

# PC3H3/PC3Q63

## High Resistance to Noise, AC Input Type Half Pitch Photocoupler

### ■ 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
<b>PC3H3</b>	Taping reel diameter 330mm (3 000pcs)
<b>PC3Q63</b>	Taping reel diameter 330mm (1 000pcs)

### ■ Absolute Maximum Ratings

(Ta=25°C)

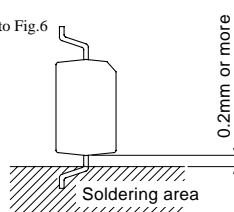
Parameter	Symbol	Rating	Unit
Input	*1 Forward current	IF	±50 mA
	*2 Peak forward current	IFM	±1 A
	*1 Power dissipation	P	70 mW
Output	Collector-emitter voltage	VCEO	70 V
	Emitter-collector voltage	VECO	6 V
	Collector current	IC	50 mA
	*1 Collector power dissipation	PC	150 mW
	*1 Total power dissipation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

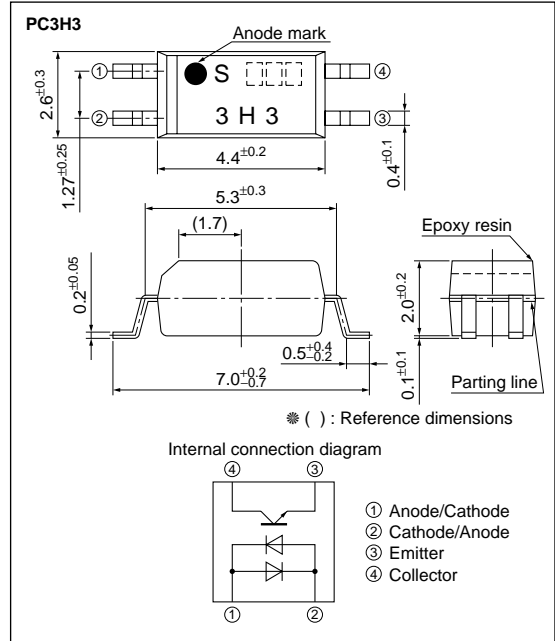
\*3 AC for 1min., 40 to 60% RH, f=60Hz

\*4 For 10s

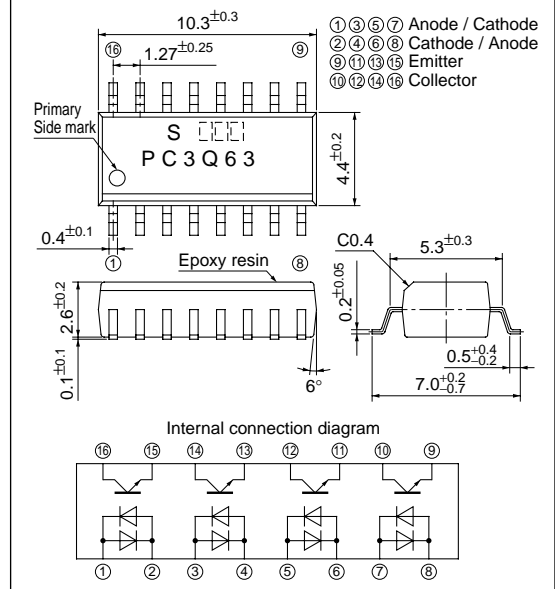


### ■ Outline Dimensions

(Unit : mm)



### PC3Q63



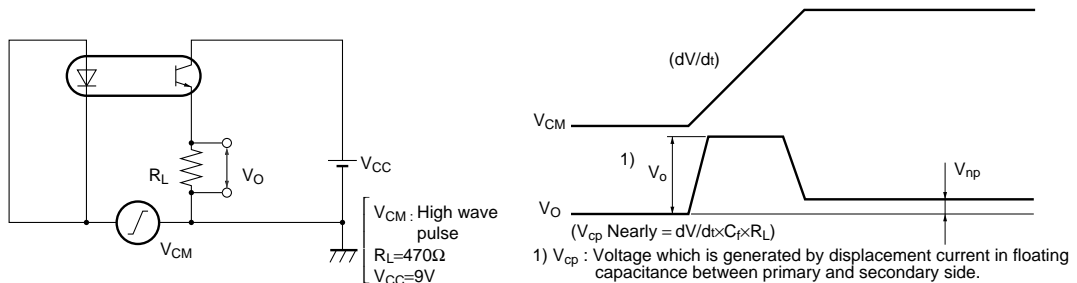
■ Electro-optical Characteristics

(Ta=25°C)

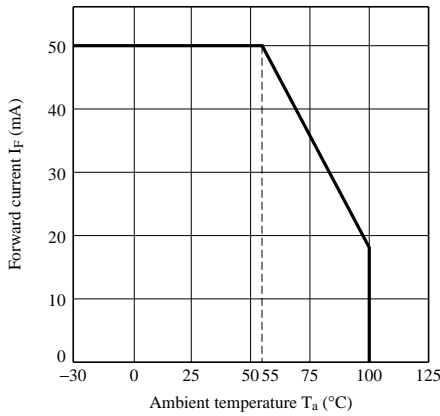
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F=\pm 20\text{mA}$	-	1.2	1.4	V	
	Terminal capacitance	$C_t$	$V=0, f=1\text{kHz}$	-	30	250	pF	
Output	Collector dark current	PC3H3 PC3Q63	$I_{CEO}$	$V_{CE}=50\text{V}, I_F=0$	-	-	100	nA
				$V_{CE}=20\text{V}, I_F=0$	-	-	-	-
	Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=0.1\text{mA}$ $I_F=0$	70	-	-	V	
	Emitter-collector breakdown voltage	$BV_{ECO}$	$I_E=10\mu\text{A}, I_F=0$	6	-	-	V	
Transfer characteristics	Collector current	$I_C$	$I_F=\pm 1\text{mA}$ $V_{CE}=5\text{V}$	0.2	-	4.0	mA	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=\pm 20\text{mA}$ $I_C=1\text{mA}$	-	0.1	0.2	V	
	Isolation resistance	$R_{ISO}$	DC500V 40 to 60%RH	$5 \times 10^{10}$	$1 \times 10^{11}$	-	$\Omega$	
	Floating capacitance	$C_f$	$V=0, f=1\text{MHz}$	-	0.6	1.0	pF	
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}$ $I_C=2\text{mA}$ $R_L=100\Omega$	-	4	18	$\mu\text{s}$
		Fall time	$t_f$		-	3	18	$\mu\text{s}$
*5 Common mode rejection voltage		CMR	Ta=25°C, $R_L=470\Omega$ $V_{CM}=1.5\text{kV(peak)}$ $I_F=0\text{mA}, V_{CC}=9\text{V},$ $V_{np}=100\text{mV}$	10	-	-	$\text{kV}/\mu\text{s}$	

\*5 Refer to Fig.1

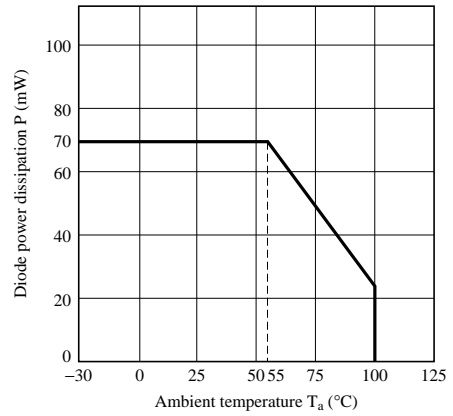
Fig.1 Test Circuit for Common Mode Rejection Voltage



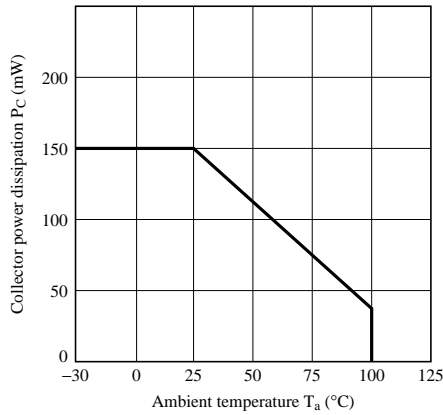
**Fig.2 Forward Current vs. Ambient Temperature**



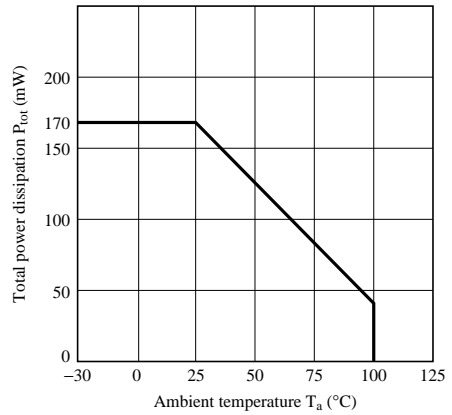
**Fig.3 Diode Power Dissipation vs. Ambient Temperature**



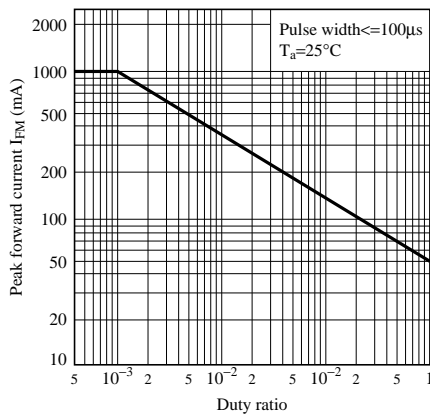
**Fig.4 Collector Power Dissipation vs. Ambient Temperature**



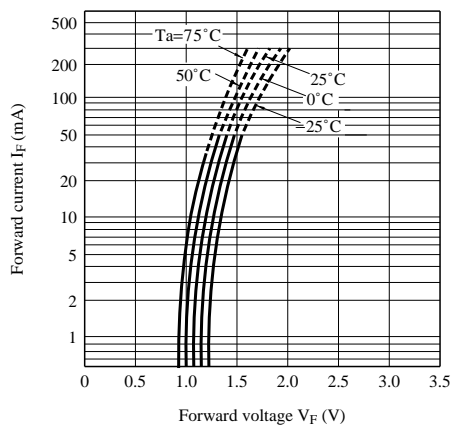
**Fig.5 Total Power Dissipation vs. Ambient Temperature**



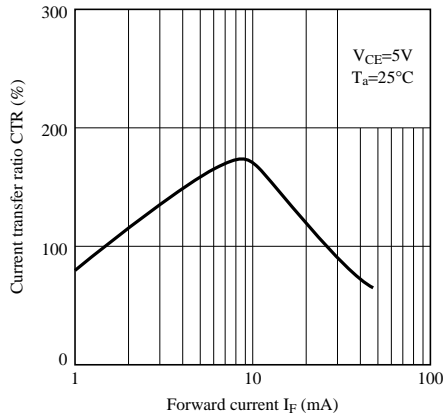
**Fig.6 Peak Forward Current vs. Duty Ratio**



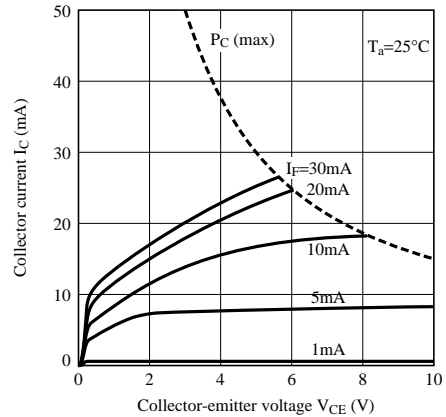
**Fig.7 Forward Current vs. Forward Voltage**



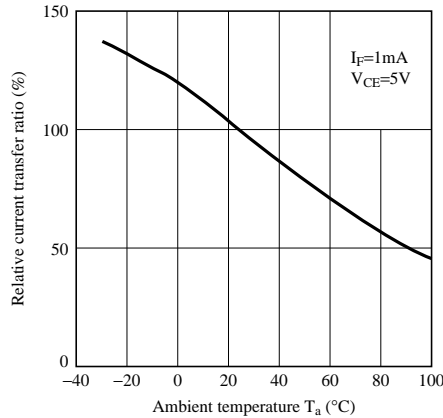
**Fig.8 Current Transfer Ratio vs. Forward Current**



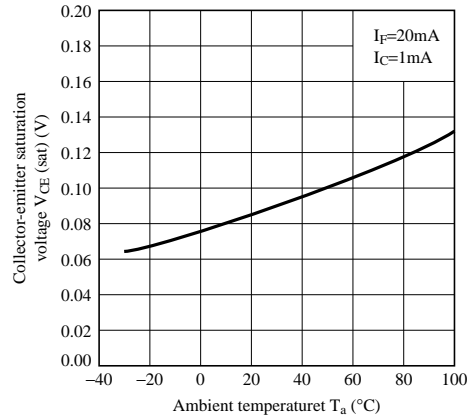
**Fig.9 Collector Current vs. Collector-emitter Voltage**



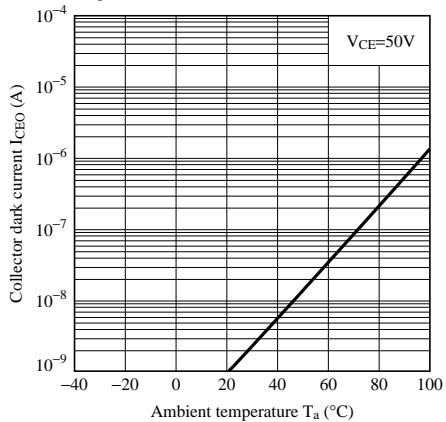
**Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature**



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



**Fig.12 Collector Dark Current vs. Ambient Temperature**



**Fig.13 Response Time vs. Load Resistance**

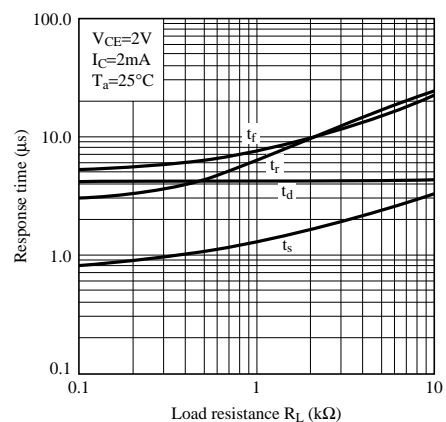


Fig.14 Test Circuit For Response Time

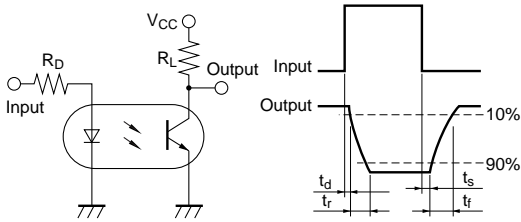


Fig.15 Voltage Gain vs Frequency

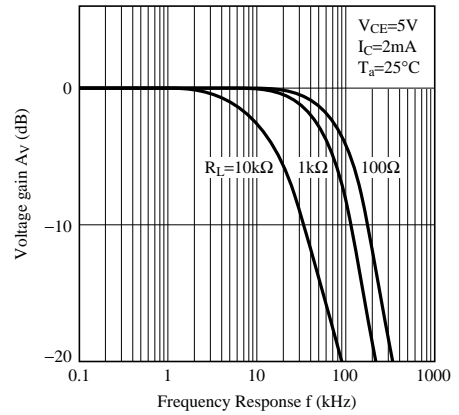


Fig.16 Collector-emitter Saturation Voltage vs. Forward Current

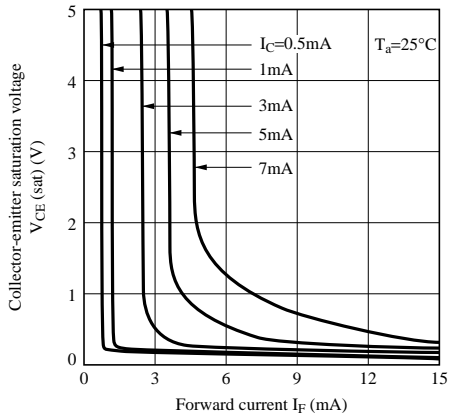
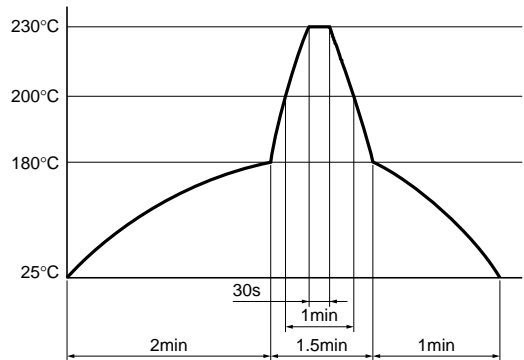


Fig.17 Reflow Soldering

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



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