PC3H4/PC3Q64Q

Mini-falt Package AC Input Type Half Pitch Photocoupler

■ Features

1. AC input type
2. Half pitch type (lead pitch : 1.27mm)
3. Isolation voltage between input and output (Viso: 2 500Vrms)
4. Applicable to infrared ray reflow (230˚C, for MAX. 30s)
5. High reliability
6. Taping package
   PC3H4 (1ch), **PC3Q64Q** (4ch)
7. Recognized by UL, file No. E64380
   Approved by VDE, No.5922UG

■ Applications

1. Programmable controllers

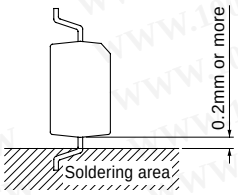
■ Package Specifications

Model No.	Taping specifications
PC3H4	Taping reel diameter 330mm (3 000pcs.)
PC3Q64Q	Taping reel diameter 330mm (1 000pcs.)

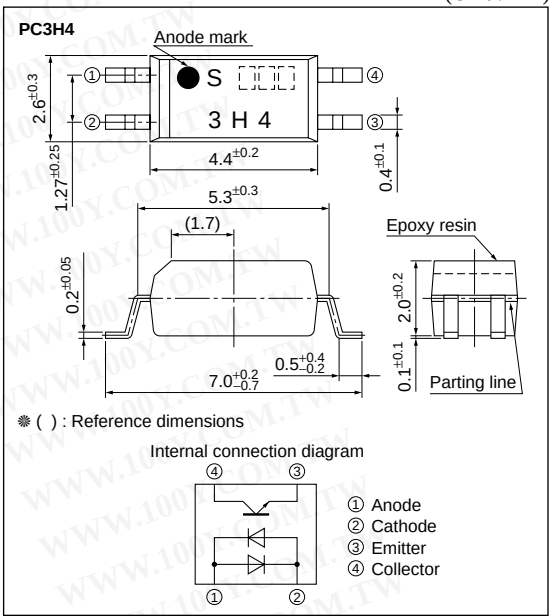
■ Absolute Maximum Ratings (Ta=25˚C)

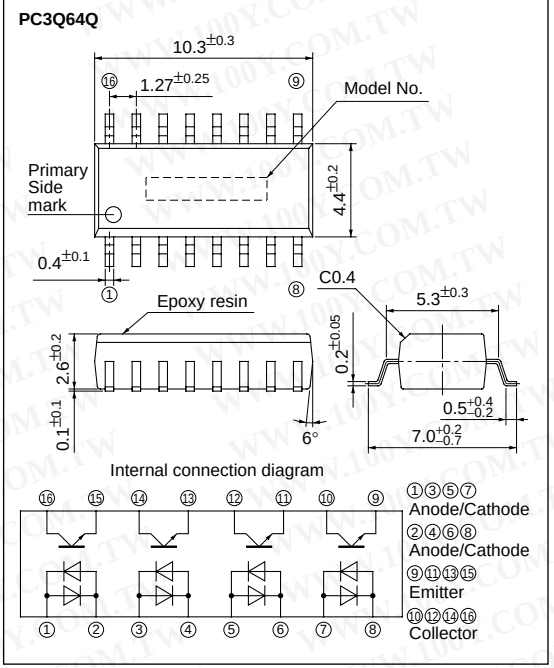
	Parameter		Symbol	Rating	Unit
Input	Forward current		I_F	±50	mA
Input	*1Peak forward current		I_{FM}	±1	A
Input	Power dissipation		P	70	mW
Output	Collector-emitter voltage	**PC3H4**	V_{CEO}	70	V
Output	Collector-emitter voltage	**PC3Q64Q**	V_{CEO}	35	V
Output	Emitter-collector voltage		V_{ECO}	6	V
Output	Collector current		I_C	50	mA
Output	Collector power dissipation		P_C	150	mW
	Total power dissipation		P_{tot}	170	mW
	*2Isolation voltage		V_{iso}	2.5	kV$_{rms}$
	Operating temperature		T_{opr}	−30 to +100	˚C
	Storage temperature		T_{stg}	−40 to +125	˚C
	*3Soldering temperature		T_{sol}	260	˚C

*1 Pulse width<=100μs, Duty ratio : 0.001
*2 AC for 1min, 40 to 60%RH, f=60Hz
*3 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
	Terminal capacitance		C_t	V=0, f=1kHz	–	30	250	pF
Output	Collector dark current	**PC3H4**	I_{CEO}	V_{CE}=50V, I_F=0	–	–	100	nA
		PC3Q64Q	I_{CEO}	V_{CE}=20V, I_F=0	–	–	100	nA
	Collector-emitter breakdown voltage	**PC3H4**	BV_{CEO}	I_C=0.1mA, I_F=0	70	–	–	V
		PC3Q64Q	BV_{CEO}	I_C=0.1mA, I_F=0	35	–	–	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

Fig.1 Forward Current vs. Ambient Temperature

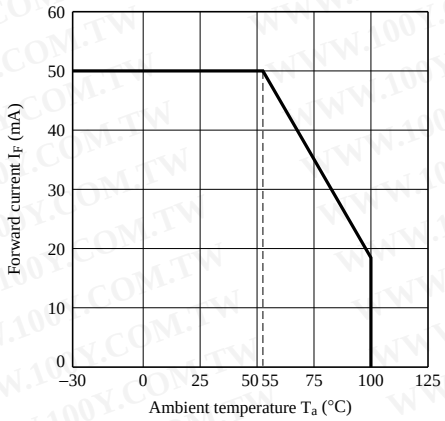


Fig.2 Diode Power Dissipation vs. Ambient Temperature

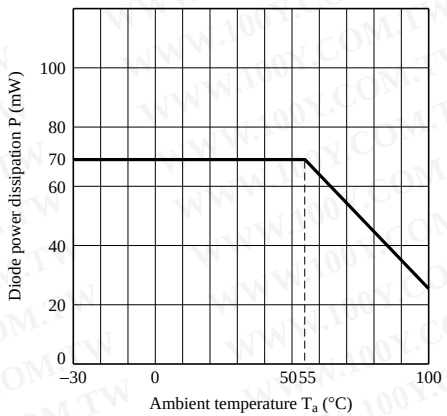


Fig.3 Collector Power Dissipation vs. Ambient Temperature

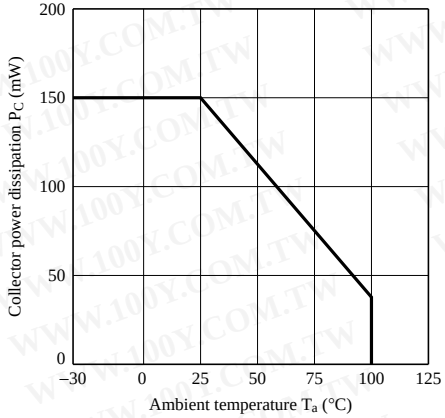


Fig.4 Total Power Dissipation vs. Ambient Temperature

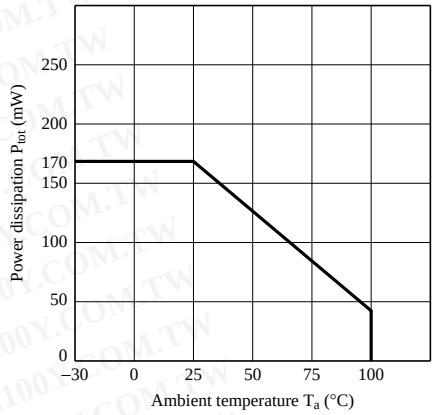


Fig.5 Peak Forward Current vs. Duty Ratio

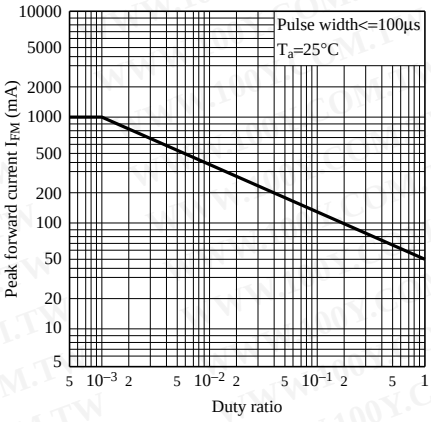


Fig.6 Forward Current vs. Forward Voltage

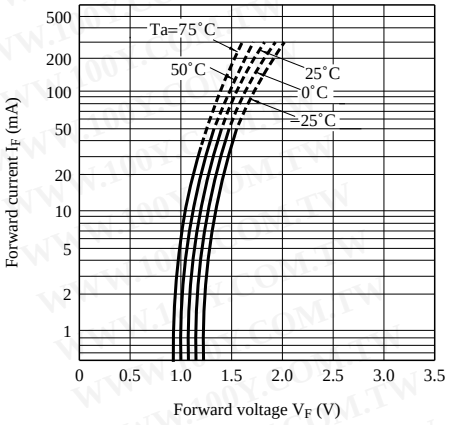


Fig.7 Current Transfer Ratio vs. Forward Current

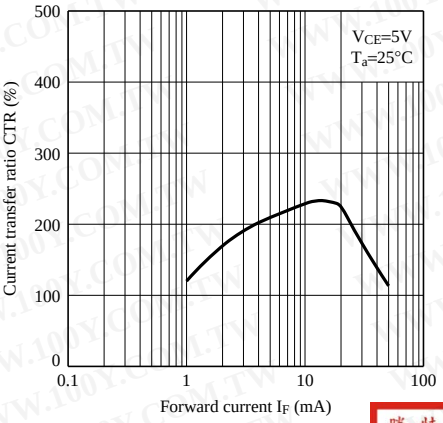


Fig.8 Collector Current vs. Collector-emitter Voltage

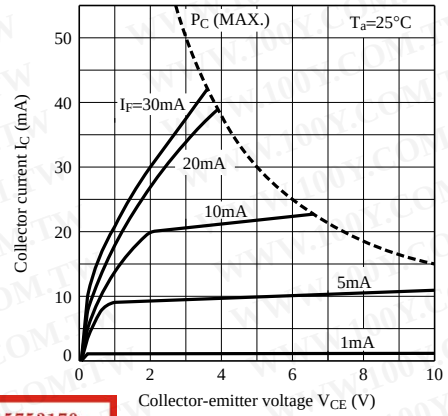


Fig.9 Relative Current Transfer Ratio vs. Ambient Temperature

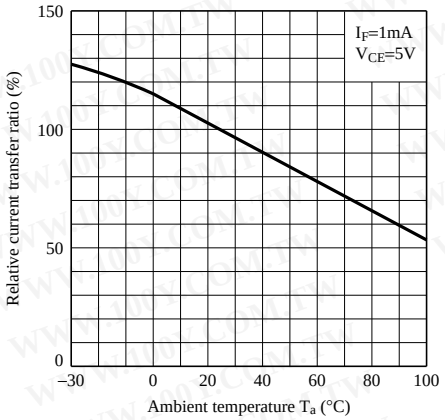


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

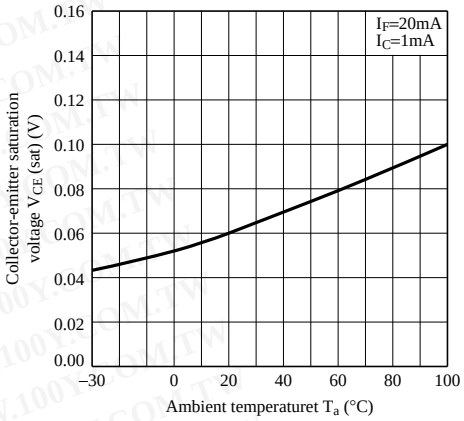


Fig.11 Collector Dark Current vs. Ambient Temperature

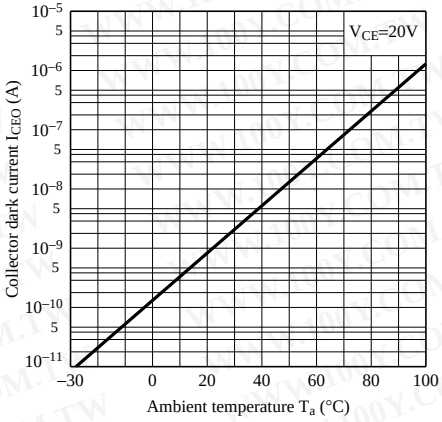


Fig.12 Response Time vs. Load Resistance

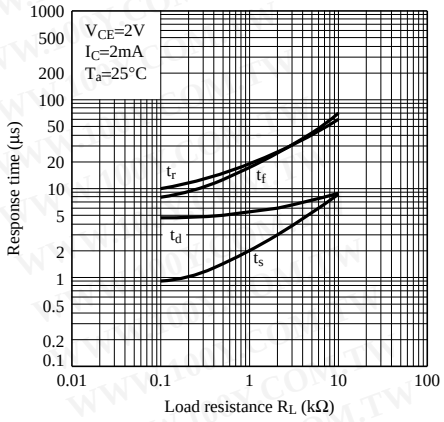


Fig.13 Test Circuit For Response Time

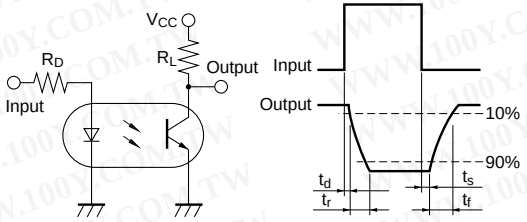


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current

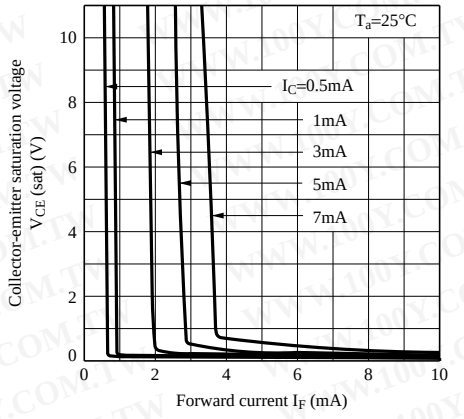
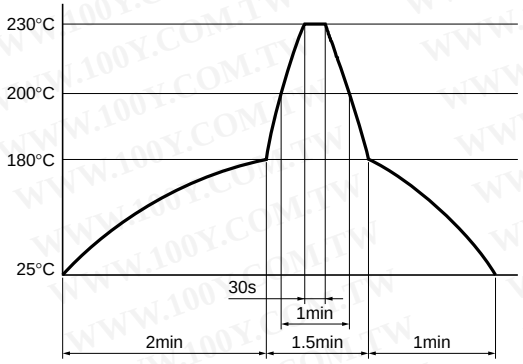


Fig.5 Reflow Soldering

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



■ Precautions for Use

Please refer to the chapter "Precautions for Use".