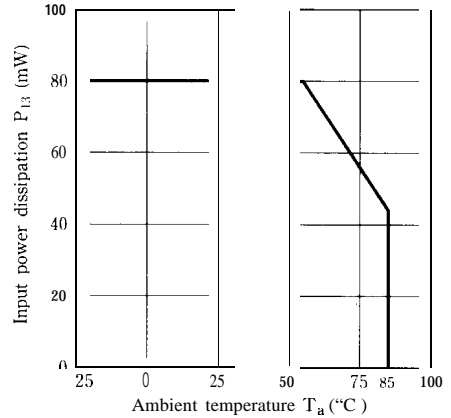
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	*4 Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA		1.2	1.4	V
	*4 Reverse current	I <sub>r</sub>	V <sub>R</sub> = 4V		—	10	μA
	*4 Terminal capacitance	C <sub>t</sub>	V = 0, f = 1kHz	—	30	250	pF
output	Collector dark current	I <sub>d</sub>	V <sub>46</sub> = 200V, I <sub>F</sub> = 0			10 <sup>-6</sup>	A
	Breakdown voltage	V <sub>BR</sub>	I <sub>O</sub> = 0.1mA, I <sub>F</sub> = 0	300	—		v
Transfer characteristics	output current	I <sub>O</sub>	I <sub>F13</sub> = 1mA, V <sub>46</sub> = 3V	10	40	150	mA
	ON-state voltage	V <sub>on</sub>	I <sub>F13</sub> = 20mA, I <sub>O</sub> = 100mA	—	1.8	2.4	v
	Isolation resistance	R <sub>ISO</sub>	DC500V, 40 to 60%RH	5 × 10 <sup>10</sup>	10 <sup>11</sup>	—	Ω
	Floating capacitance	C <sub>f</sub>	V = 0, f = 1MHz		1.0		pF
	Cut-off frequency	f <sub>c</sub>	V <sub>46</sub> = 3V, I <sub>O</sub> = 20mA R <sub>L</sub> = 100Ω, -3dB	1	7		kHz
Response time	Rise time	t <sub>r</sub>	V <sub>46</sub> = 3V, I <sub>O</sub> = 20mA		50	300	μs
	Fall time	t <sub>f</sub>	R <sub>L</sub> = 100Ω	—	20	100	μs

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

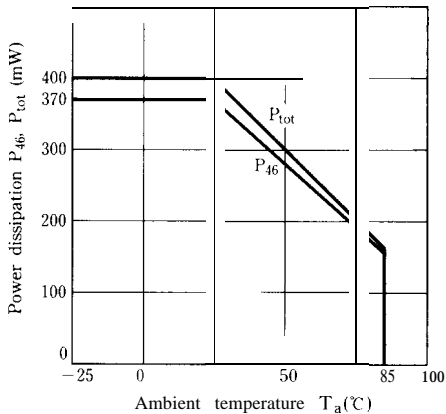
**Fig. 1 Forward Current vs. Ambient Temperature**



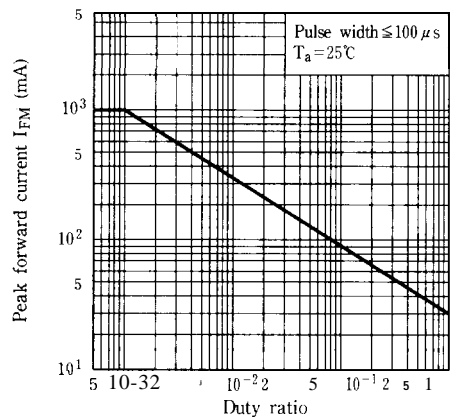
**Fig. 2 Input Power Dissipation vs. Ambient Temperature**



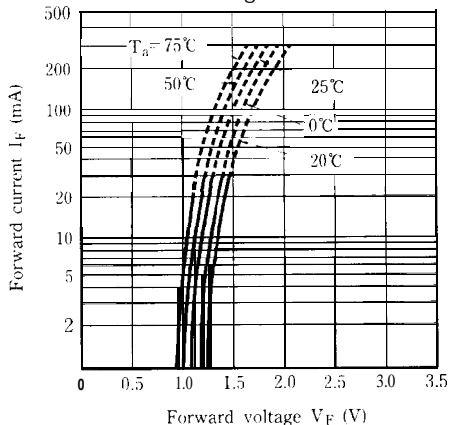
**Fig. 3 Power Dissipation vs. Ambient Temperature**



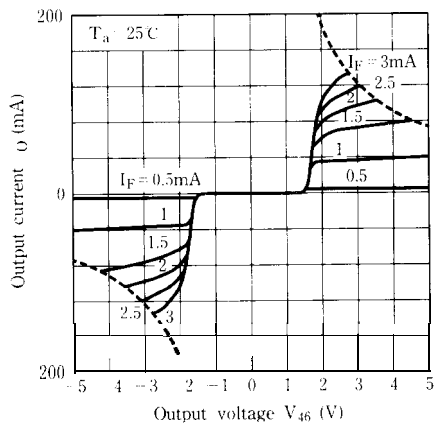
**Fig. 4 Peak Forward Current vs. Duty Ratio**



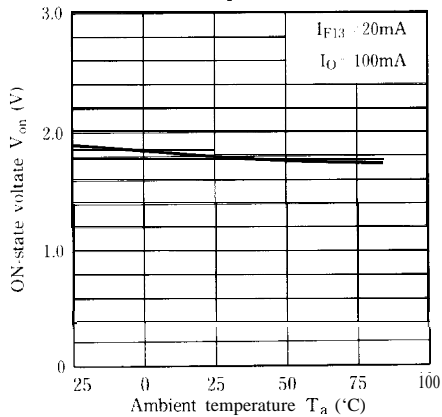
**Fig. 5 Forward Current vs. Forward Voltage**



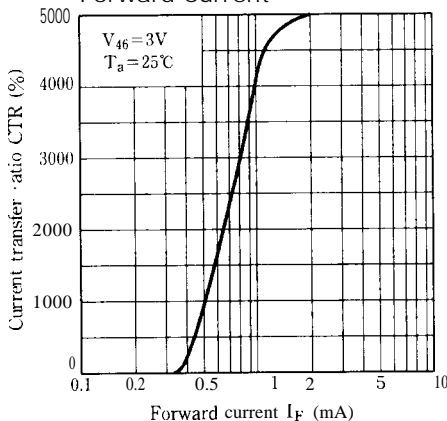
**Fig. 7 Output Current vs. Output Voltage**



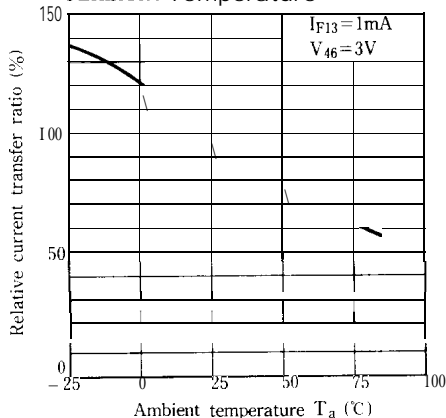
**Fig. 9 ON-state Voltage vs. Ambient Temperature**



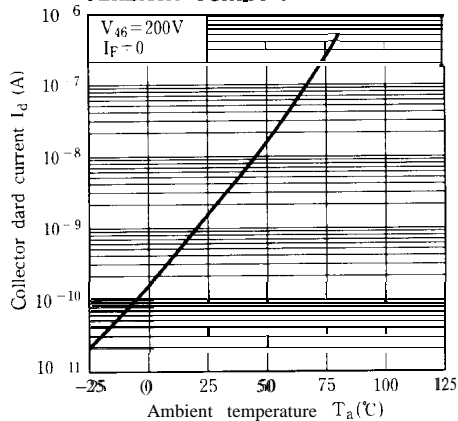
**Fig. 6 Current Transfer Ratio vs. Forward Current**



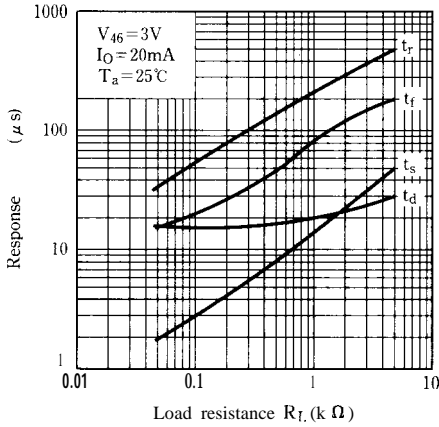
**Fig. 8 Relative Current Transfer Ratio vs. Ambient Temperature**



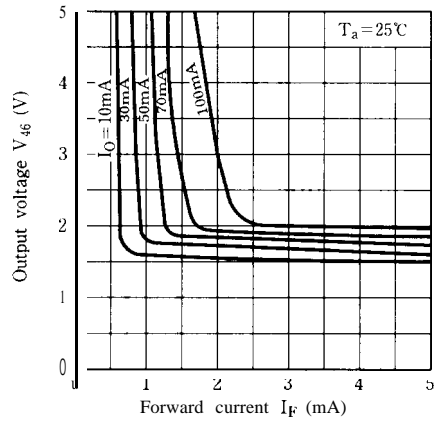
**Fig.10 Collector Dark Current vs. Ambient Temperature**



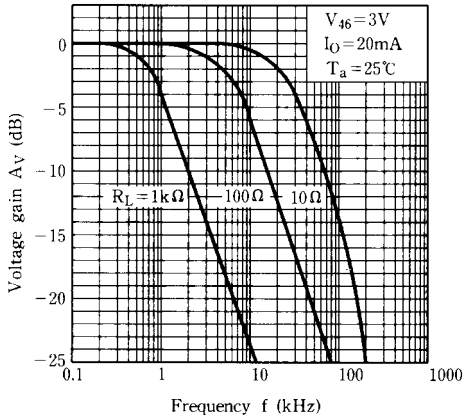
**Fig.11 Response Time vs. Load Resistance**



**Fig.12 Output Voltage vs. Forward Current**



**Fig.13 Frequency Response**



● Please refer to the chapter “Precautions for Use” (Page 78 to 93)