

PC3H3/PC3Q63

■ Features

1. Half pitch surface mount type for high density mounting
(Lead pitch : 1.27 mm)
2. AC input type
3. High resistance to noise due to high common mode rejection voltage (CMR : MIN.10kV/μs)
4. Soldering reflow type (230°C, for 30s)
5. High temperature tested model
6. Taping package
PC3H3 (1ch)
PC3Q63 (4ch)
7. Recognized by UL, file No. E64380

■ Applications

1. Programmable controllers

■ Package Specifications

Model No.	Package specification
PC3H3	Taping reel diameter 330mm (3 000pcs)
PC3Q63	Taping reel diameter 330mm (1 000pcs)

■ Absolute Maximum Ratings

(Ta=25°C)

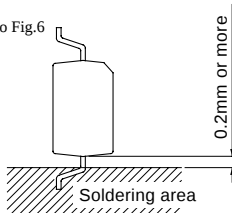
	Parameter	Symbol	Rating	Unit
Input	*1 Forward current	IF	±50	mA
	*2 Peak forward current	IFM	±1	A
	*1 Power dissipation	P	70	mW
Output	Collector-emitter voltage	VCEO	70	V
	Emitter-collector voltage	VECO	6	V
	Collector current	IC	50	mA
	*1 Collector power dissipation	PC	150	mW
	*1 Total power dissipation	Ptot	170	mW
	Operating temperature	Topr	-30 to +100	°C
	Storage temperature	Tstg	-40 to +125	°C
	*3 Isolation voltage	Viso	2.5	kV _{rms}
	*4 Soldering temperature	Tsol	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

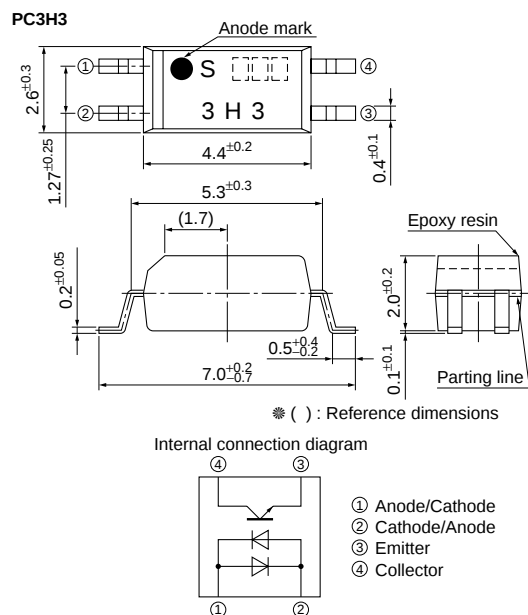
*4 For 10s



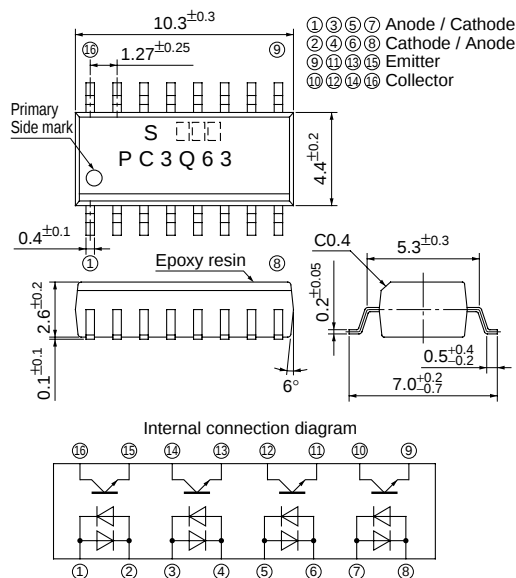
High Resistance to Noise, AC Input Type Half Pitch Photocoupler

■ Outline Dimensions

(Unit : mm)



PC3Q63



■ 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
	Terminal capacitance		C _t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current	PC3H3	I _{CEO}	V _{CE} =50V, I _F =0	—	—	100	nA
		PC3Q63		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 characteristics	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, V _{np} =100mV	10	—	—	kV/μs

*5 Refer to Fig.1

Fig.1 Test Circuit for Common Mode Rejection Voltage

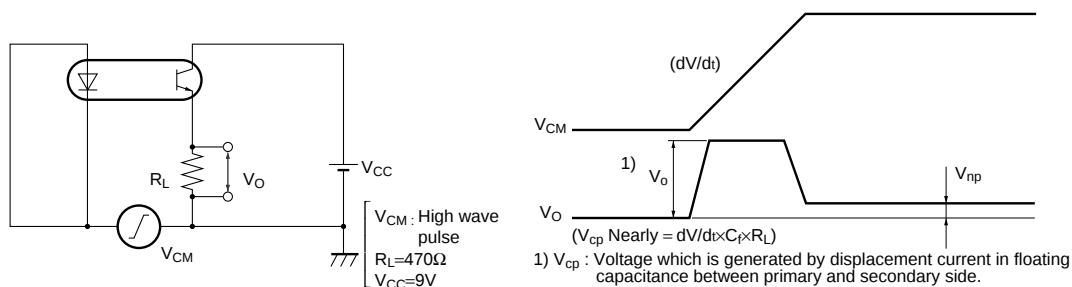


Fig.2 Forward Current vs. Ambient Temperature

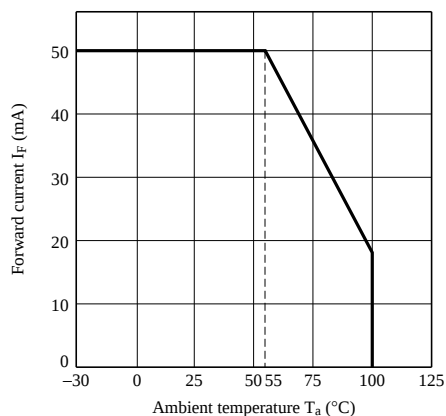


Fig.3 Diode Power Dissipation vs. Ambient Temperature

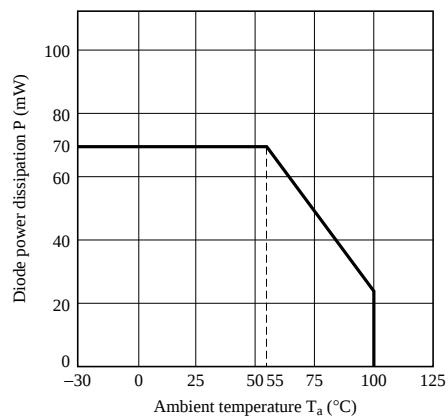


Fig.4 Collector Power Dissipation vs. Ambient Temperature

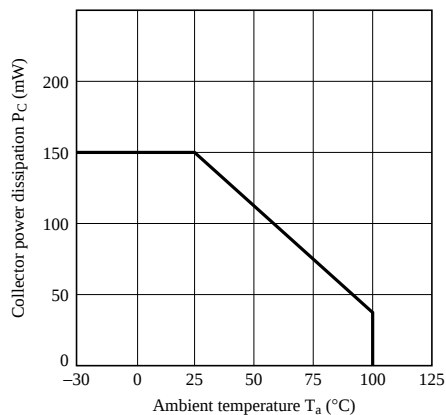


Fig.5 Total Power Dissipation vs. Ambient Temperature

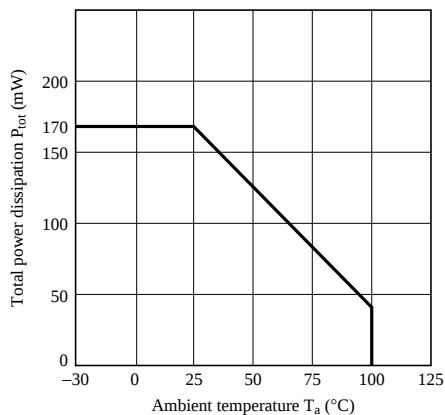


Fig.6 Peak Forward Current vs. Duty Ratio

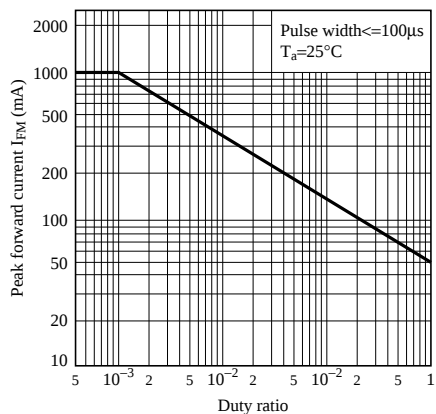


Fig.7 Forward Current vs. Forward Voltage

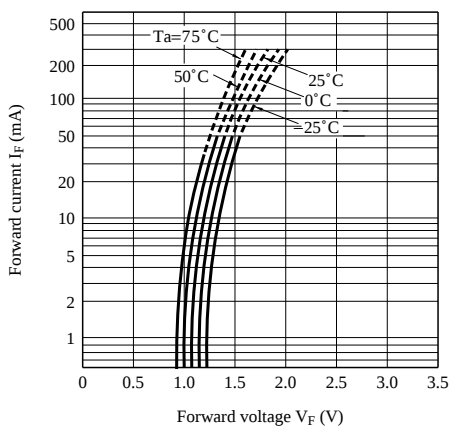


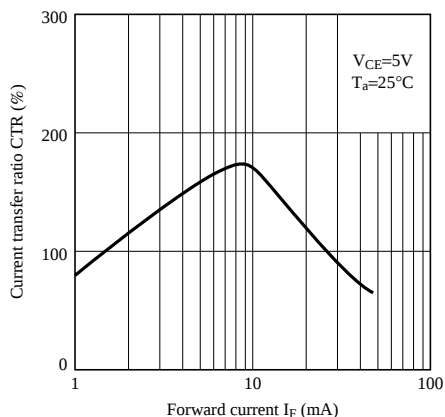
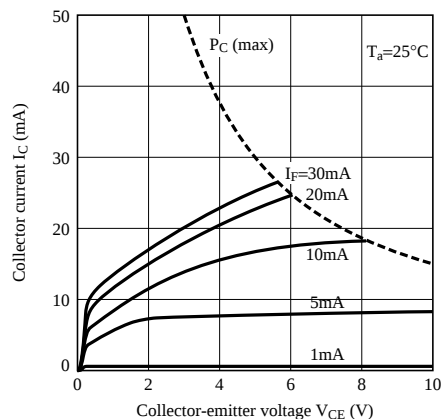
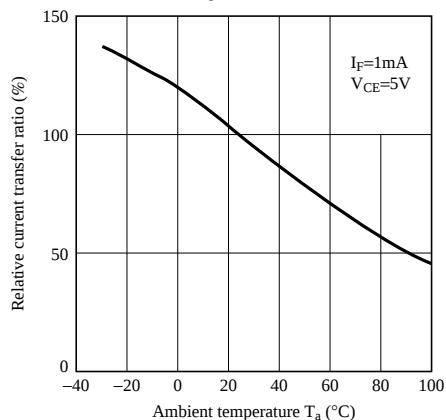
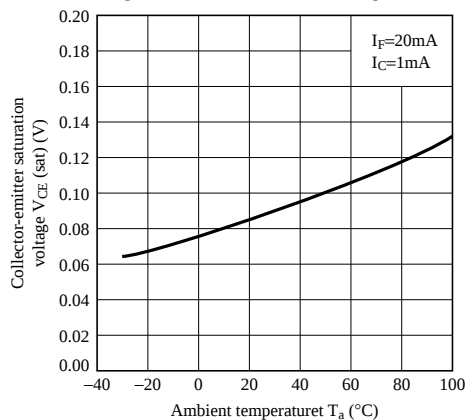
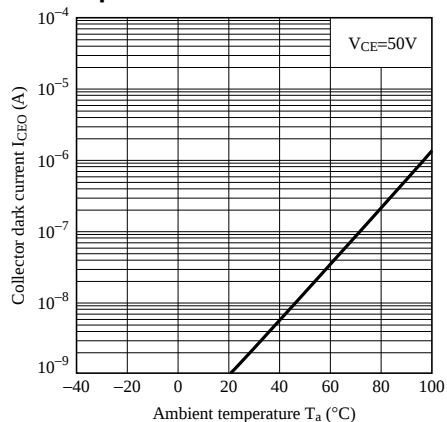
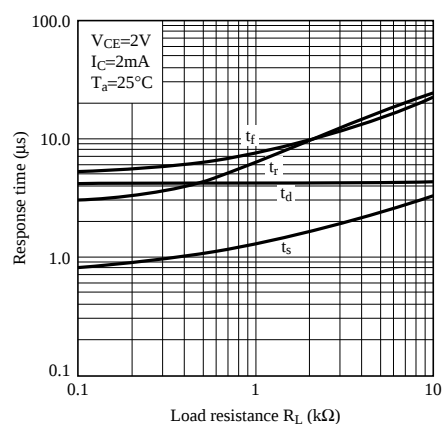
Fig.8 Current Transfer Ratio vs. Forward Current**Fig.9 Collector Current vs. Collector-emitter Voltage****Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature****Fig.11 Collector-emitter Saturation Voltage vs. Ambient Temperature****Fig.12 Collector Dark Current vs. Ambient Temperature****Fig.13 Response Time vs. Load Resistance**

Fig.14 Test Circuit For Response Time

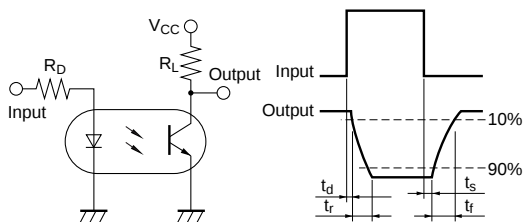


Fig.15 Voltage Gain vs Frequency

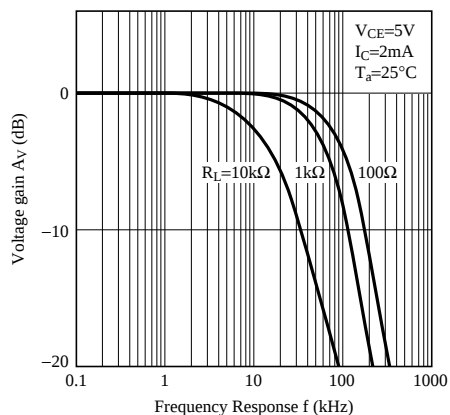


Fig.16 Collector-emitter Saturation Voltage vs. Forward Current

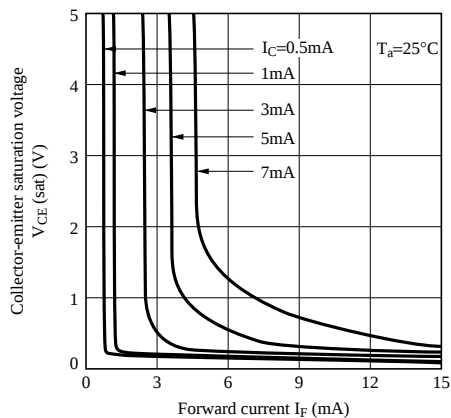
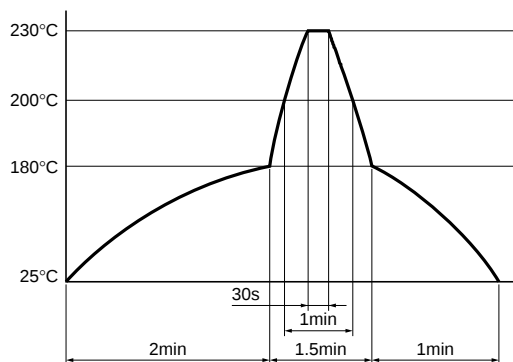


Fig.17 Reflow Soldering

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



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