PC3H7/PC3Q67Q

Mini-falt Package, General Purpose Half Pitch Photocoupler

■ Features

1. Mini-flat package
2. Half pitch type (lead pitch : 1.27mm)
3. Isolation voltage (Viso : 2 500Vrms)
4. Applicable to infrared ray reflow (230˚C, for MAX. 30s)
5. High reliability
6. Taping package **PC3H7** (1ch) **PC3Q67Q** (4ch)
7. Recognized by UL, file No. E64380
   Approved by VDE, No.5922UG

■ Applications

1. Programmable controllers

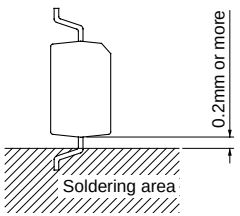
■ Package Specifications

Model No.	Taping specifications
PC3H7	Taping reel diameter 330mm (3 000pcs.)
PC3Q67Q	Taping reel diameter 330mm (1 000pcs.)

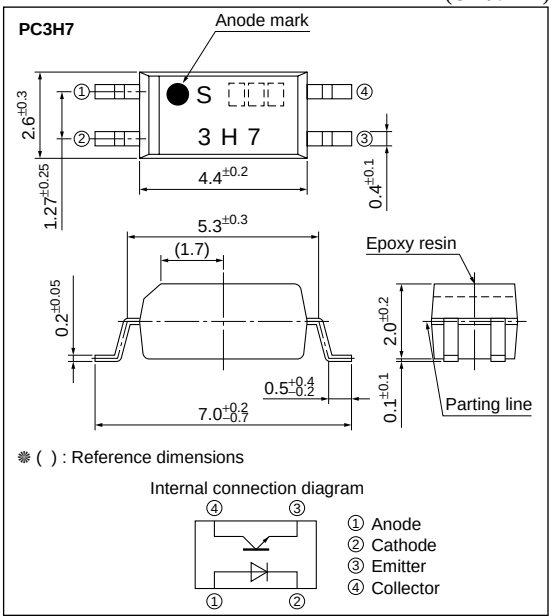
■ Absolute Maximum Ratings (Ta=25˚C)

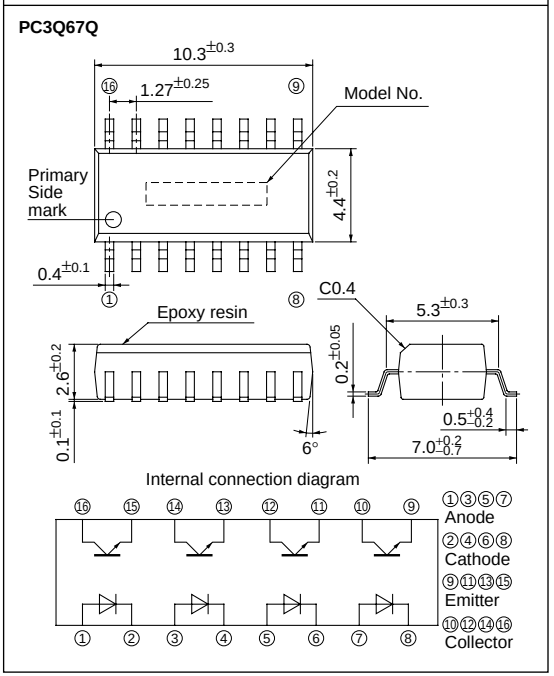
	Parameter		Symbol	Rating	Unit
Input	Forward current		I_F	50	mA
	*1Peak forward current		I_{FM}	1	A
	Reverse voltage		V_R	6	V
	Power dissipation		P	70	mW
Output	Collector-emitter voltage	**PC3H7**	V_{CEO}	70	V
		PC3Q67Q	V_{CEO}	35	V
	Emitter-collector voltage		V_{ECO}	6	V
	Collector current		I_C	50	mA
	Collector power dissipation		P_C	150	mW
	Total power dissipation		P_{tot}	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
	Reverse current		I_R	V_R=4V	–	–	10	μA
	Terminal capacitance		C_t	V=0, f=1kHz	–	30	250	pF
Output	Collector dark current	**PC3H7**	I_{CEO}	V_{CE}=50V, I_F=0	–	–	100	nA
		PC3Q67Q	I_{CEO}	V_{CE}=20V, I_F=0	–	–	100	nA
	Collector-emitter breakdown voltage	**PC3H7**	BV_{CEO}	I_C=0.1mA, I_F=0	70	–	–	V
		PC3Q67Q	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	**PC3H7**	I_C	I_F=1mA, V_{CE}=5V	0.2	–	4	mA
		PC3Q67Q	I_C	I_F=5mA, V_{CE}=5V	2.5	5	30	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

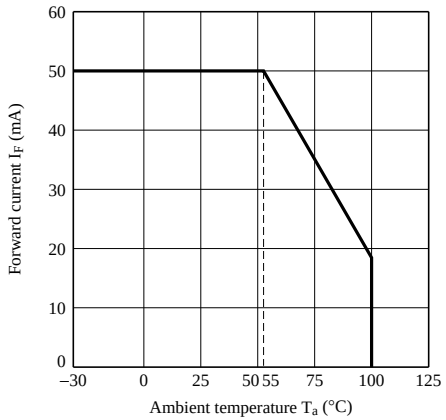


Fig.2 Diode Power Dissipation vs. Ambient Temperature

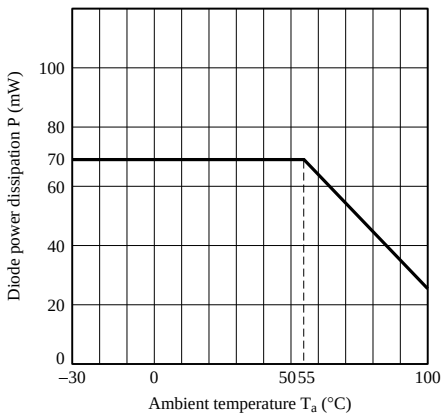


Fig.3 Collector Power Dissipation vs. Ambient Temperature

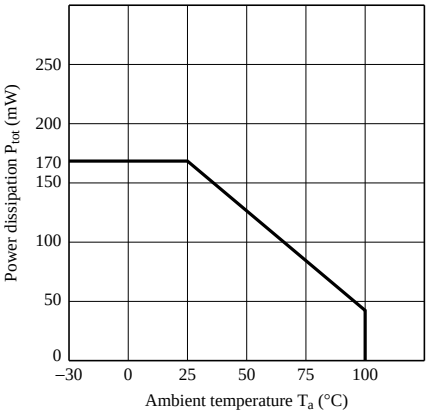


Fig.4 Total Power Dissipation vs. Ambient Temperature

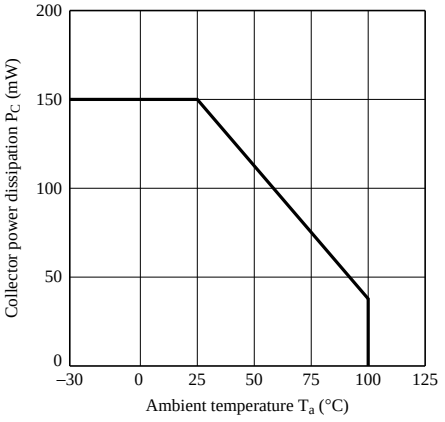


Fig.5 Peak Forward Current vs. Duty Ratio

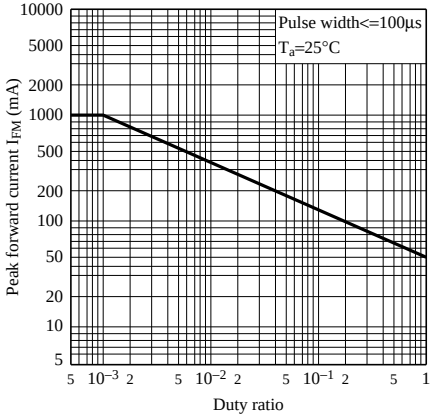


Fig.6 Forward Current vs. Forward Voltage

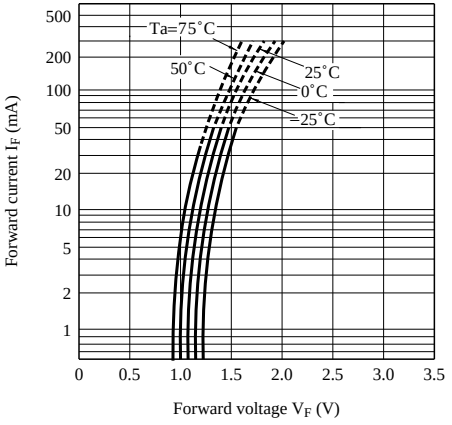


Fig.7 Current Transfer Ratio vs. Forward Current

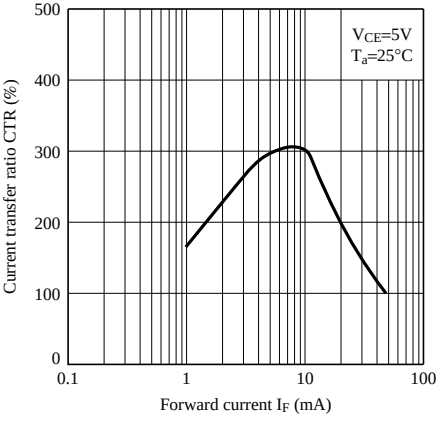


Fig.8 Collector Current vs. Collector-emitter Voltage

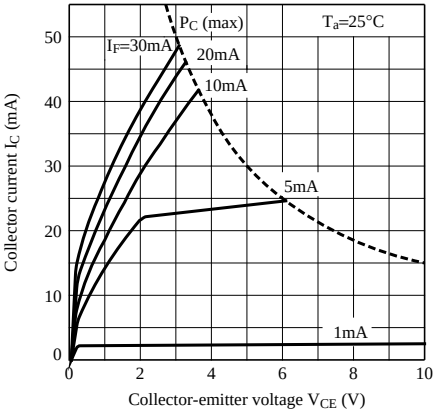


Fig.9 Relative Current Transfer Ratio vs. Ambient Temperature

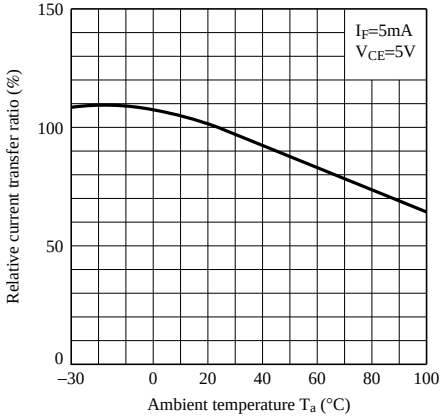


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

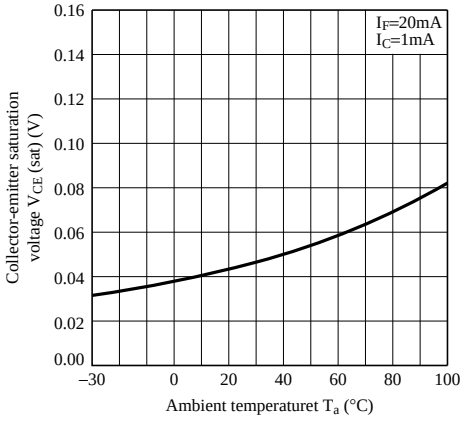


Fig.11 Collector Dark Current vs. Ambient Temperature

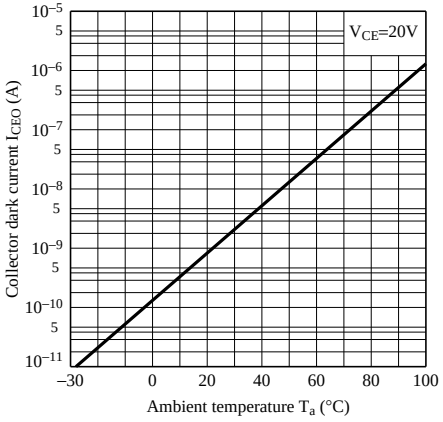


Fig.12 Response Time vs. Load Resistance

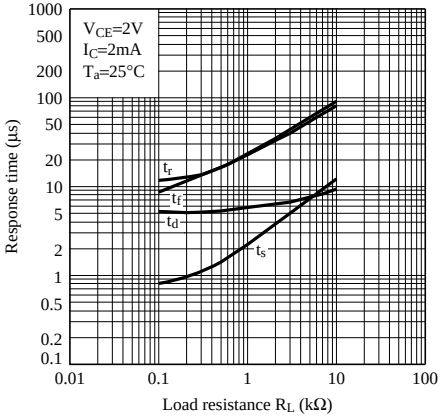


Fig.13 Test Circuit for Response Time

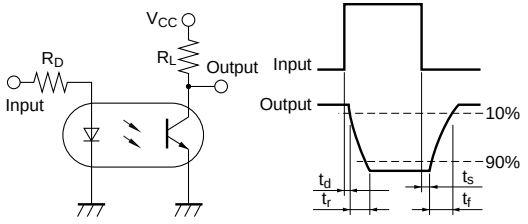


Fig.14 Collector-emitter Saturation Voltage vs. Forward Current

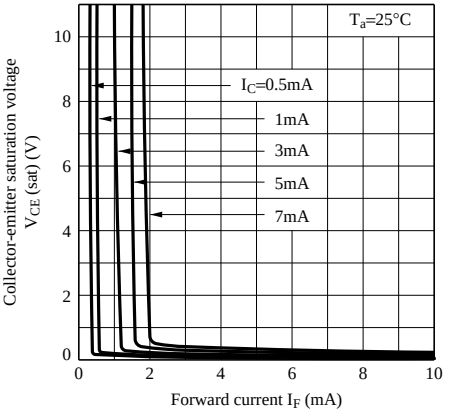
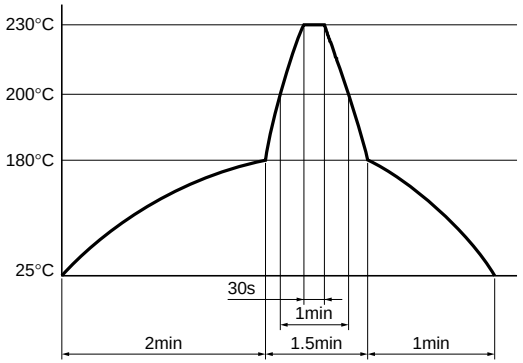


Fig.15 Reflow Soldering

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



■ Precautions for Use

Please refer to the chapter "Precautions for Use".