

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

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

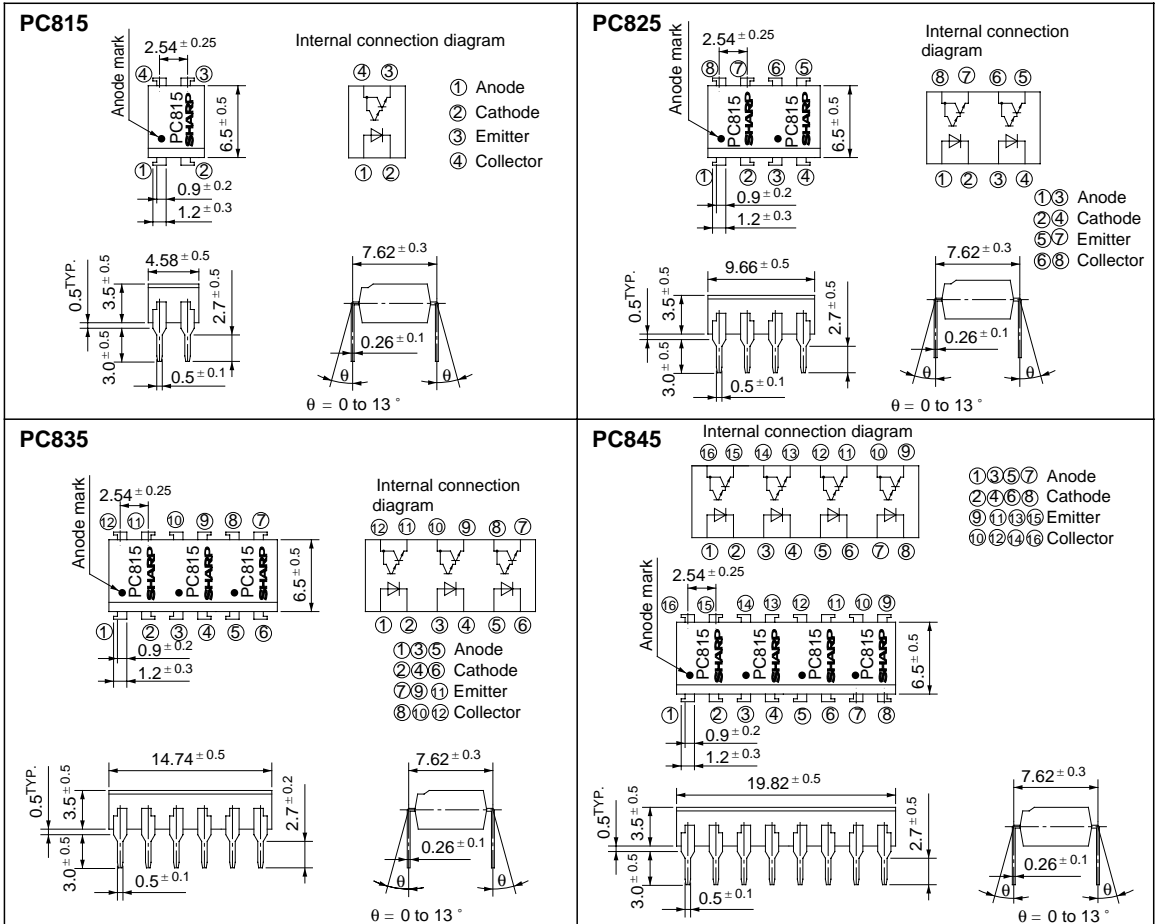
PC815 : 1-channel type	PC825 : 2-channel type
PC835 : 3-channel type	PC845 : 4-channel type
- Recognized by UL file No. E64380

■ Applications

- System appliances, measuring instruments
- Industrial robots
- Copiers, automatic vending machines
- 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 _{ECCO}	6	V
	Collector current	I _C	80	mA
	Collector power dissipation	P _C	150	mW
Total power dissipation		P _{tot}	200	mW
*2 Isolation voltage		V _{iso}	5 000	V _{rms}
Operating temperature		T _{opr}	- 30 to + 100	°C
Storage temperature		T _{stg}	- 55 to + 125	°C
*3 Soldering temperature		T _{sol}	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 _F	I _F = 20mA	-	1.2	1.4	V	
	Peak forward voltage	V _{FM}	I _{FM} = 0.5A	-	-	3.0	V	
	Reverse current	I _R	V _R = 4V	-	-	10	μA	
	Terminal capacitance	C _t	V = 0, f = 1kHz	-	30	250	pF	
Output	Collector dark current	I _{CEO}	V _{CE} = 10V, I _F = 0	-	-	10 ⁻⁶	A	
	Current transfer ratio	CTR	I _F = 1mA, V _{CE} = 2V	600	-	7 500	%	
Transfer characteristics	Collector-emitter saturation voltage	V _{CE(sat)}	I _F = 20mA, I _C = 5mA	-	0.8	1.0	V	
	Isolation resistance	R _{ISO}	DC500V, 40 to 60% RH	5 x 10 ¹⁰	10 ¹¹	-	Ω	
	Floating capacitance	C _f	V = 0, f = 1MHz	-	0.6	1.0	pF	
	Cut-off frequency	Response time	f _c	V _{CE} = 2V, I _C = 2mA, R _L = 100Ω	1	6	-	kHz
			Rise time	t _r	V _{CE} = 2V, I _C = 10mA, R _L = 100Ω	-	60	300
Fall time	t _f	-	53	250		μs		

Fig. 1 Forward Current vs. Ambient Temperature

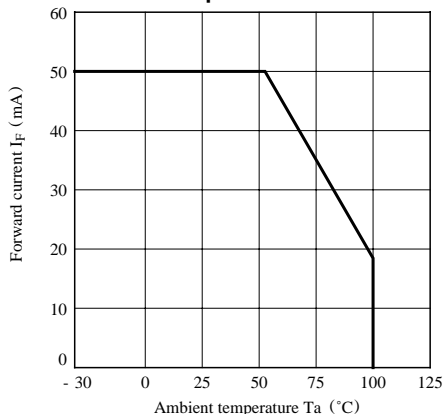


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

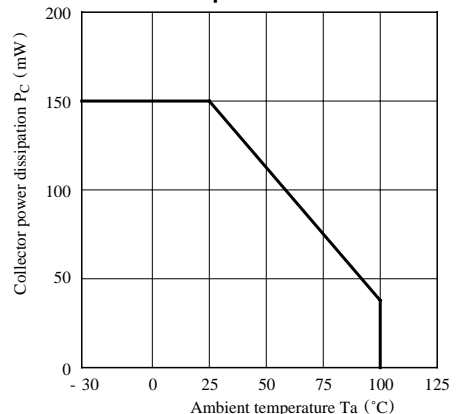


Fig. 3 Peak Forward Current vs. Duty Ratio

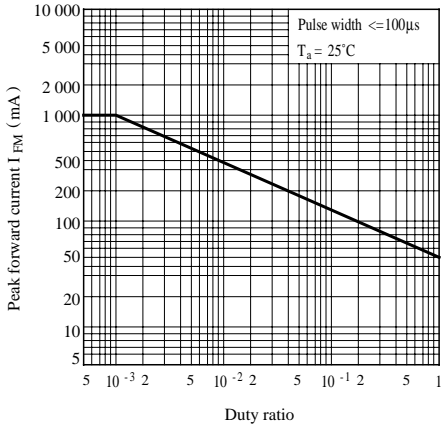


Fig. 4 Forward Current vs. Forward Voltage

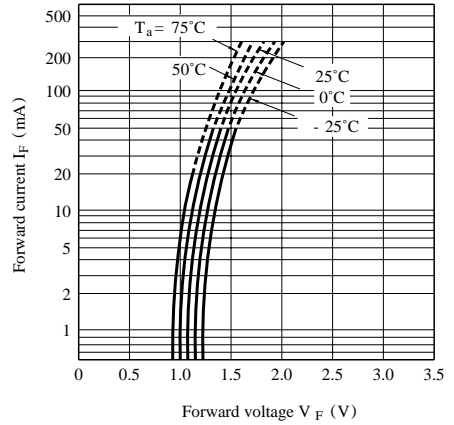


Fig. 5 Current Transfer Ratio vs. Forward Current

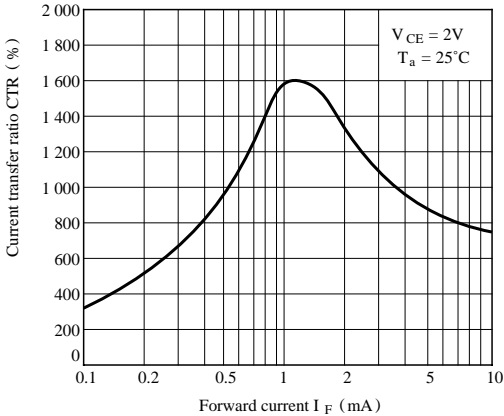


Fig. 6 Collector Current vs. Collector-emitter Voltage

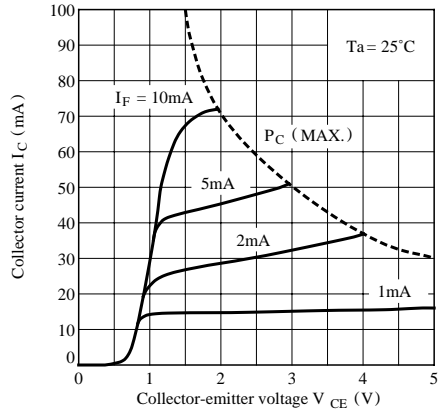


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

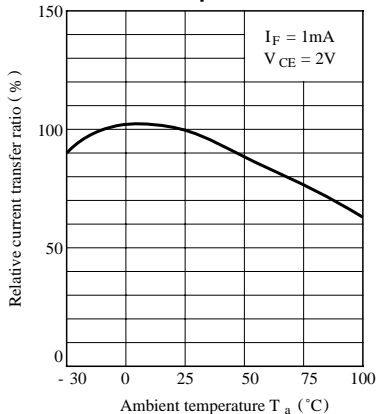


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

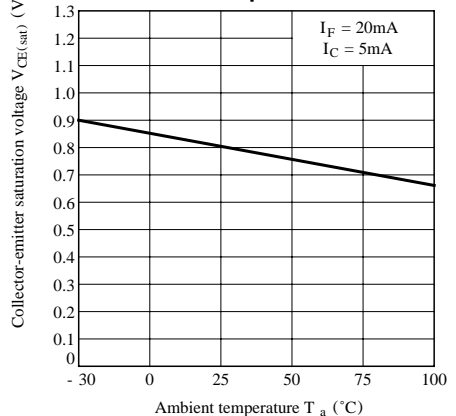


Fig. 9 Collector Dark Current vs. Ambient Temperature

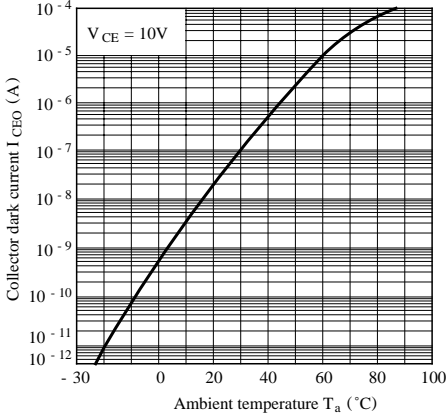


Fig.10 Response Time vs. Load Resistance

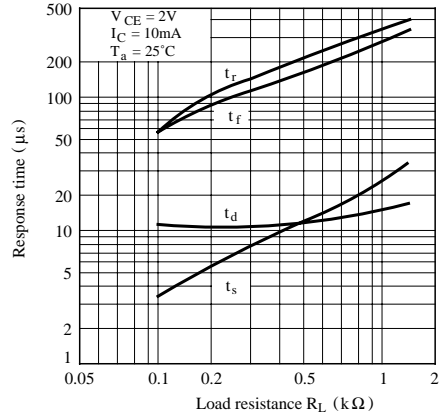
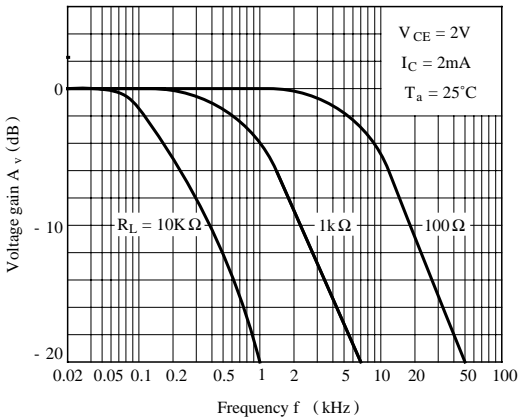


Fig.11 Frequency Response



Test Circuit for Response Time

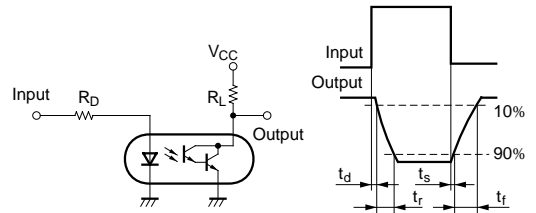
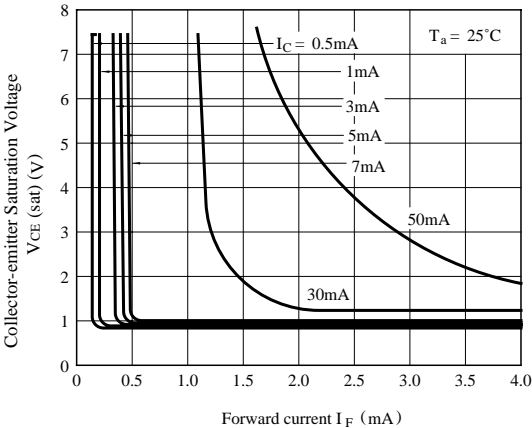
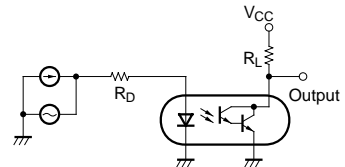


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frequency Response



● Please refer to the chapter
“Precautions for Use”