

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

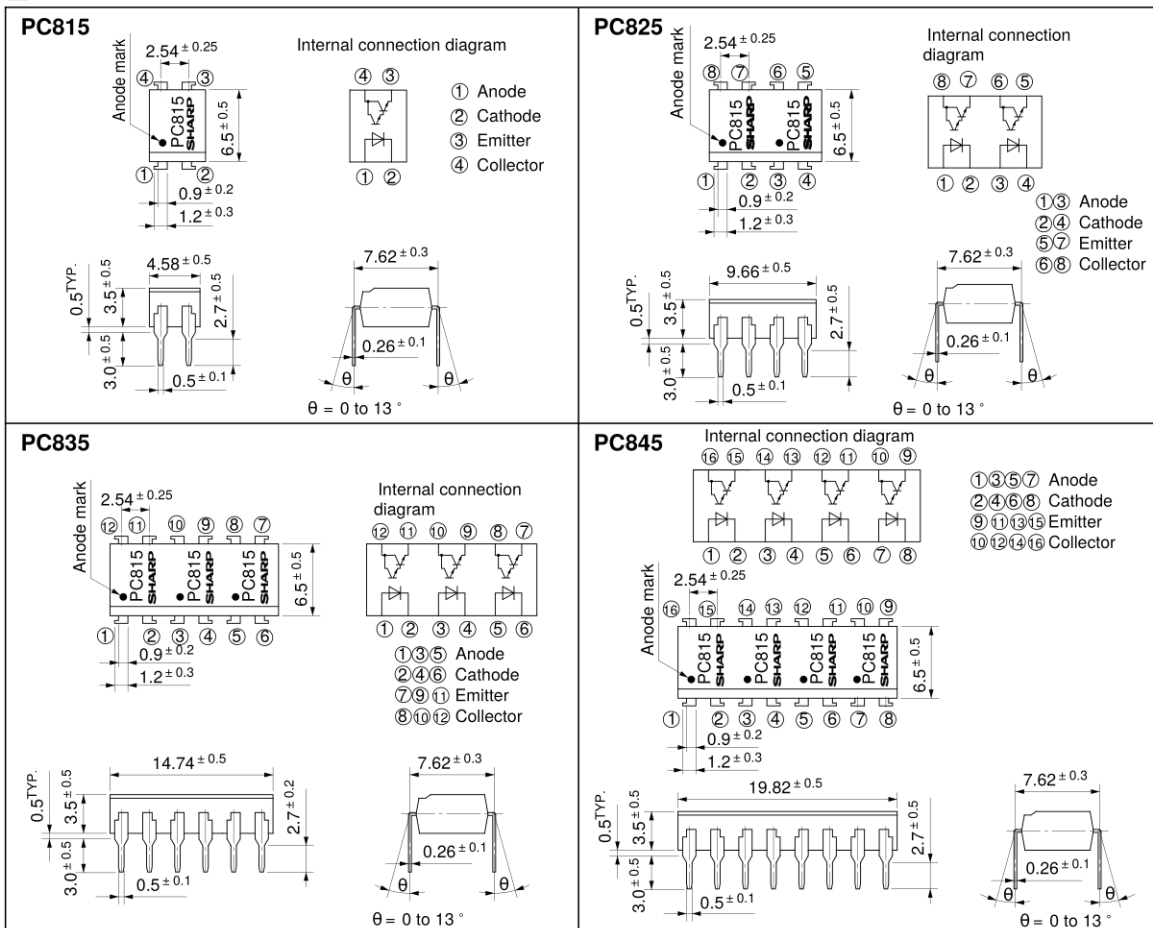
- High current transfer ratio
(CTR: MIN. 600% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
- High isolation voltage between input and output
($V_{iso} : 5000V_{rms}$)
- Compact dual-in-line package
PC815 : 1-channel type **PC825** : 2-channel type
PC835 : 3-channel type **PC845** : 4-channel type
- Recognized 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_{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 ≤ 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	$I_F = 20\text{mA}$	-	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	μA	
	Terminal capacitance	C_t	$V = 0, f = 1\text{kHz}$	-	30	250	pF	
Output	Collector dark current	I_{CEO}	$V_{CE} = 10\text{V}, I_F = 0$	-	-	10^{-6}	A	
	Current transfer ratio	CTR	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	600	-	7 500	%	
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 5\text{mA}$	-	0.8	1.0	V	
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω	
	Floating capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF	
	Cut-off frequency	Response time	f_c	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	1	6	-	kHz
			Rise time	t_r	-	60	300	μs
	Fall time	t_f	$V_{CE} = 2\text{V}, I_C = 10\text{mA}, R_L = 100\Omega$	-	53	250	μs	

Fig. 1 Forward Current vs. Ambient Temperature

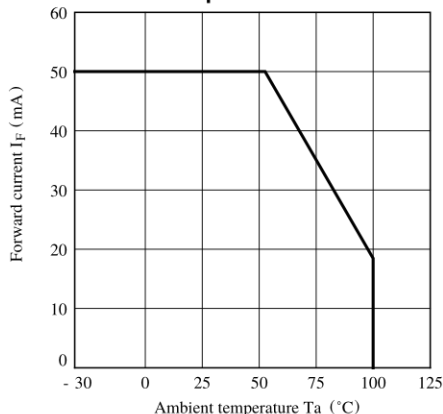


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

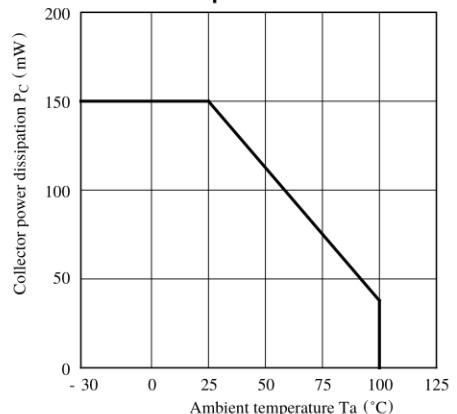


Fig. 3 Peak Forward Current vs. Duty Ratio

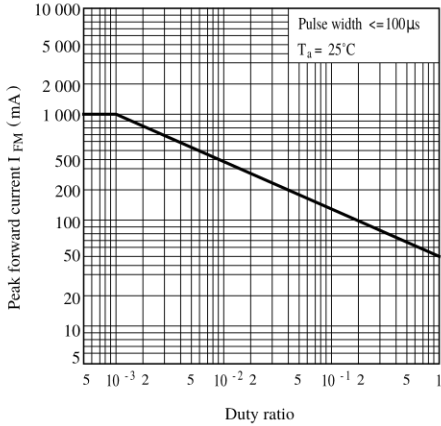


Fig. 4 Forward Current vs. Forward Voltage

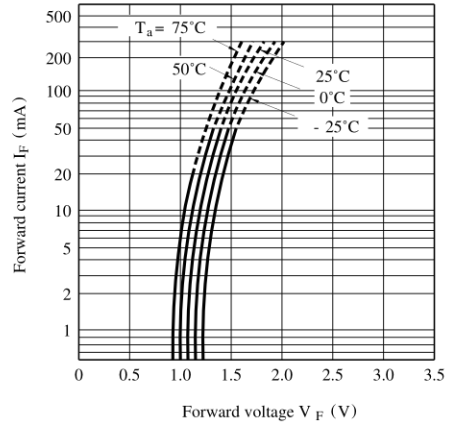


Fig. 5 Current Transfer Ratio vs. Forward Current

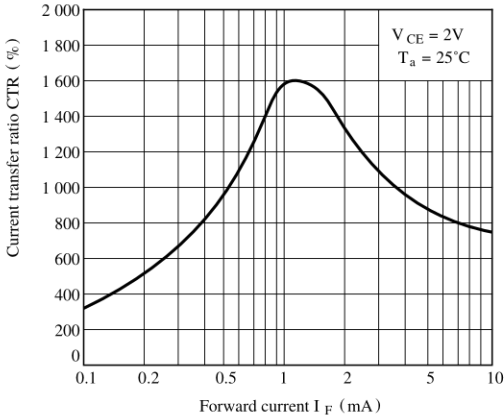


Fig. 6 Collector Current vs. Collector-emitter Voltage

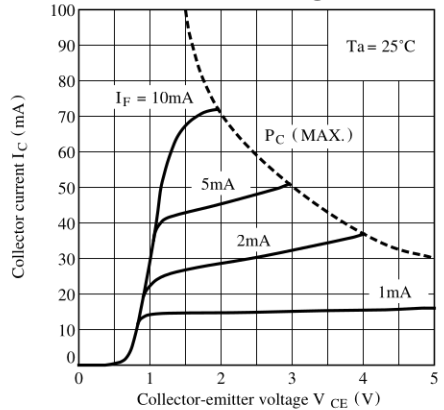


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

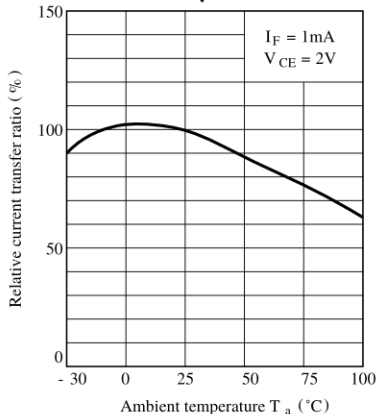


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

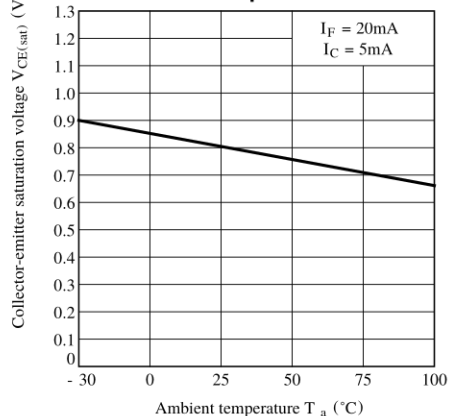


Fig. 9 Collector Dark Current vs. Ambient Temperature

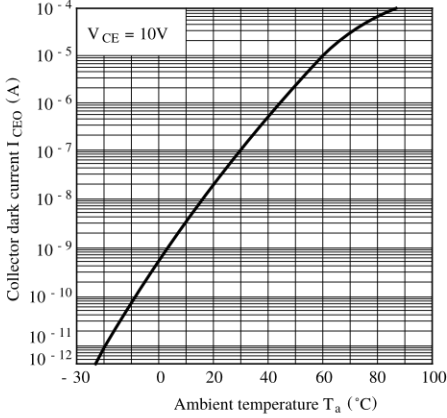


Fig.10 Response Time vs. Load Resistance

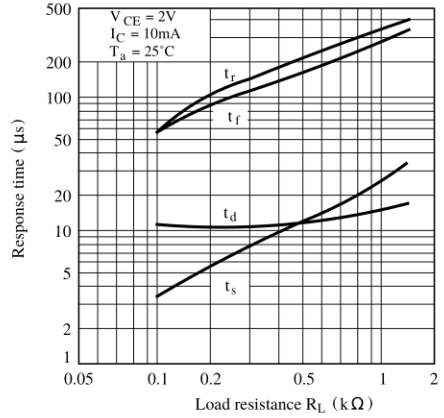
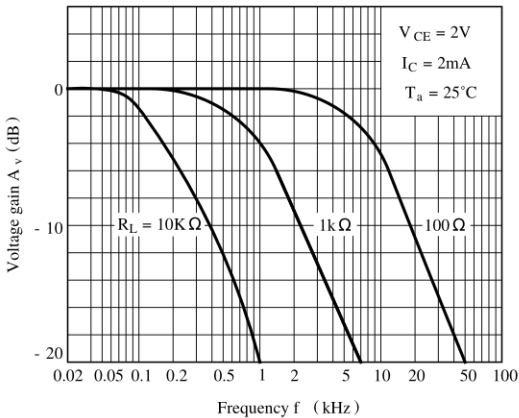


Fig.11 Frequency Response



Test Circuit for Response Time

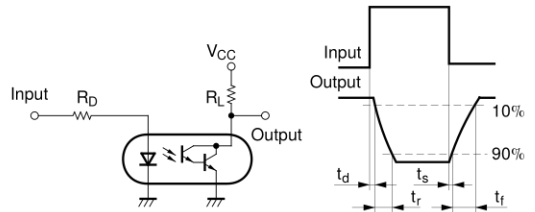
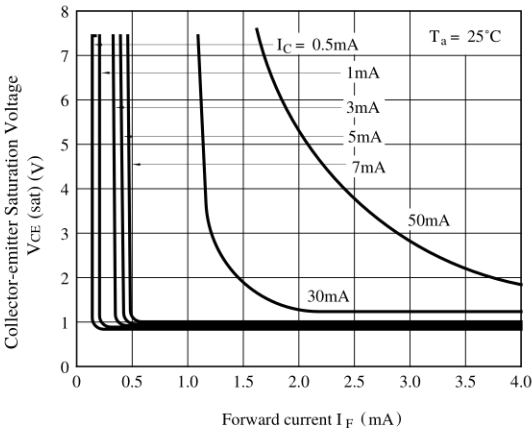
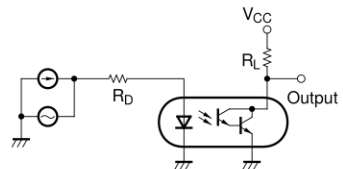


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frequency Response



● Please refer to the chapter "Precautions for Use"