

PC865 Series

■ Features

1. Low collector dark current
(I_{CEO} : MAX. $10 \mu\text{A}$ at $V_{CE} = 24\text{V}$, $T_a = 85^\circ\text{C}$)
2. High current transfer ratio
(CTR : MIN. 1 000% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
3. High collector-emitter voltage (V_{CEO} : 70V)
4. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
5. Compact dual-in-line package
PC865 (1-channel) **PC875** (2-channel)
PC895 (4-channel)
6. Recognized by UL, file No. E64380

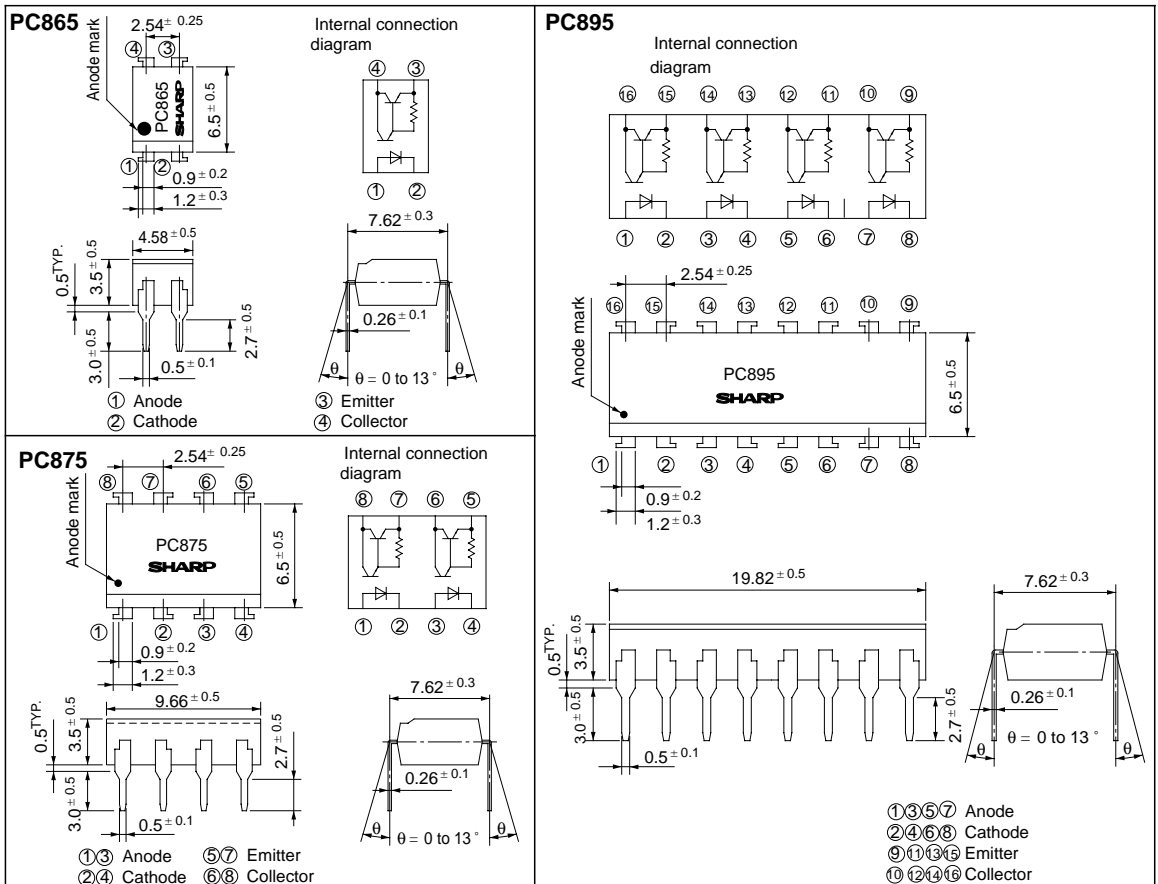
High Sensitivity, Low Collector Dark Current, High Collector-emitter Voltage Type Photocoupler

■ Applications

1. Programmable controllers
2. System appliances, measuring instruments
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 _F	50	mA
	*1Peak forward current	I _{FM}	1	A
	Reverse voltage	V _R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V _{CEO}	70	V
	Emitter-collector voltage	V _{ECCO}	0.1	V
	Collector current	I _C	80	mA
	Collector power dissipation	P _C	150	mW
Total power dissipation		P _{tot}	200	mW
*2Isolation voltage		V _{iso}	5 000	V _{rms}
Operating temperature		T _{opr}	- 30 to + 100	°C
Storage temperature		T _{stg}	- 55 to + 125	°C
*3Soldering 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	
	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} = 24V I _F = 0	Ta = 25 °C	-	-	2 x 10 ⁻⁷	A
				Ta = 85 °C	-	-	10 ⁻⁵	A
Transfer characteristics	Current transfer ratio	CTR	I _F = 1mA, V _{CE} = 2V	1 000	-	8 000	%	
	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	f _c	V _{CE} = 2V, I _C = 2mA, R _L = 100 Ω, - 3dB	1	6	-	kHz	
	Response time	Rise time	t _r	V _{CE} = 2V, I _C = 10mA R _L = 100 Ω	-	100	300	μs
Fall time		t _f	-		35	200	μs	

Fig. 1 Forward Current vs. Ambient Temperature

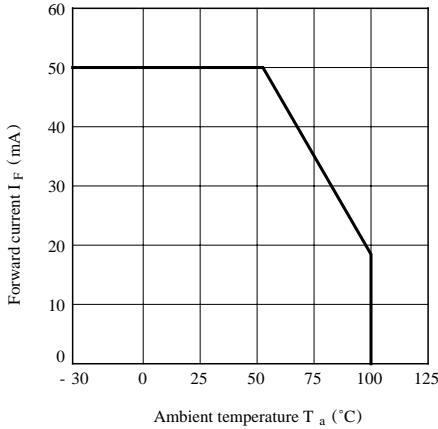


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

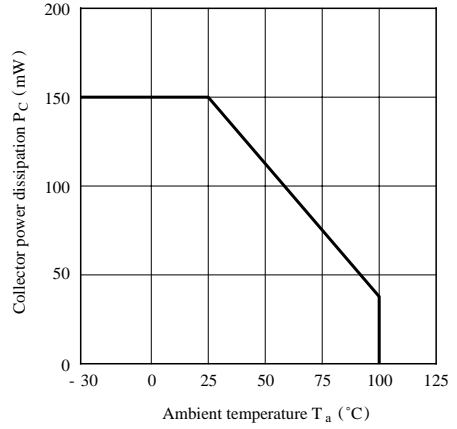


Fig. 3 Peak Forward Current vs. Duty Ratio

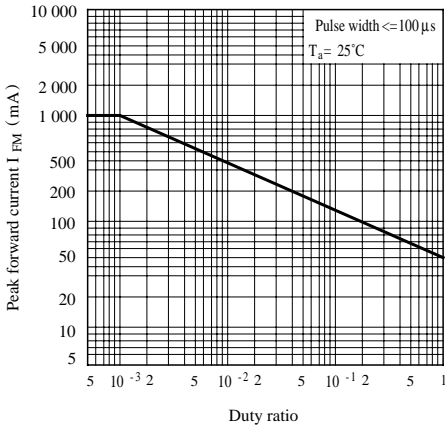


Fig. 4 Forward Current vs. Forward Voltage

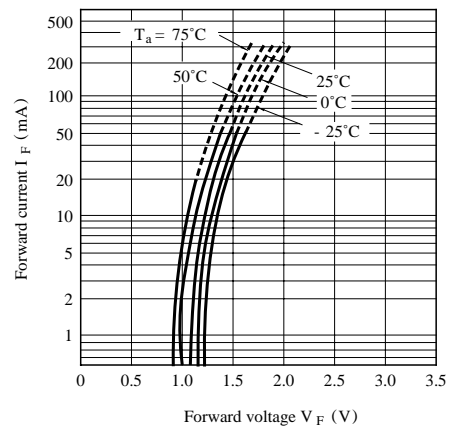


Fig. 5 Current Transfer Ratio vs. Forward Current

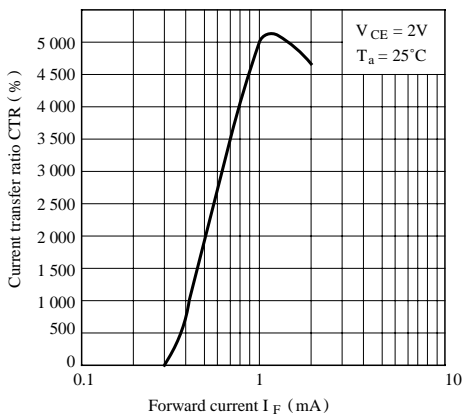


Fig. 6 Collector Current vs. Collector-emitter Voltage

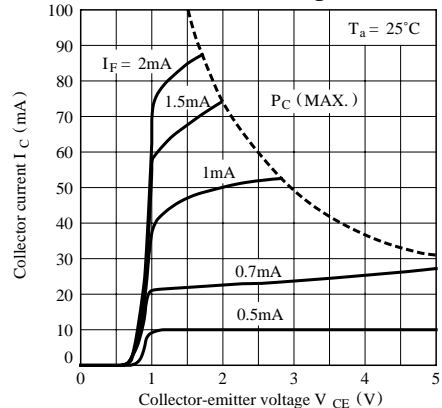


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

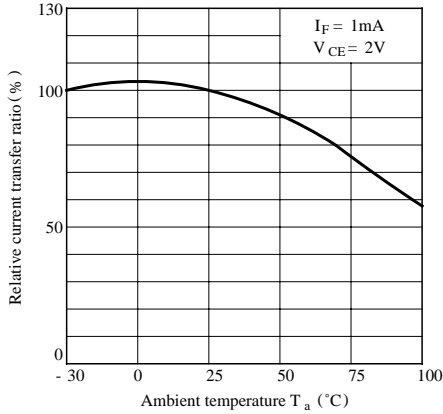


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

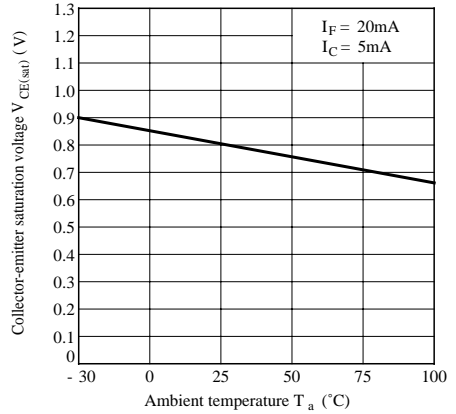


Fig. 9 Collector Dark Current vs. Ambient Temperature

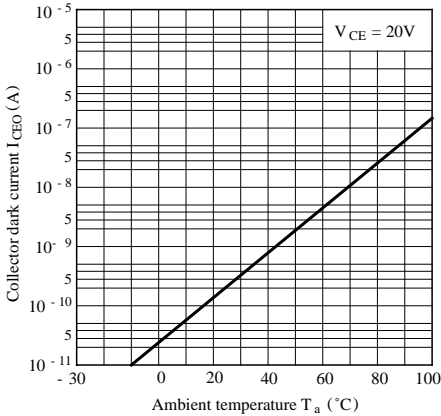


Fig.10 Response Time vs. Load Resistance

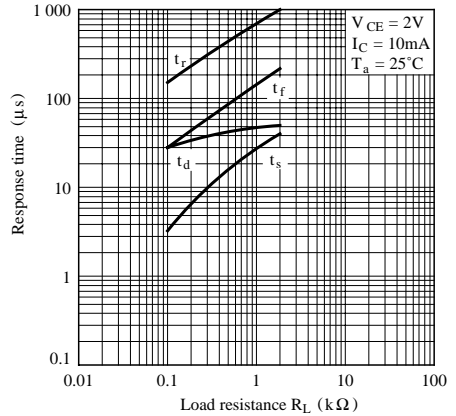
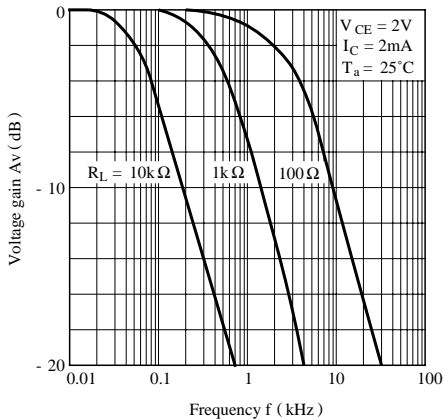
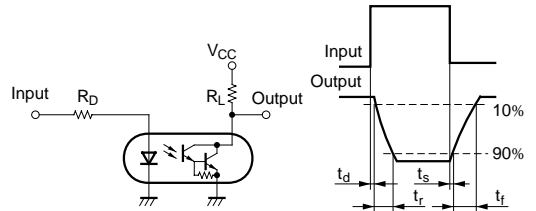


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

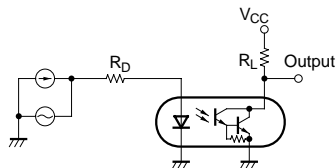
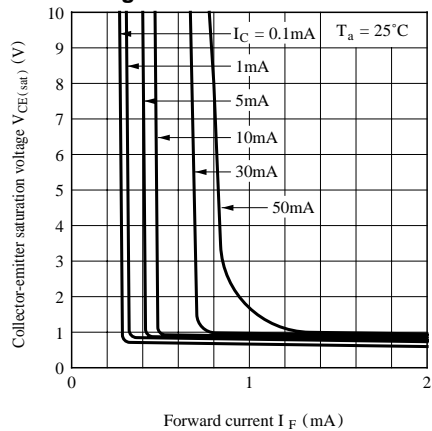


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



- Please refer to the chapter “Precautions for Use”

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