

# PC815 Series

## High Sensitivity, High Density Mounting Type Photocoupler

- \* Lead forming type ( I type ) and taping reel type ( P type ) are also available. (PC815I/PC815P)
- \*\* TÜV (VDE0884) approved type is also available as an option.

### ■ Features

1. High current transfer ratio  
(CTR: MIN. 600% at  $I_F = 1\text{mA}$ ,  $V_{CE} = 2\text{V}$ )
2. High isolation voltage between input and output  
( $V_{iso} : 5\ 000V_{rms}$ )
3. Compact dual-in-line package  

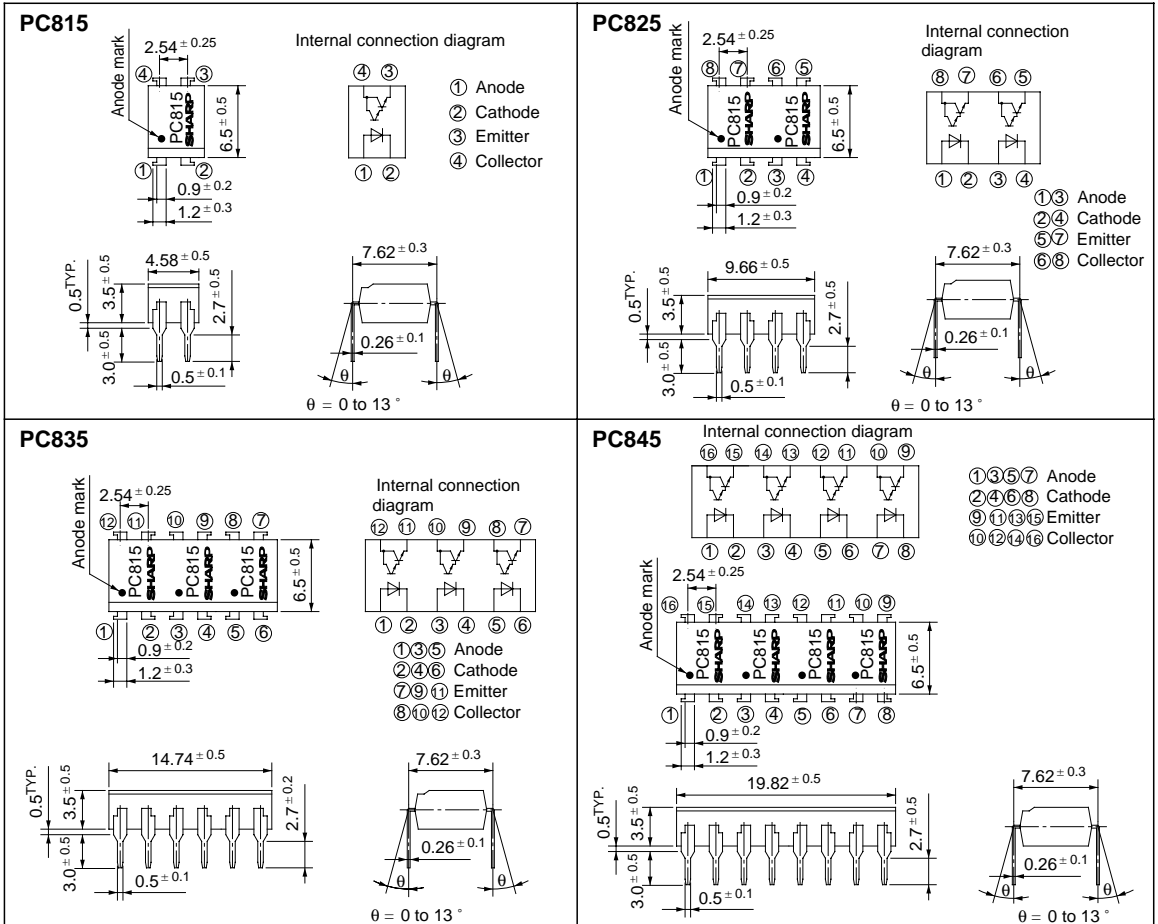
<b>PC815</b> : 1-channel type	<b>PC825</b> : 2-channel type
<b>PC835</b> : 3-channel type	<b>PC845</b> : 4-channel type
4. Recognized by UL file No. E64380

### ■ Applications

1. System appliances, measuring instruments
2. Industrial robots
3. Copiers, automatic vending machines
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 <sub>F</sub>	50	mA
	*1 Peak forward current	I <sub>FM</sub>	1	A
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECCO</sub>	6	V
	Collector current	I <sub>C</sub>	80	mA
	Collector power dissipation	P <sub>C</sub>	150	mW
Total power dissipation		P <sub>tot</sub>	200	mW
*2 Isolation voltage		V <sub>iso</sub>	5 000	V <sub>rms</sub>
Operating temperature		T <sub>opr</sub>	- 30 to + 100	°C
Storage temperature		T <sub>stg</sub>	- 55 to + 125	°C
*3 Soldering temperature		T <sub>sol</sub>	260	°C

\*1 Pulse width ≤ 100 μs, Duty ratio : 0.001

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

\*3 For 10 seconds

## Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	1.2	1.4	V	
	Peak forward voltage	V <sub>FM</sub>	I <sub>FM</sub> = 0.5A	-	-	3.0	V	
	Reverse current	I <sub>R</sub>	V <sub>R</sub> = 4V	-	-	10	μA	
	Terminal capacitance	C <sub>t</sub>	V = 0, f = 1kHz	-	30	250	pF	
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> = 10V, I <sub>F</sub> = 0	-	-	10 <sup>-6</sup>	A	
	Current transfer ratio	CTR	I <sub>F</sub> = 1mA, V <sub>CE</sub> = 2V	600	-	7 500	%	
Transfer characteristics	Collector-emitter saturation voltage		V <sub>CE(sat)</sub>	I <sub>F</sub> = 20mA, I <sub>C</sub> = 5mA	-	0.8	1.0	V
	Isolation resistance		R <sub>ISO</sub>	DC500V, 40 to 60% RH	5 x 10 <sup>10</sup>	10 <sup>11</sup>	-	Ω
	Floating capacitance		C <sub>f</sub>	V = 0, f = 1MHz	-	0.6	1.0	pF
	Cut-off frequency		f <sub>c</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> = 2mA, R <sub>L</sub> = 100Ω	1	6	-	kHz
	Response time	Rise time	t <sub>r</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> = 10mA, R <sub>L</sub> = 100Ω	-	60	300	μs
Fall time		t <sub>f</sub>	-		53	250	μs	

Fig. 1 Forward Current vs. Ambient Temperature

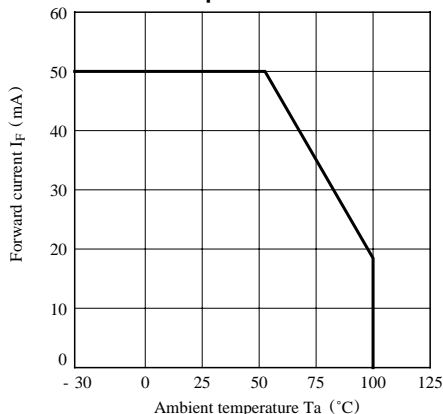


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

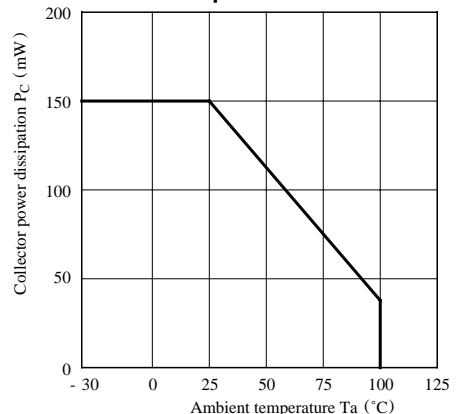


Fig. 3 Peak Forward Current vs. Duty Ratio

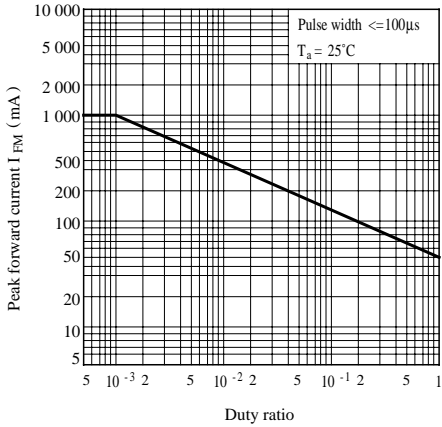


Fig. 4 Forward Current vs. Forward Voltage

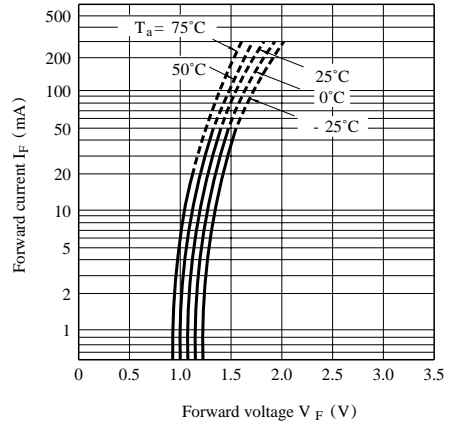


Fig. 5 Current Transfer Ratio vs. Forward Current

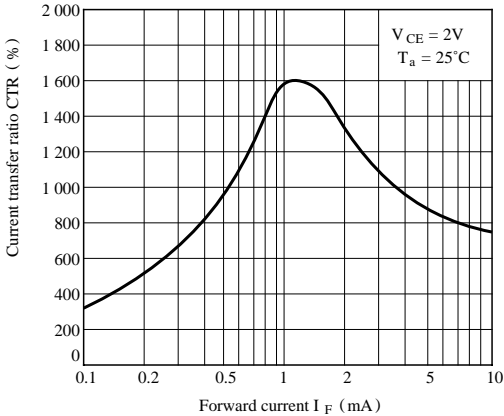


Fig. 6 Collector Current vs. Collector-emitter Voltage

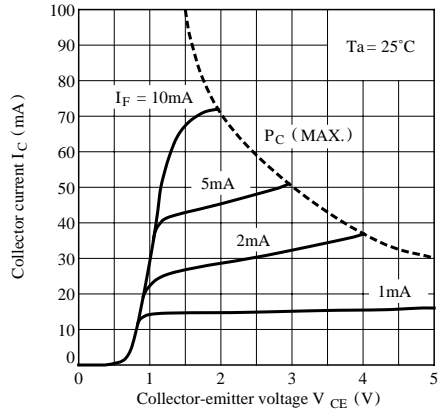


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

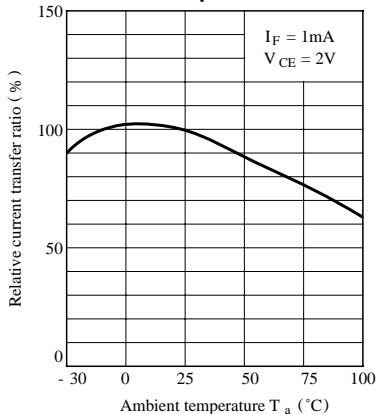
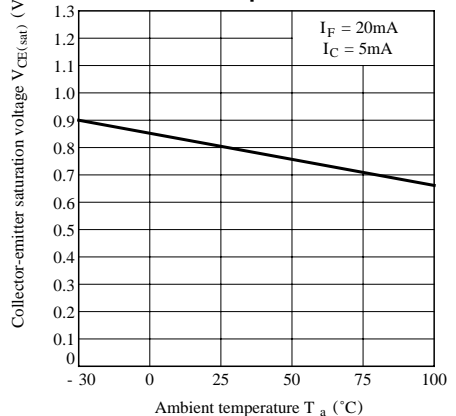
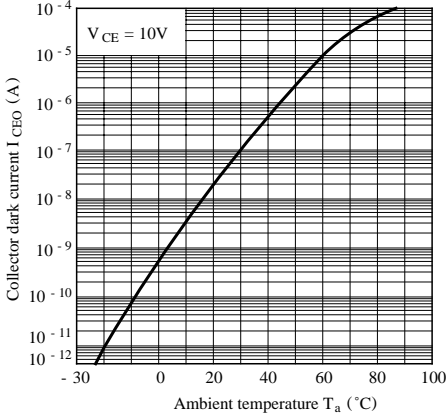


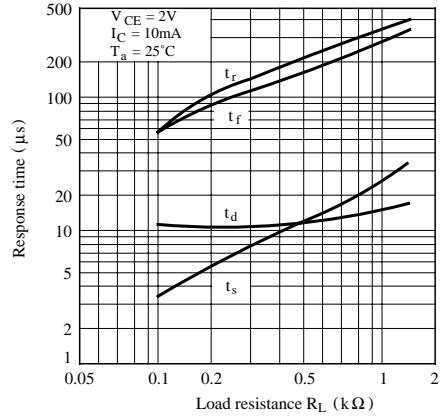
Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature



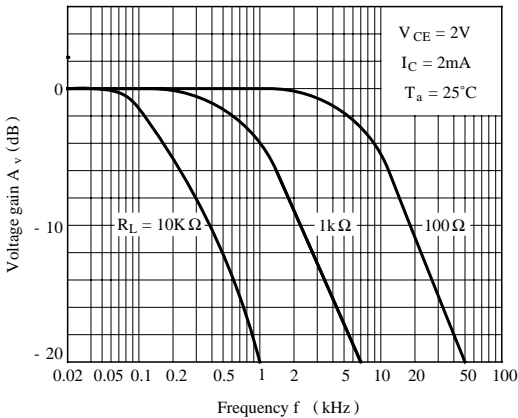
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



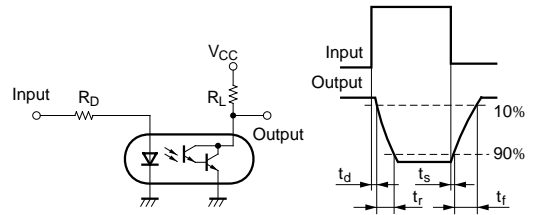
**Fig.10 Response Time vs. Load Resistance**



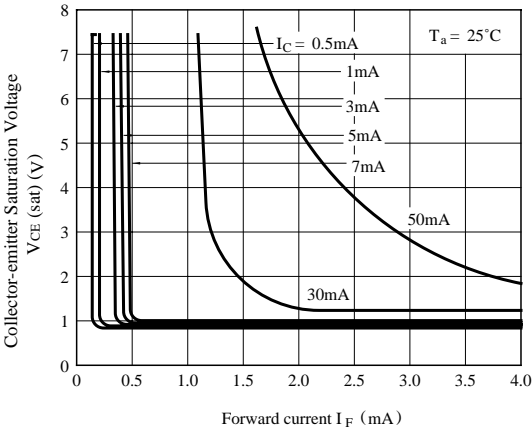
**Fig.11 Frequency Response**



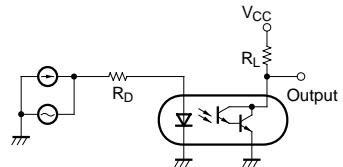
**Test Circuit for Response Time**



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



**Test Circuit for Frequency Response**



● Please refer to the chapter  
“Precautions for Use”

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