

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) (Page 656)
 ※ TÜV (VDE0884) approved type is also available as an option.

■ Features

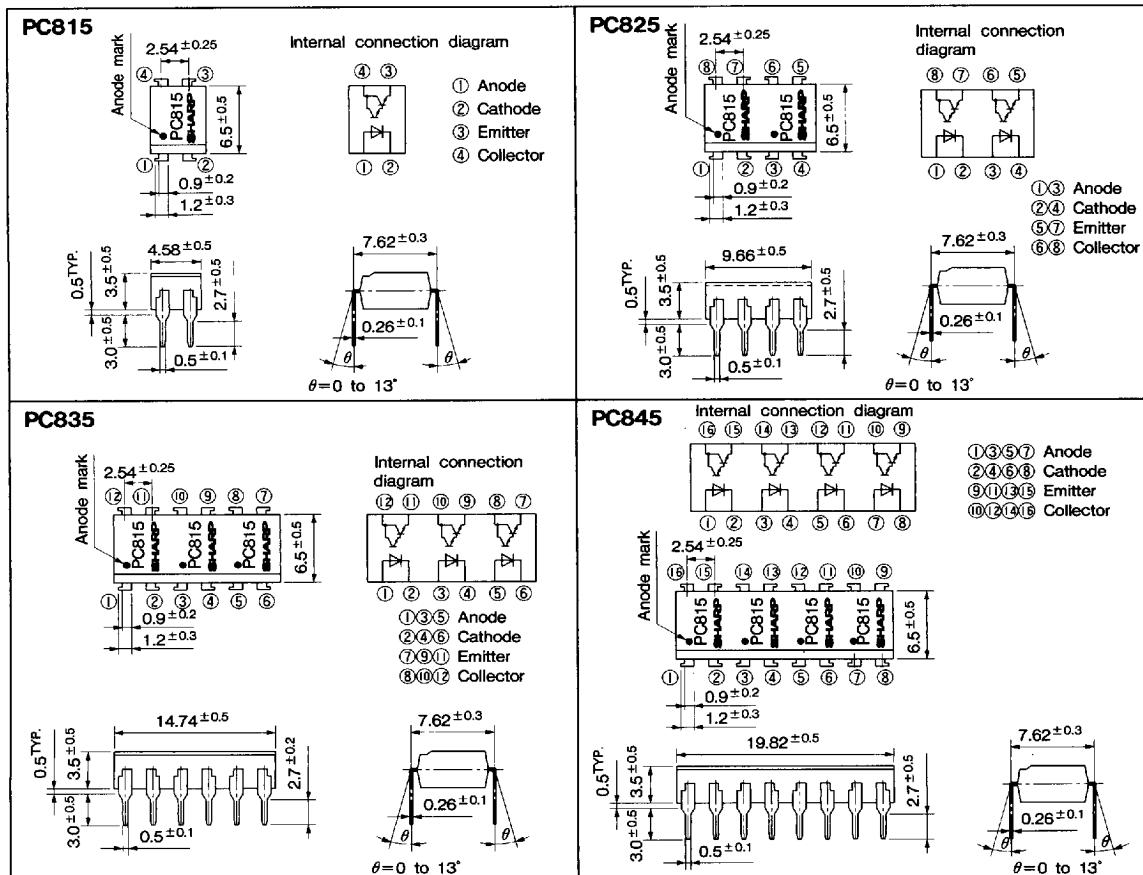
1. High current transfer ratio
(CTR : MIN. 600% at $I_F=1\text{mA}$, $V_{CE}=2\text{V}$)
2. High isolation voltage between input and output
($V_{iso} : 5\,000V_{rms}$)
3. Compact dual-in-line package
PC815 : 1-channel type **PC825** : 2-channel type
PC835 : 3-channel type **PC845** : 4-channel type
4. 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)



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"In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

429

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_{ECO}	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 $\leq 100 \mu s$, 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	μ A
	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
Transfer charac- teristics	Current transfer ratio		CTR	I _F =1mA, V _{CE} =2V	600	1 600	7 500	%
	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	5×10 ¹⁰	10 ¹¹	—	Ω
	Floating capacitance		C _f	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency		f _c	V _{CE} =2V, I _C =2mA, R _L =100Ω	1	6	—	kHz
	Response time	Rise time	t _r	V _{CE} =2V, I _C =10mA, R _L =100Ω	—	60	300	μ s
		Fall time	t _f		—	53	250	μ s

Fig. 1 Forward Current vs. Ambient Temperature

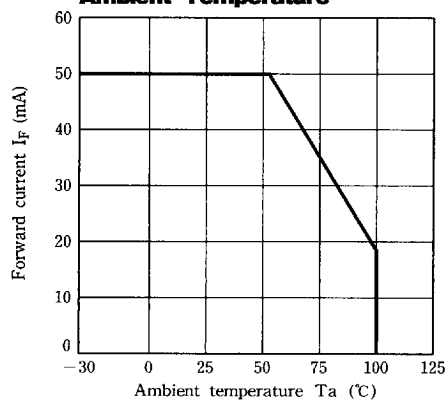


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

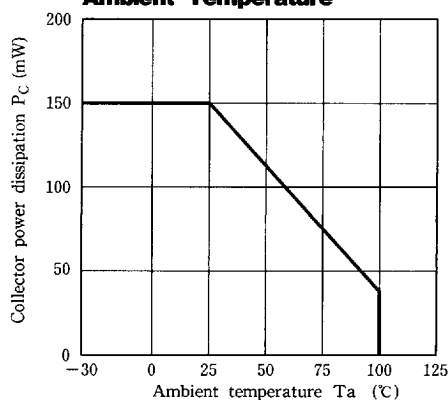


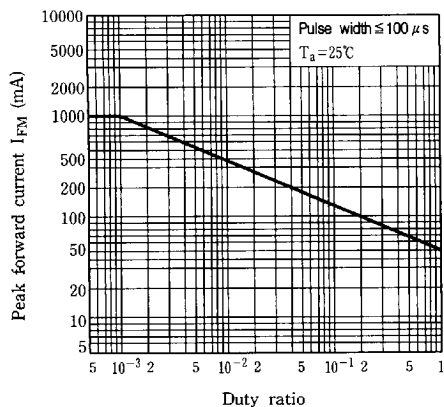
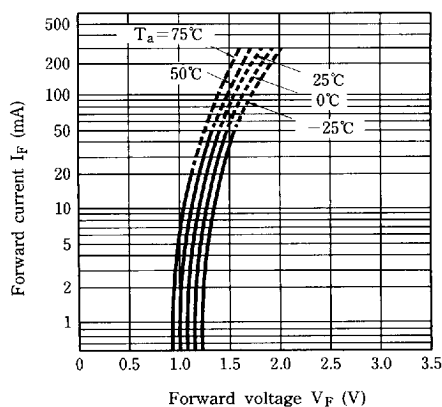
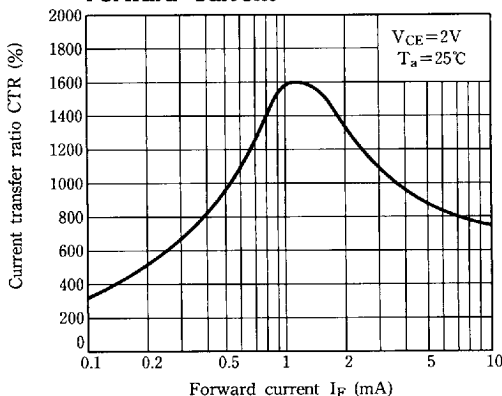
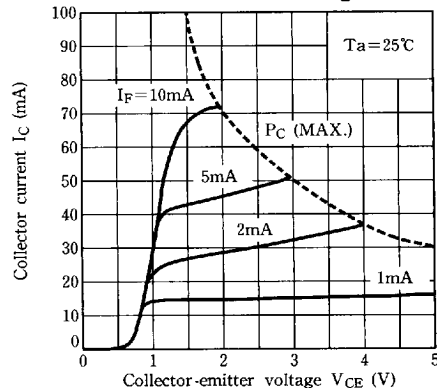
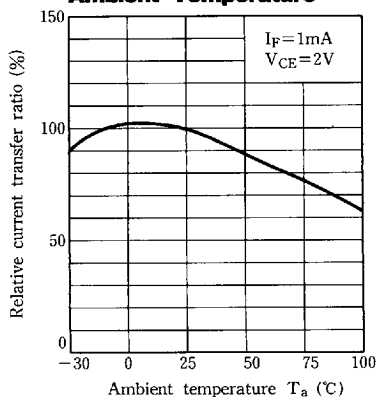
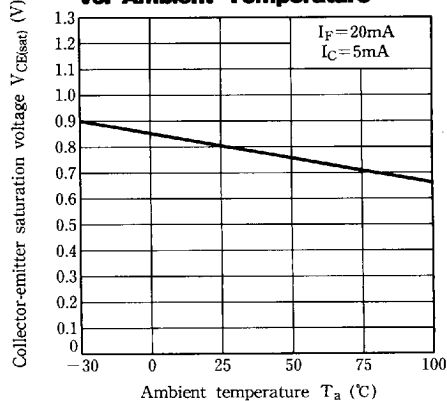
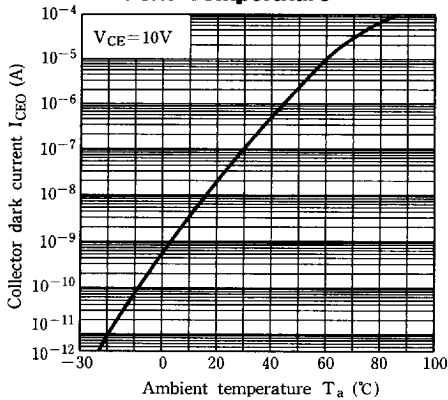
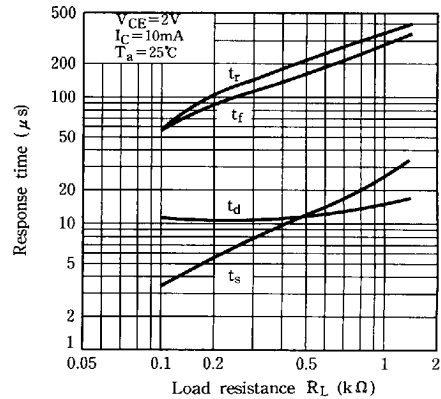
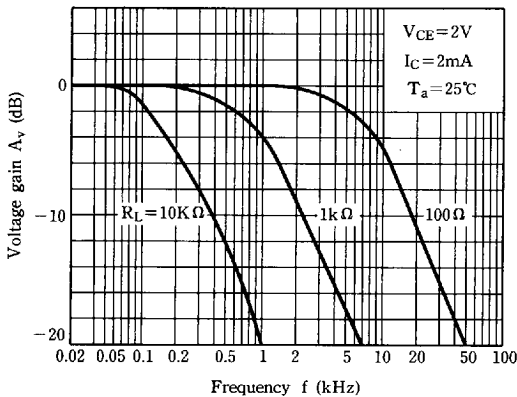
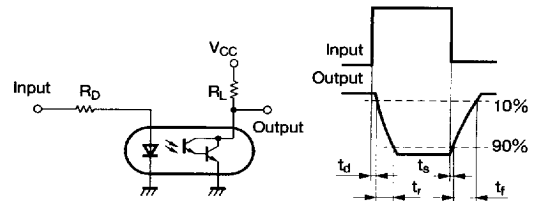
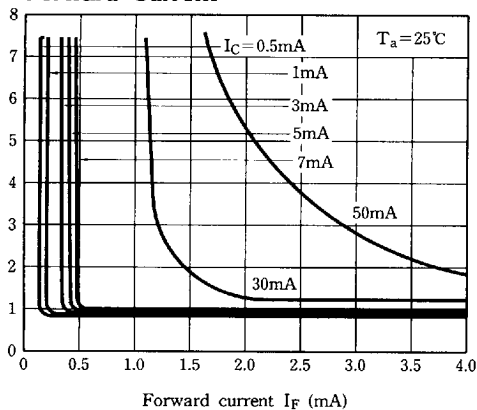
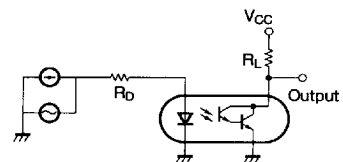
Fig. 3 Peak Forward Current vs. Duty Ratio**Fig. 4 Forward Current vs. Forward Voltage****Fig. 5 Current Transfer Ratio vs. Forward Current****Fig. 6 Collector Current vs. Collector-emitter Voltage****Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature****Fig. 8 Collector-emitter Saturation 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)