

PC364

AC Input, Low Input Current Type Photocoupler

■ Features

1. Low input current type ($I_F = \pm 0.5\text{mA}$)
2. AC input type
3. High resistance to noise due to high common mode rejection voltage (CMR: MIN. $10\text{kV}/\mu\text{s}$)
4. Mini-flat package
5. Isolation voltage (Viso: $3\,750\text{Vrms}$)
6. Recognized by UL, file No. 64380

■ Applications

1. Programmable controllers
2. Facsimiles
3. Telephones

■ Rank Table

Model No.	Rank mark	I_C (mA)	Conditions
PC364N	A or no mark	0.25 to 2.0	$I_F = \pm 0.5\text{mA}$ $V_{CE} = 5\text{V}$ $T_a = 25^\circ\text{C}$
PC364N1	A	0.5 to 1.5	

■ Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	± 10	mA
	*1 Peak forward current	I_{FM}	± 200	mA
	Power dissipation	P	15	mW
Output	Collector-emitter voltage	V_{CEO}	70	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
	Operating temperature	T_{opr}	-30 to $+100$	$^\circ\text{C}$
	Storage temperature	T_{stg}	-40 to $+125$	$^\circ\text{C}$
	*2 Isolation voltage	V_{iso}	3.75	kV_{rms}
	*3 Soldering temperature	T_{sol}	260	$^\circ\text{C}$

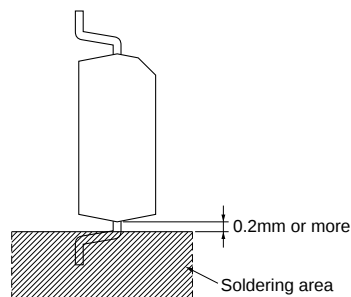
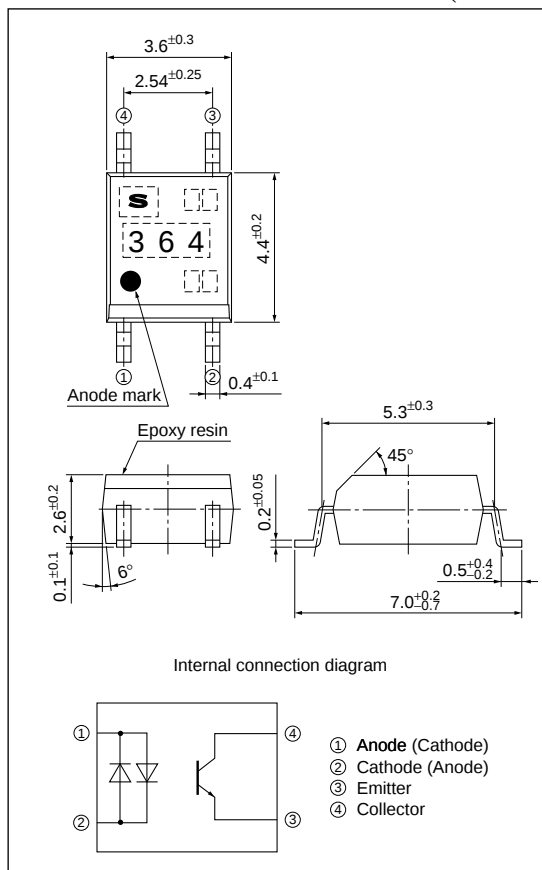
*1 Pulse width $\leq 100\mu\text{s}$, Duty ratio $= 0.001$

*2 40 to 60%RH, AC for 1 minute, $f = 60\text{Hz}$

*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 =±10mA	–	1.2	1.4	V	
	Terminal capacitance	C _t	V=0, f=1kHz	–	30	250	pF	
Output	Collector dark current	I _{CEO}	V _{CE} =50V, I _F =0	–	–	100	nA	
	Collector-emitter breakdown voltage	BV _{CEO}	I _C =0.1mA, I _F =0	70	–	–	V	
Transfer characteristics	Emitter-collector breakdown voltage		BV _{ECO}	I _E =10μA, I _F =0	6	–	–	V
	Collector current		I _C	I _F =±0.5mA, V _{CE} =5V	0.25	–	2.0	mA
	Collector-emitter saturation voltage		V _{CE (sat)}	I _F =±10mA, I _C =1mA	–	–	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	tr	V _{CE} =2V, I _C =2mA, R _L =100Ω	–	4	18	μs
		Fall time	tf		–	3	18	μs
	*4 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

*4 Refer to Fig.1

Fig.1 Test Circuit for Common Mode Rejection Voltage

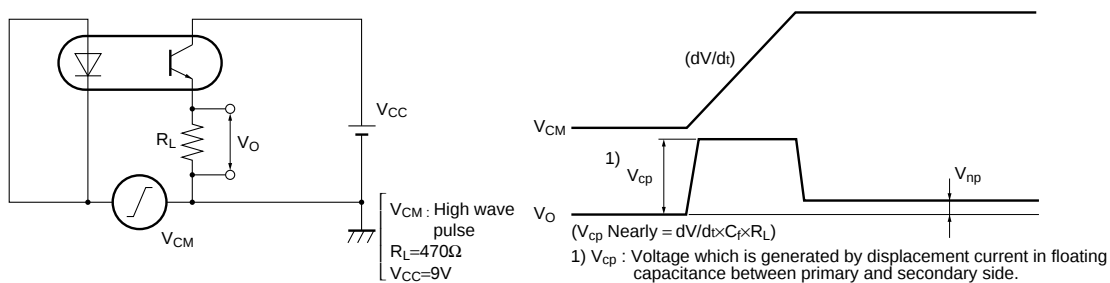


Fig.2 Forward Current vs. Ambient Temperature

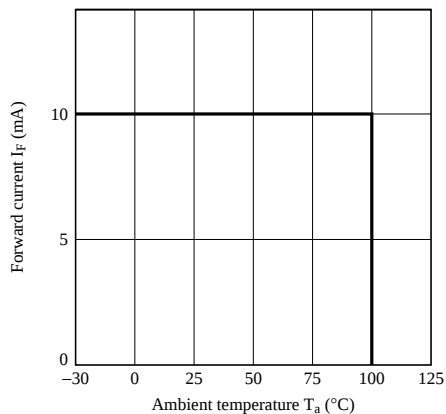


Fig.3 Diode Power Dissipation vs. Ambient Temperature

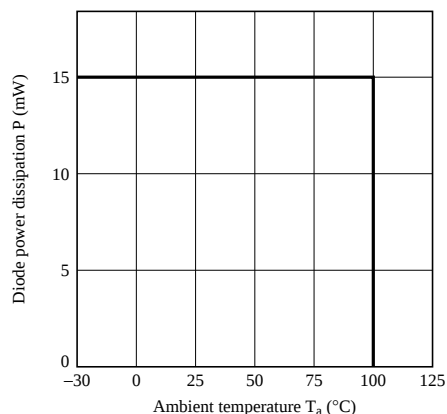


Fig.4 Collector Power Dissipation vs. Ambient Temperature

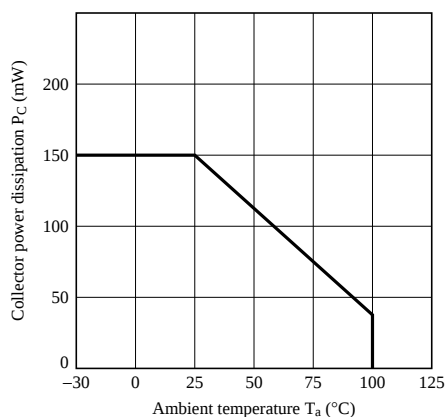


Fig.6 Peak Forward Current vs. Duty Ratio

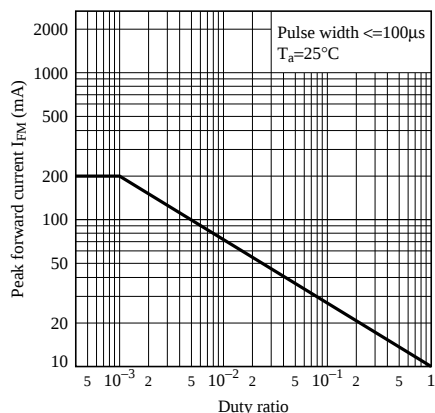


Fig.8 Current Transfer Ratio vs. Forward Current

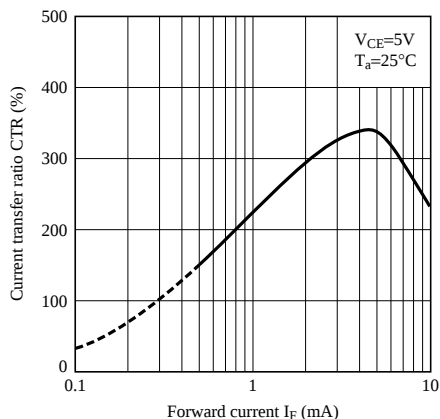


Fig.5 Total Power Dissipation vs. Ambient Temperature

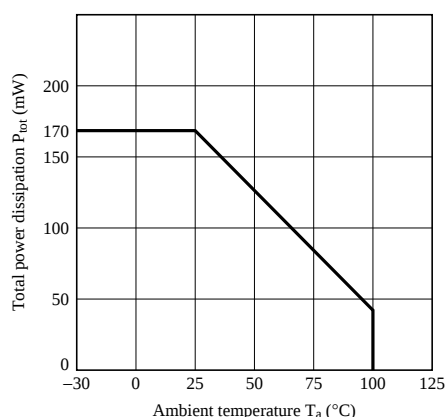


Fig.7 Forward Current vs. Forward Voltage

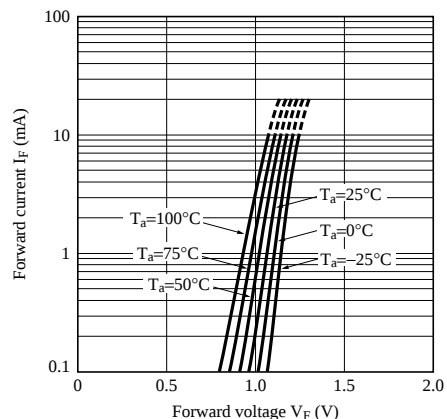


Fig.9 Collector Current vs. Collector-emitter Voltage

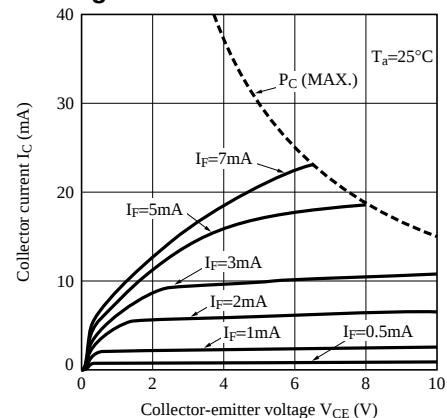


Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature

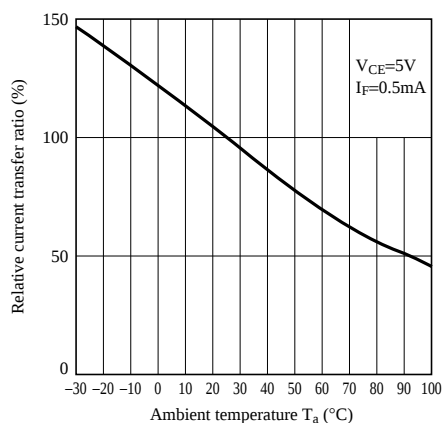


Fig.11 Collector - emitter Saturation Voltage vs. Ambient Temperature

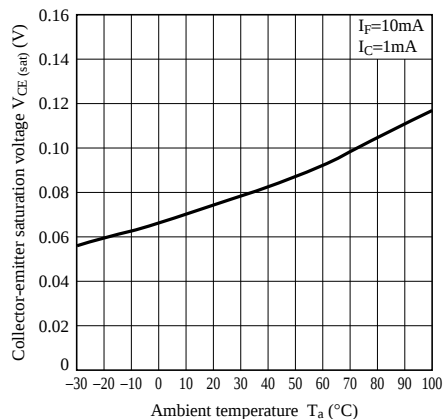


Fig.12 Collector Dark Current vs. Ambient Temperature

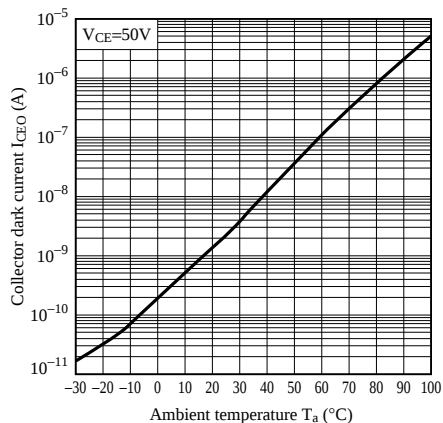


Fig.13 Response Time vs. Load Resistance

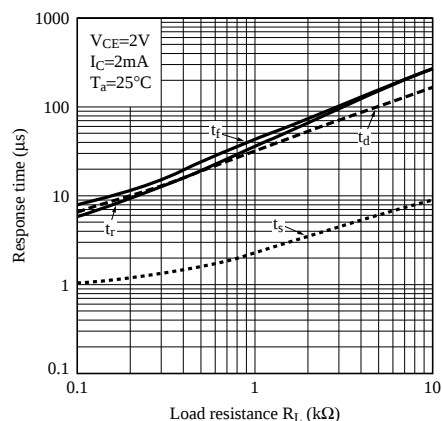


Fig.14 Response Time vs. Load Resistance (Saturation)

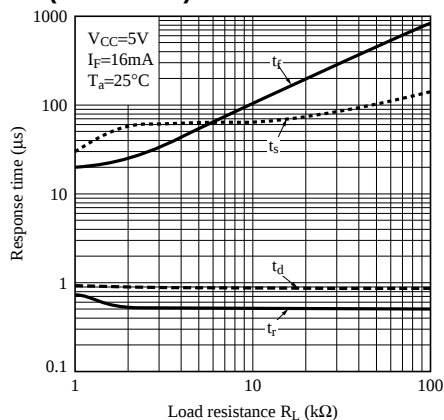


Fig.15 Test Circuit for Response Time

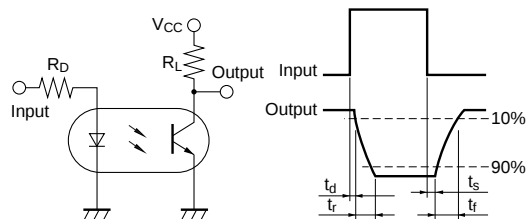
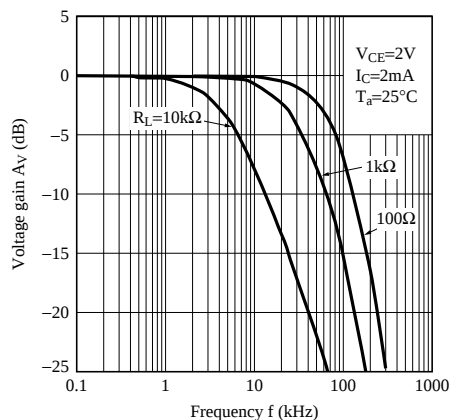
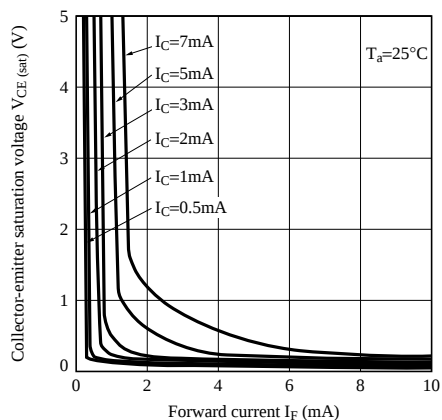


Fig.16 Voltage Gain vs Frequency**Fig.17 Collector-emitter Saturation Voltage vs. Forward Current****Fig.18 Reflow Soldering**

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

