

PC866 Series

Low Driving Current Type Photocoupler

■ Features

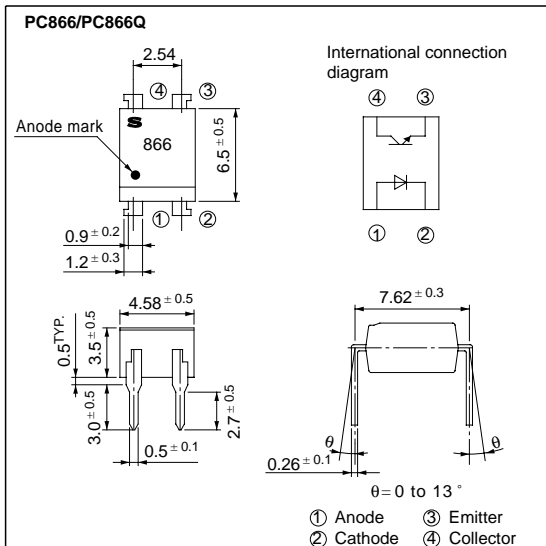
1. Low driving current (single Tr. output)
(CTR : MIN. 100 % at $I_F = 1\text{mA}$)
2. High collector-emitter voltage ($V_{CE0} : 80\text{V}$)
3. Isolation voltage between input and output
($V_{iso} : 5000\text{V}_{rms}$)
4. Also available burn-in type
(PC866Q / PC8D66Q / PC8Q66Q)

■ Applications

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

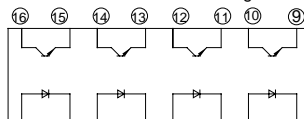
■ Outline Dimensions

(Unit : mm)

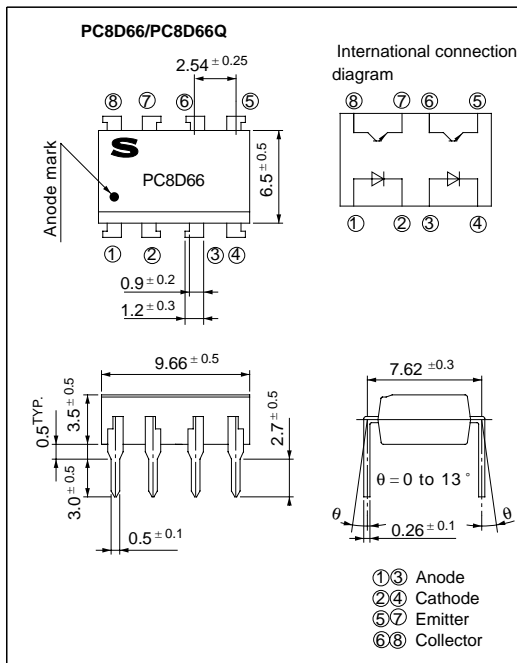
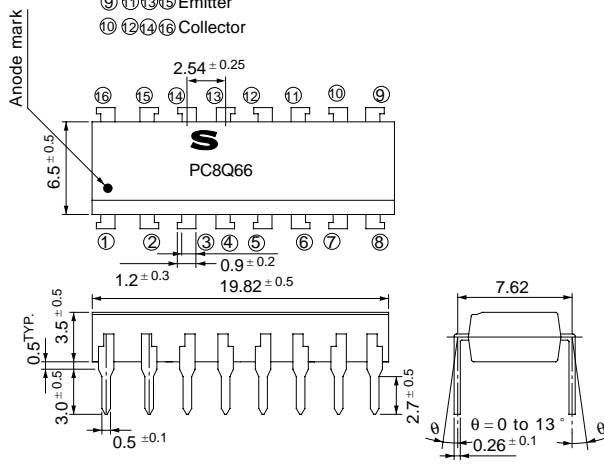


PC8Q66/PC8Q66Q

International connection diagram



- ①③⑤⑦ Anode
②④⑥⑧ Cathode
⑨⑪⑬⑮ Emitter
⑩⑫⑭⑯ Collector



* 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."

■ 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}	80	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _C	50	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 ≤ 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 _F	I _F = 10mA	-	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} = 24V, I _F = 0	-	-	100	nA	
	Collector-emitter breakdown voltage	BV _{CEO}	I _C = 0.1mA, I _F = 0	80	-	-	V	
	Emitter-collector breakdown voltage	BV _{ECO}	I _E = 10μA, I _F = 0	6	-	-	V	
Transfer characteristics	Current transfer ratio		CTR	I _F = 1mA, V _{CE} = 0.5V	100	-	-	%
	Collector-emitter saturation voltage		V _{CE(sat)}	I _F = 1mA, I _C = 0.2mA	-	-	0.4	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} = 5V, I _C = 2mA, R _L = 100Ω - 3dB	-	50	-	kHz
	Response time	Rise time	t _r	V _{CE} = 2V, I _C = 2mA R _L = 100Ω	-	8	-	μs
Fall time		t _f	-		8	-		

Fig. 1 Forward Current vs. Ambient Temperature

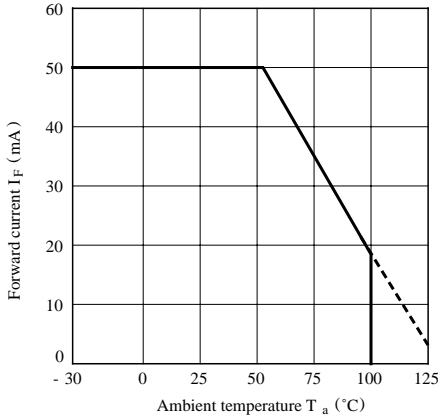


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

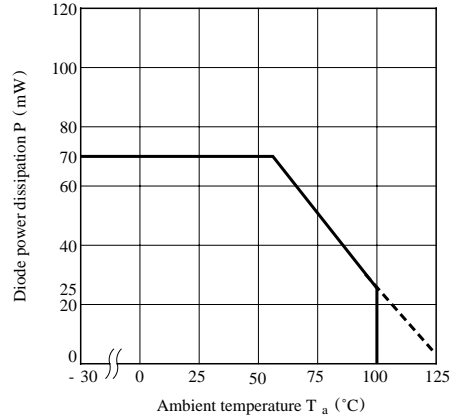


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

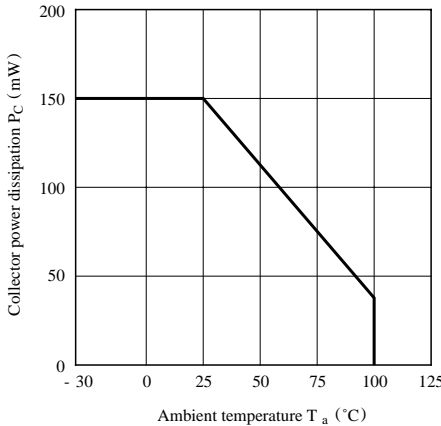


Fig. 4 Power Dissipation vs. Ambient Temperature

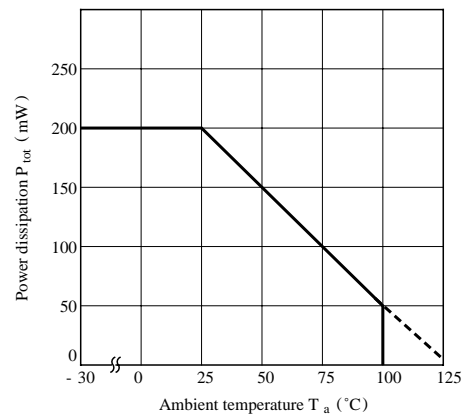


Fig. 5 Peak Forward Current vs. Duty Ratio

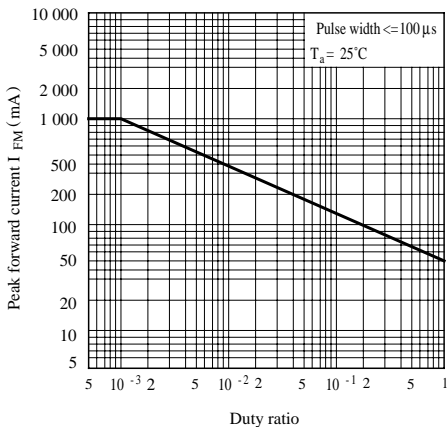


Fig. 6 Forward Current vs. Forward Voltage

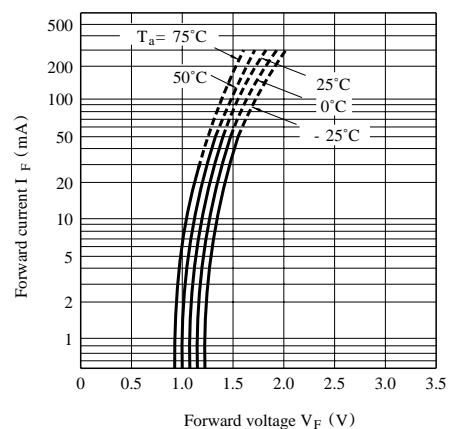


Fig. 7 Current Transfer Ratio vs. Forward Current

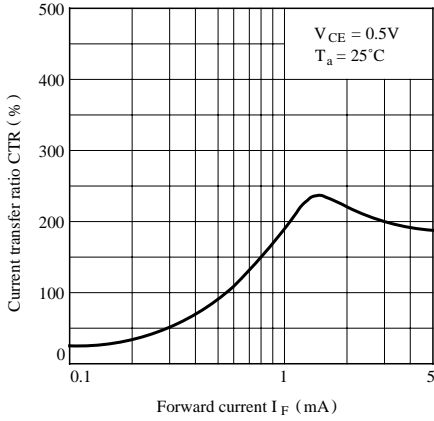


Fig. 8 Collector Current vs. Collector-emitter Voltage

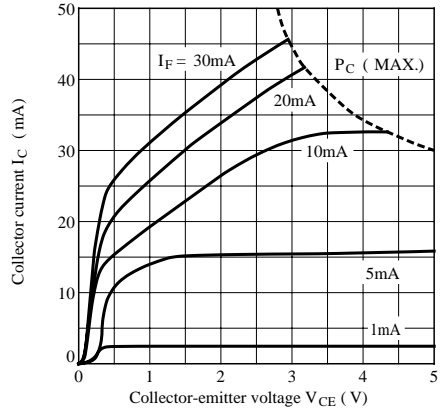


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

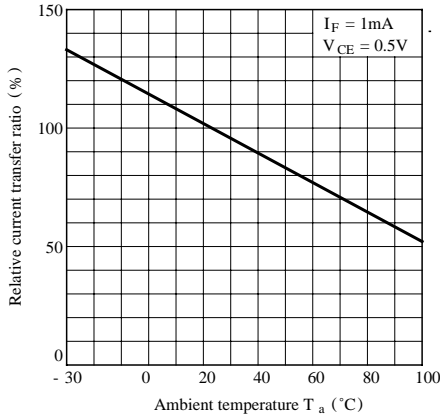


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

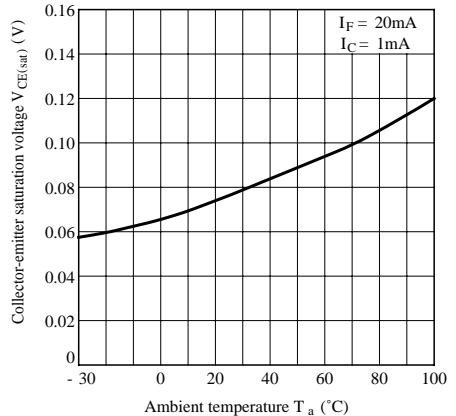


Fig.11 Collector Dark Current vs. Ambient Temperature

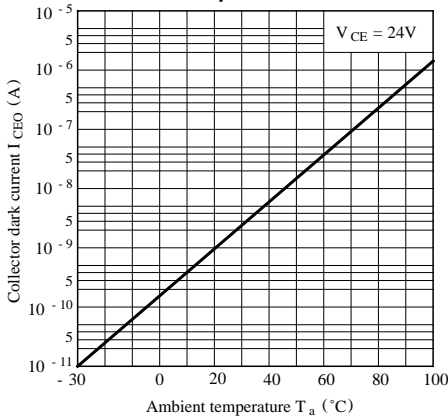


Fig.12 Response Time vs. Load Resistance

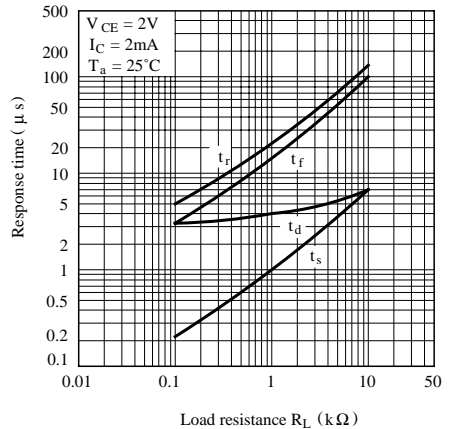
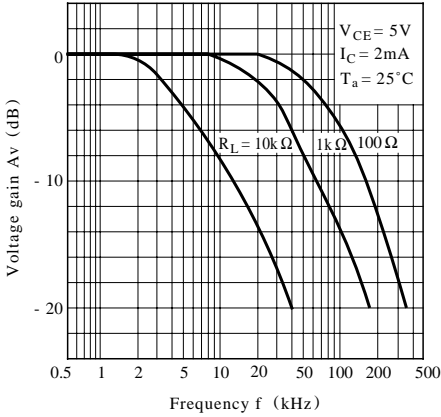
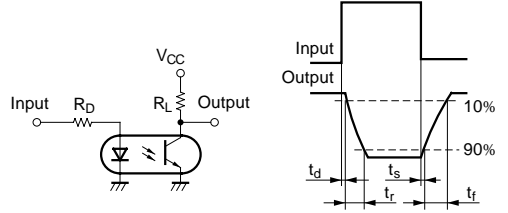


Fig.13 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

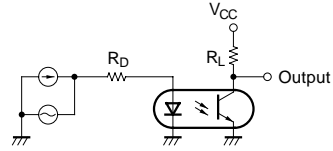
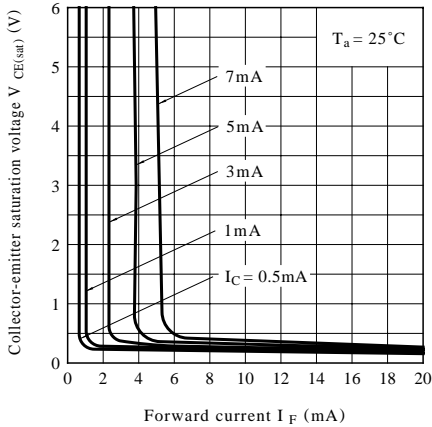


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter “Precautions for Use”