

# PC829 Series

## High Density Mounting Type Photocoupler

\* TÜV (VDE884) approval type is also available as an option.

### Features

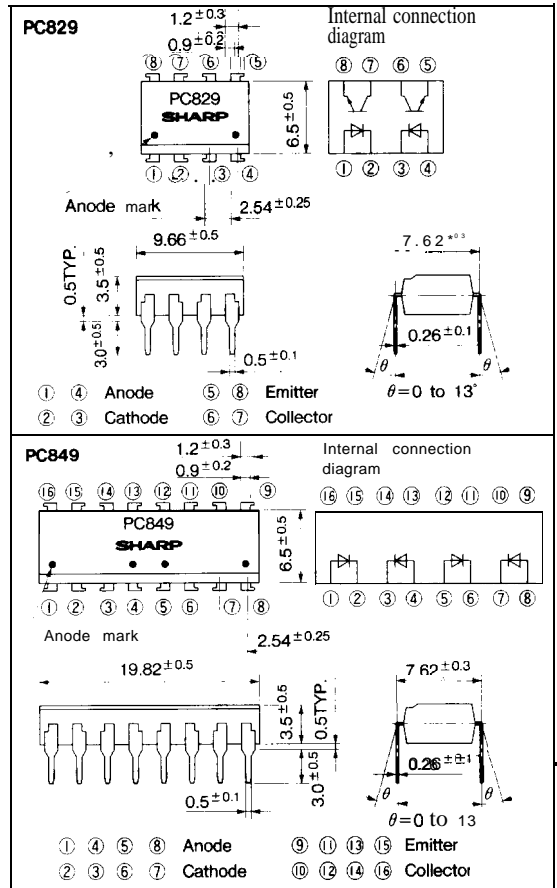
1. Symmetrical terminal configuration  
**PC829** : 2-channel type  
**PC849** : 4-channel type
2. High current transfer ratio  
 (CTR : MIN. 50% at  $I_F = 5\text{mA}$ ,  $V_{CE} = 5\text{V}$ )
3. High isolation voltage between input and output ( $V_{iso}$  : 5 000V<sub>rms</sub>)
4. Recognized by UL, file No. E64380

### Applications

1. Telephone exchangers
2. Computer terminals
3. System appliances, measuring instruments
4. Signal transmission between circuits of different potentials and impedances

### Outline Dimensions

(Unit : mm)



### Absolute Maximum Ratings (Ta = 25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	*1 Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	P	70	mW
output	Collector-emitter voltage	$V_{CEO}$	35	v
	Emitter-collector voltage	$V_{aco}$	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 <sub>rms</sub>
	Operating temperature	$T_{opr}$	-25 to +100	°C
Storage temperature	$T_{stg}$	-40 to +125	°C	
	*3 Soldering temperature	$T_{sld}$	260	°C

\*1 Pulse width = 100 μs, Duty ratio = 0.001

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

\*3 For 10 seconds

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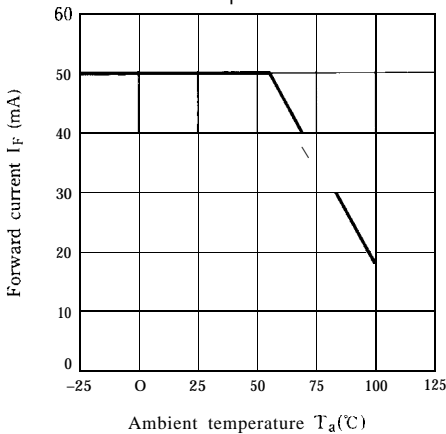
Photocouplers

■ **Electro-optical Characteristics**

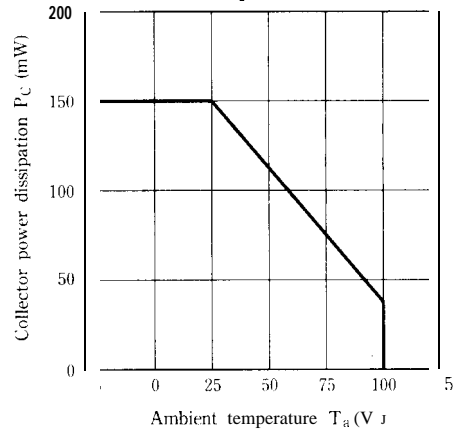
( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$		1.2	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	-	3.0	v
	Reverse current	$I_R$	$V_R = 4\text{V}$			10	$\mu\text{A}$
	Terminal capacitance	$C_t$	$V = 0, f = 1\text{kHz}$	-	30	250	pF
output	Collector dark current	$I_{CEO}$	$V_{CE} = 20\text{V}, I_F = 0$	-	-	$10^{-7}$	A
	Current transfer ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$	50	-	400	%
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 1\text{mA}$	-	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	$f_c$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	-	80	-	kHz
				Response time	Rise time	$t_r$	-
		Fall time	$t_f$	-	3	-	$\mu\text{s}$

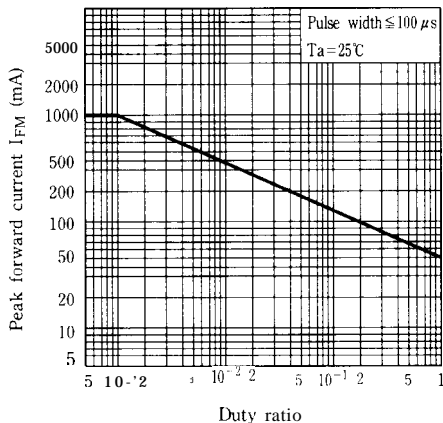
**Fig. 1 Forward Current vs. Ambient Temperature**



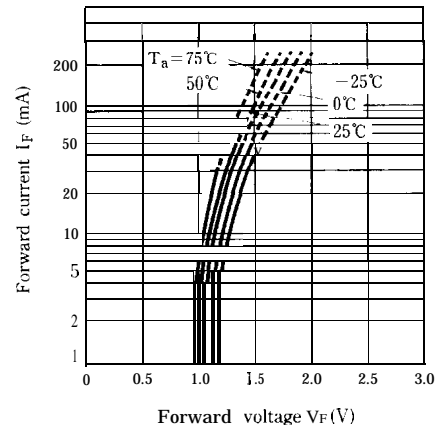
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



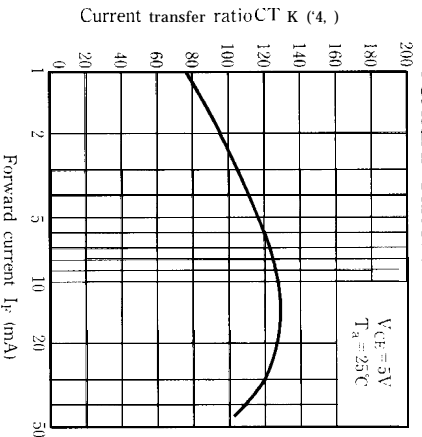
**Fig. 3 Peak Forward Current vs. Duty Ratio**



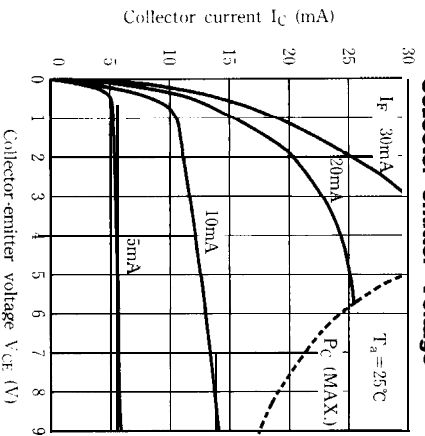
**Fig. 4 Forward Current vs. Forward Voltage**



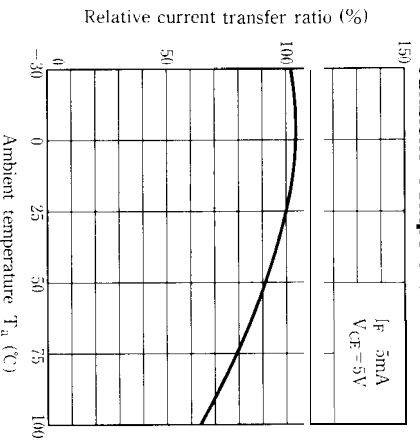
**Fig. 5 Current Transfer Ratio vs. Forward Current**



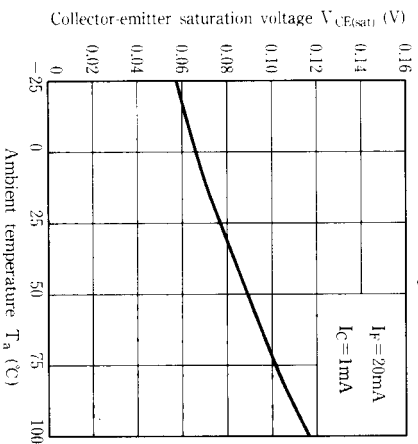
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



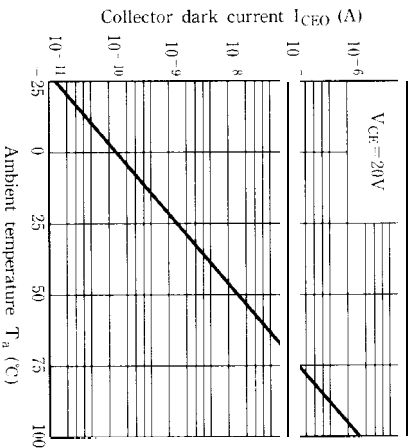
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



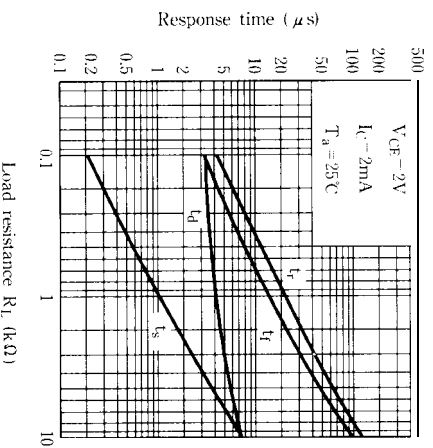
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



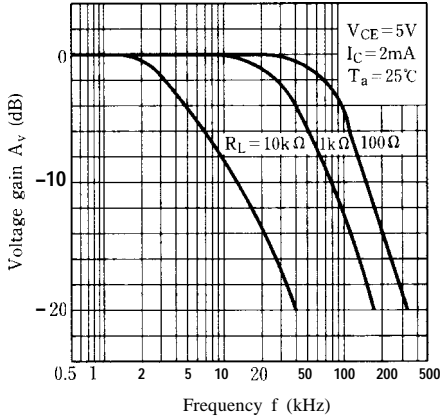
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



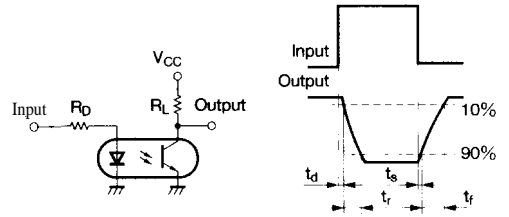
**Fig.10 Response Time vs. Load Resistance**



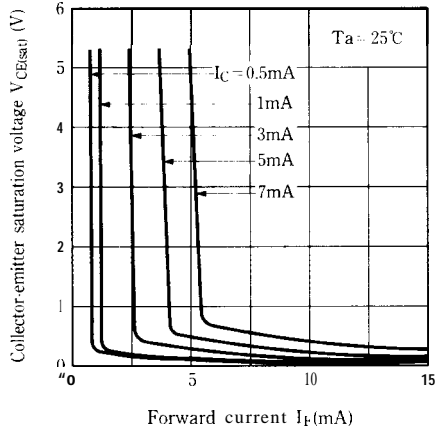
**Fig.11 Frequency Response**



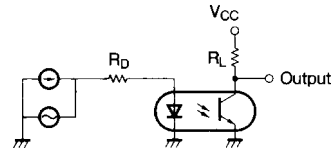
**Test Circuit for Response Time**



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



**Test Circuit for Frequency Response**



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