PC3H2/PC3Q62

High Resistance to Noise, Half Pitch Photocoupler

■ Features

1. Half pitch surface mount type for high density mounting (Lead pitch : 1.27 mm)
2. High resistance to noise due to high common mode rejection voltage (CMR : MIN.10kV/μs)
3. Soldering reflow type (230°C, for 30seconds)
4. High temperature tested model
5. Taping package
   PC3H2 (1ch)
   PC3Q62 (4ch)
6. Recognized by UL, file No. E64380

■ Applications

1. Programmable controllers

■ Package Specifications

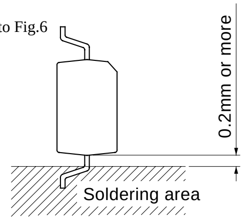
Model No.	Package specification
PC3H2	Taping reel diameter 330mm (3 000pcs)
PC3Q62	Taping reel diameter 330mm (1 000pcs)

■ Absolute Maximum Ratings

(Ta=25˚C)

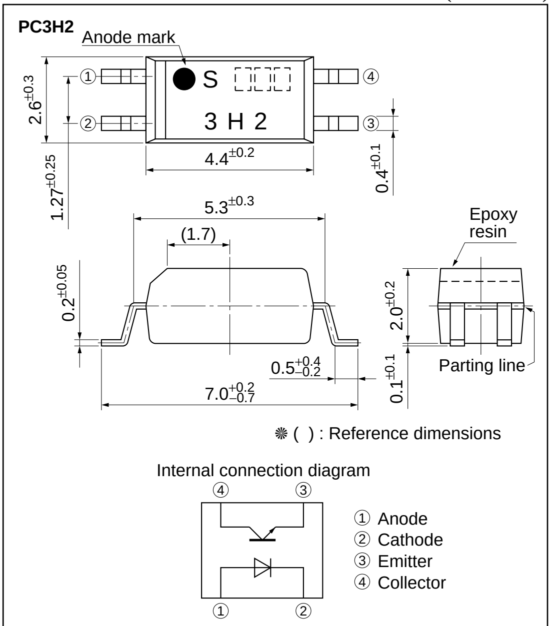
Parameter		Symbol	Rating	Unit
Input	*1 Forward current	I_F	50	mA
	*2 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	*1 Power dissipation	P	70	mW
Output	*1 Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	*1 Collector dissipation	P_C	150	mW
*1 Total power dissipation		P_{tot}	170	mW
Operating temperature		T_{opr}	−30 to +100	˚C
Storage temperature		T_{stg}	−40 to +125	˚C
*3 Isolation voltage		V_{iso}	2.5	kV_{rms}
*4 Soldering temperature		T_{SOL}	260	˚C

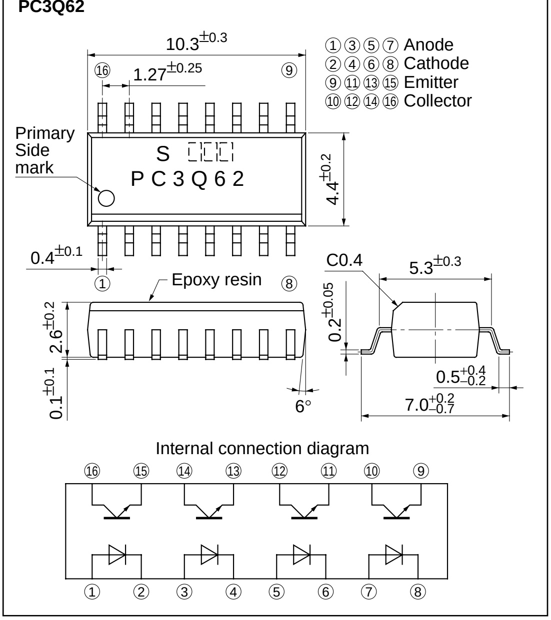
*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.2 to 5
*2 Pulse width<=100μs, Duty ratio:0.01, Refer to Fig.6
*3 AC for 1min., 40 to 60% RH, f=60Hz
*4 For 10s



■ Outline Dimensions

(Unit : mm)





■ 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	**PC3H2**	I_{CEO}	V_{CE}=50V, I_F=0	–	–	100	nA
		PC3Q62		V_{CE}=20V, I_F=0				
	Collector-emitter breakdown voltage		BV_{CEO}	I_C=0.1mA, I_F=0	70	–	–	V
	Emitter-collector breakdown voltage		BV_{ECO}	I_E=10μA, I_F=0	6	–	–	V
Transfer charac-teristics	Collector current		I_C	I_F=1mA, V_{CE}=5V	0.2	–	4.0	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=1mA	–	0.1	0.2	V
	Isolation resistance		R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	1×10^{11}	–	Ω
	Floating capacitance		C_f	V=0, f=1MHz	–	0.6	1.0	pF
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA, R_L=100Ω	–	4	18	μs
		Fall time	t_f		–	3	18	μs
	*5 Common mode rejection voltage		CMR	Ta=25˚C, R_L=470Ω, V_{CM}=1.5kV(peak), I_F=0mA, V_{CC}=9V, Vnp=100mV	10	–	–	kV/μs

*5 Refer to Fig.1

Fig.1 Test Circuit for Common Mode Rejection Voltage

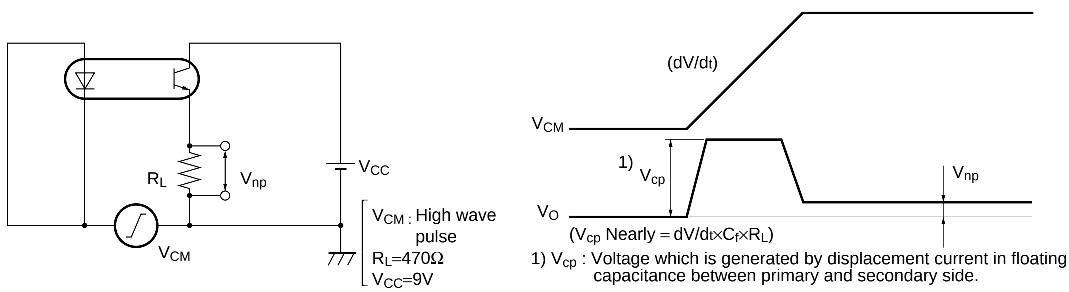


Fig.2 Forward Current vs. Ambient Temperature

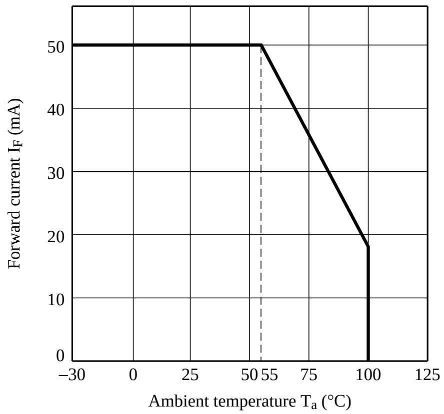


Fig.3 Diode Power Dissipation vs. Ambient Temperature

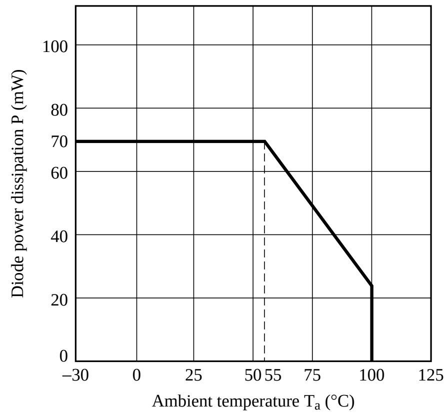


Fig.4 Collector Power Dissipation vs. Ambient Temperature

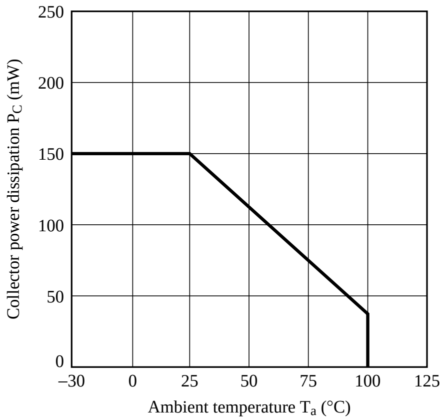


Fig.5 Total Power Dissipation vs. Ambient Temperature

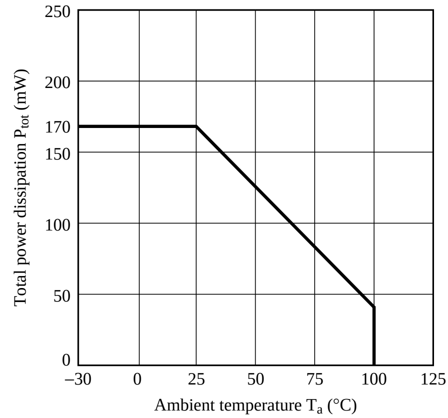


Fig.6 Peak Forward Current vs. Duty Ratio

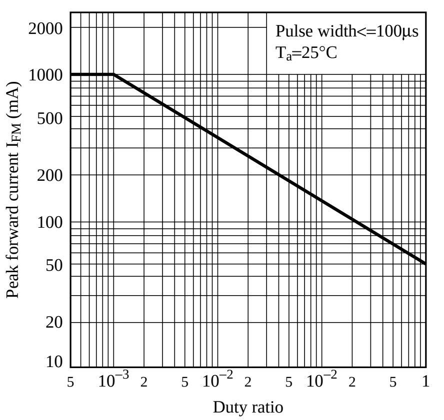


Fig.7 Forward Current vs. Forward Voltage

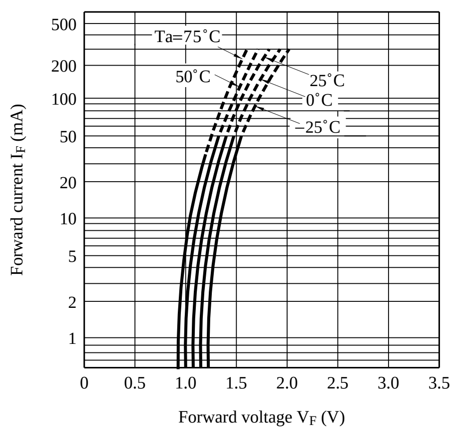


Fig.8 Current Transfer Ratio vs. Forward Current

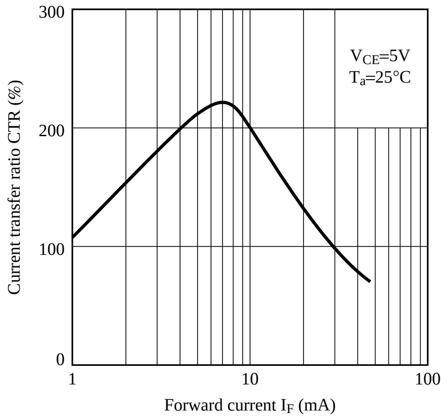


Fig.9 Collector Current vs. Collector-emitter Voltage

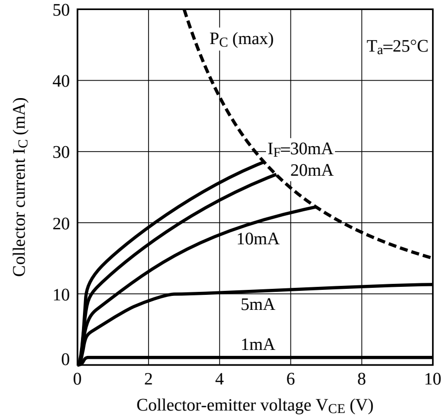


Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature

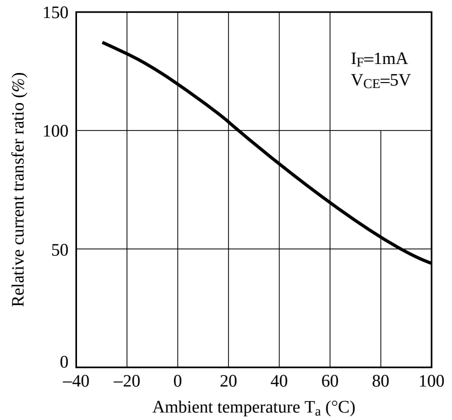


Fig.11 Collector-emitter Saturation Voltage vs. Ambient Temperature

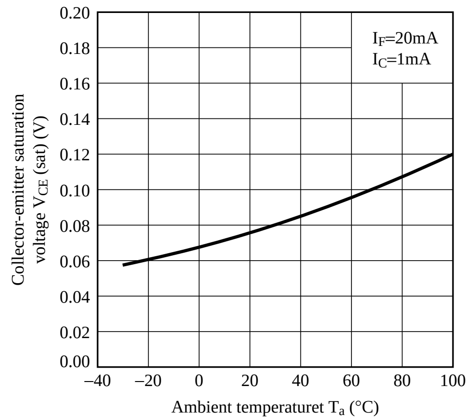


Fig.12 Collector Dark Current vs. Ambient Temperature

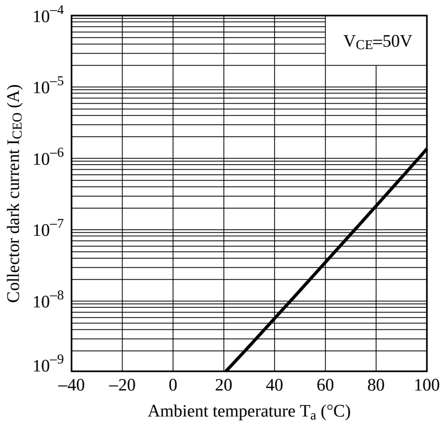


Fig.13 Response Time vs. Load Resistance

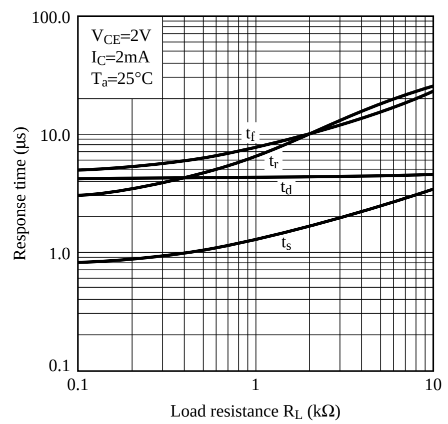


Fig.14 Test Circuit for Response Time

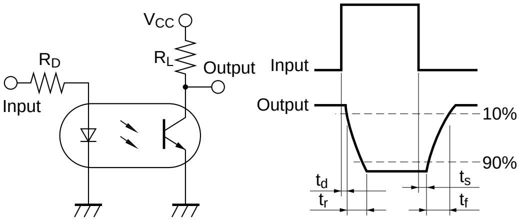


Fig.15 Voltage Gain vs Frequency

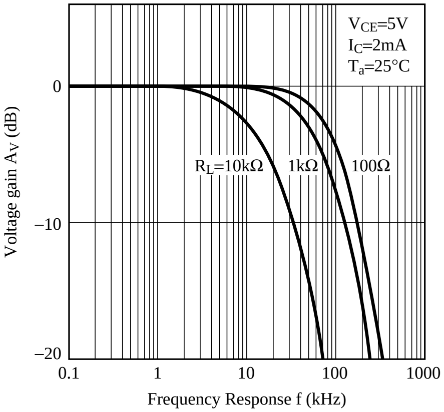


Fig.16 Collector-emitter Saturation Voltage vs. Forward Current

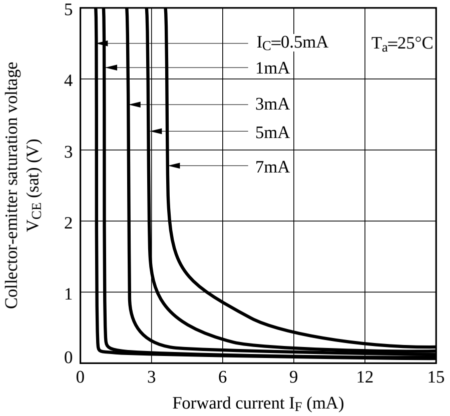
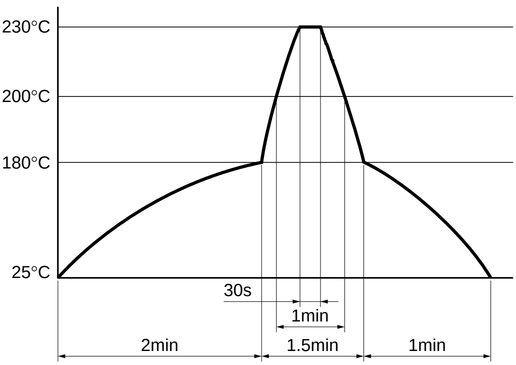


Fig.17 Reflow Soldering

Only one time soldering is recommended within the temperature profile shown below.



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