

# PC866 Series

## Low Driving Current Type Photocoupler

### ■ Features

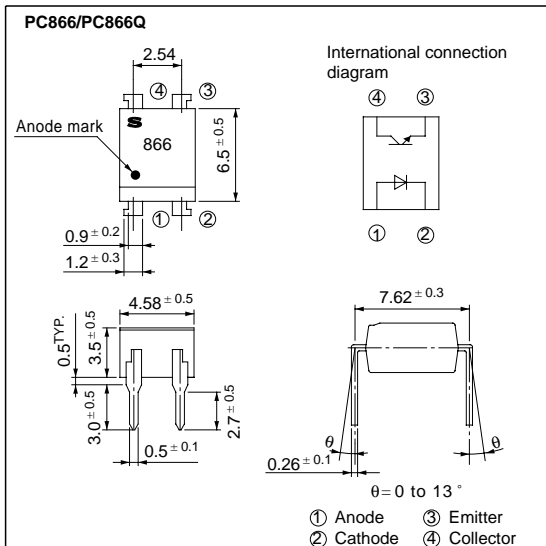
1. Low driving current (single Tr. output)  
(CTR : MIN. 100 % at  $I_F = 1\text{mA}$ )
2. High collector-emitter voltage ( $V_{CE0} : 80\text{V}$ )
3. Isolation voltage between input and output  
( $V_{iso} : 5000\text{V}_{rms}$ )
4. Also available burn-in type  
(PC866Q / PC8D66Q / PC8Q66Q)

### ■ Applications

1. Telephone sets
2. Computer terminals
3. System appliances, measuring instruments

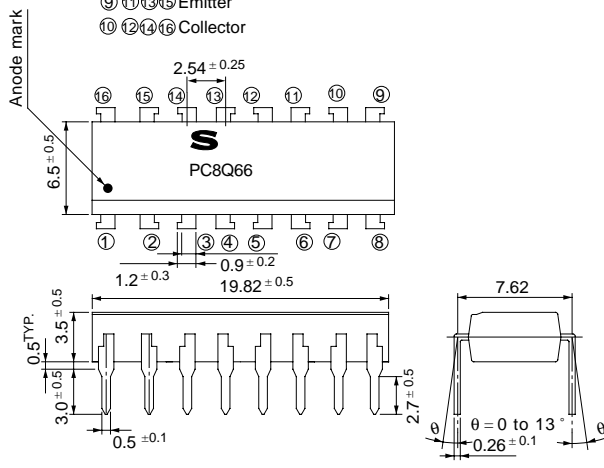
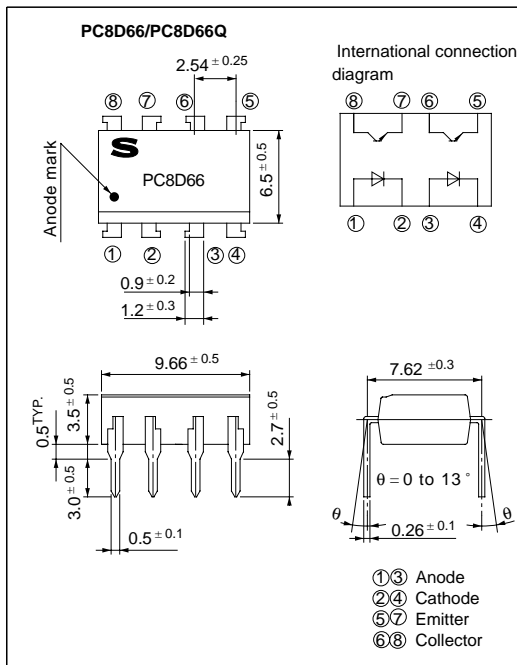
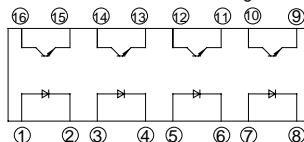
### ■ Outline Dimensions

(Unit : mm)



### PC8Q66/PC8Q66Q

International connection diagram



## ■ 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>	80	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
	Collector current	I <sub>C</sub>	50	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 ≤ 100μs, Duty ratio : 0.001

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

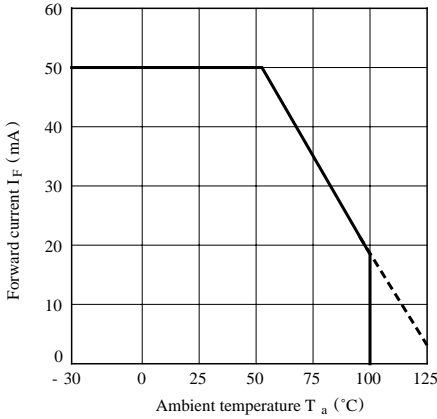
\*3 For 10 seconds

## ■ Electro-optical Characteristics

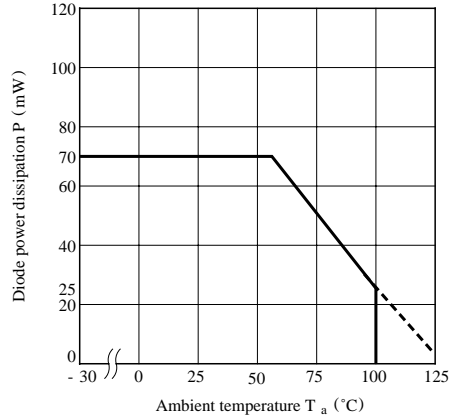
(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA	-	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> = 24V, I <sub>F</sub> = 0	-	-	100	nA	
	Collector-emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> = 0.1mA, I <sub>F</sub> = 0	80	-	-	V	
	Emitter-collector breakdown voltage	BV <sub>ECO</sub>	I <sub>E</sub> = 10μA, I <sub>F</sub> = 0	6	-	-	V	
Transfer characteristics	Current transfer ratio		CTR	I <sub>F</sub> = 1mA, V <sub>CE</sub> = 0.5V	100	-	-	%
	Collector-emitter saturation voltage		V <sub>CE(sat)</sub>	I <sub>F</sub> = 1mA, I <sub>C</sub> = 0.2mA	-	-	0.4	V
	Isolation resistance		R <sub>ISO</sub>	DC500V, 40 to 60% RH	5 × 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> = 5V, I <sub>C</sub> = 2mA, R <sub>L</sub> = 100Ω - 3dB	-	50	-	kHz
	Response time	Rise time	t <sub>r</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> = 2mA R <sub>L</sub> = 100Ω	-	8	-	μs
Fall time		t <sub>f</sub>	-		8	-		

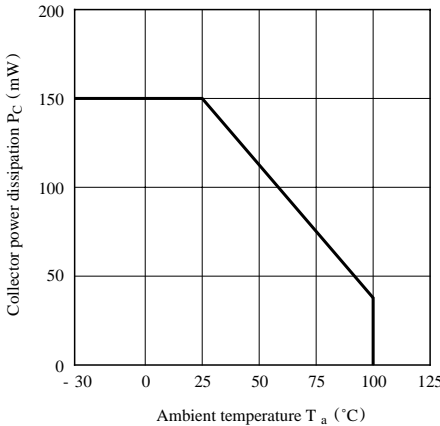
**Fig. 1 Forward Current vs. Ambient Temperature**



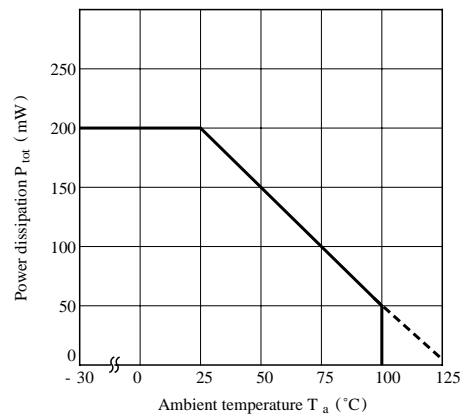
**Fig. 2 Diode Power Dissipation vs. Ambient Temperature**



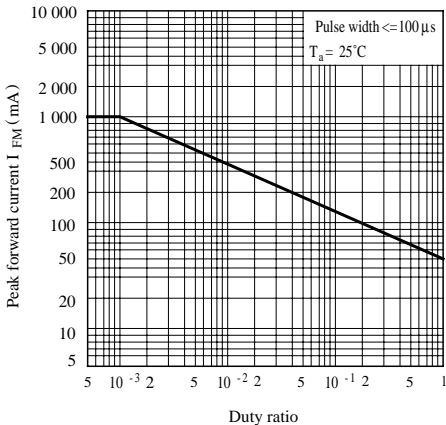
**Fig. 3 Collector Power Dissipation vs. Ambient Temperature**



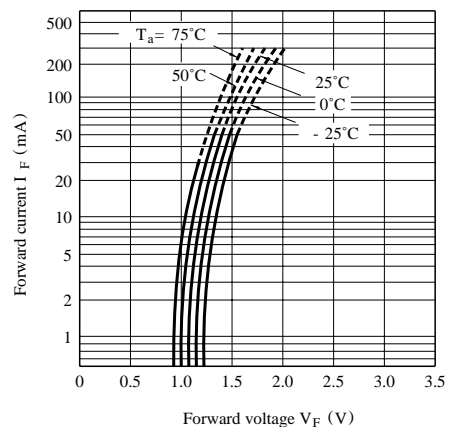
**Fig. 4 Power Dissipation vs. Ambient Temperature**



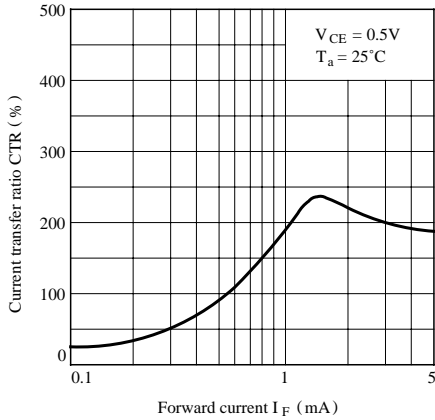
**Fig. 5 Peak Forward Current vs. Duty Ratio**



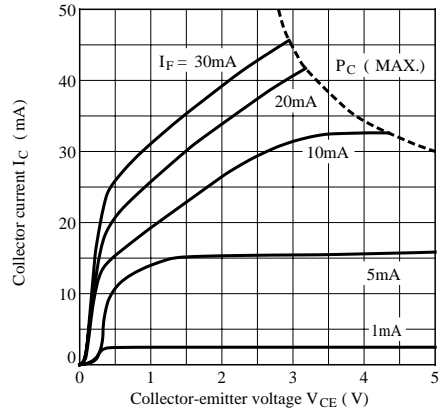
**Fig. 6 Forward Current vs. Forward Voltage**



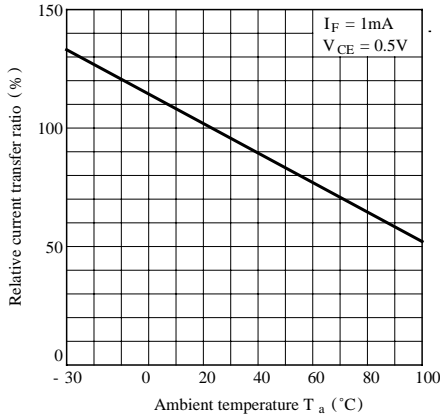
**Fig. 7 Current Transfer Ratio vs. Forward Current**



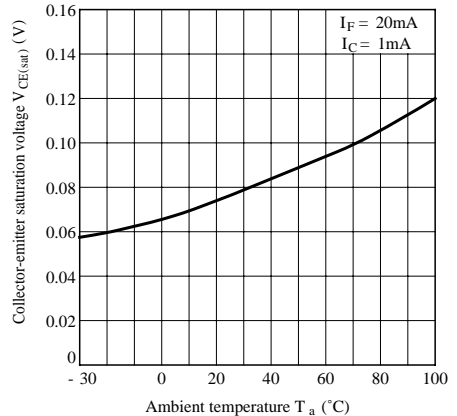
**Fig. 8 Collector Current vs. Collector-emitter Voltage**



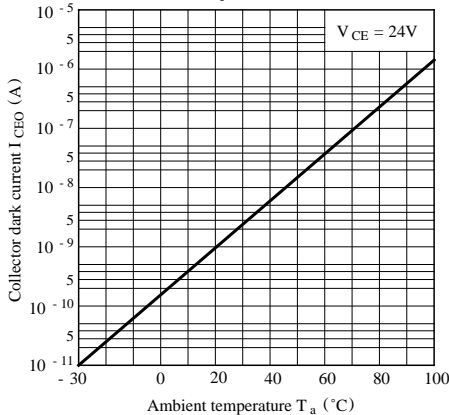
**Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature**



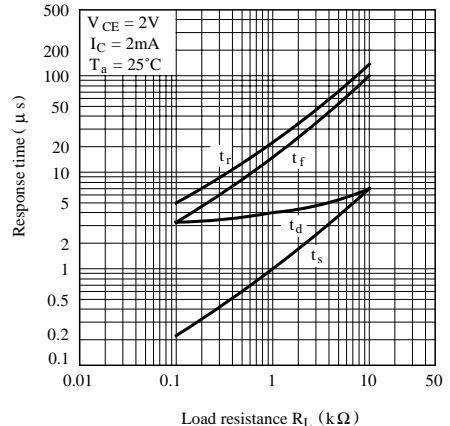
**Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature**



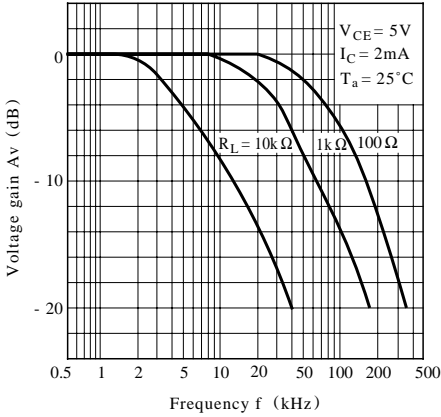
**Fig.11 Collector Dark Current vs. Ambient Temperature**



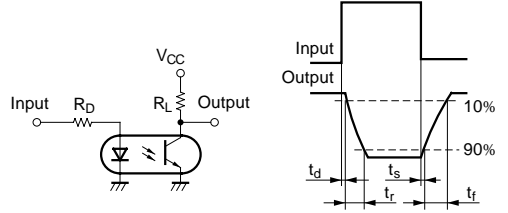
**Fig.12 Response Time vs. Load Resistance**



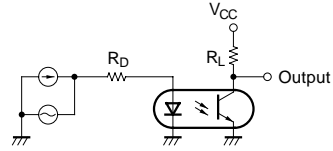
**Fig.13 Frequency Response**



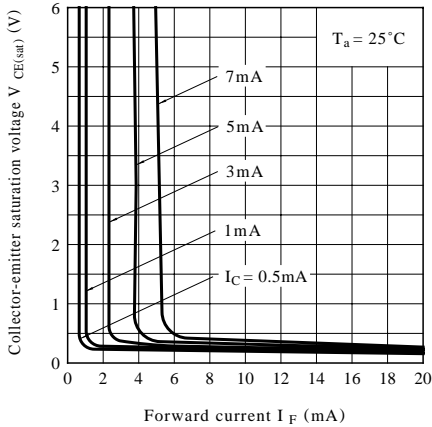
**Test Circuit for Response Time**



**Test Circuit for Frequency Response**



**Fig.14 Collector-emitter Saturation Voltage vs. Forward Current**



● Please refer to the chapter “Precautions for Use”