

# PC367

## Low Input Current Type Photocoupler

### ■ Features

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

### ■ Applications

1. Programmable controllers
2. Facsimiles
3. Telephones

### ■ Rank Table

Model No.	Rank mark	$I_c$ (mA)	Conditions
PC367NT	A, B or no mark	0.5 to 2.5	$I_F=0.5\text{mA}$
PC367N1T	A	0.75 to 1.5	$V_{CE}=5\text{V}$
PC367N2T	B	1.0 to 2.0	$T_a=25^\circ\text{C}$

### ■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	$I_F$	10	mA
	*1 Peak forward current	$I_{FM}$	200	mA
	Reverse voltage	$V_R$	6	V
	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	°C
	Storage temperature	$T_{stg}$	-40 to +125	°C
	*2 Isolation voltage	$V_{iso}$	3.75	kVrms
	*3 Soldering temperature	$T_{sol}$	260	°C

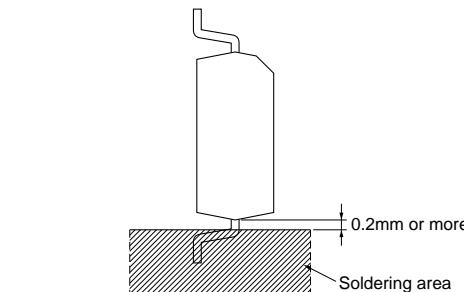
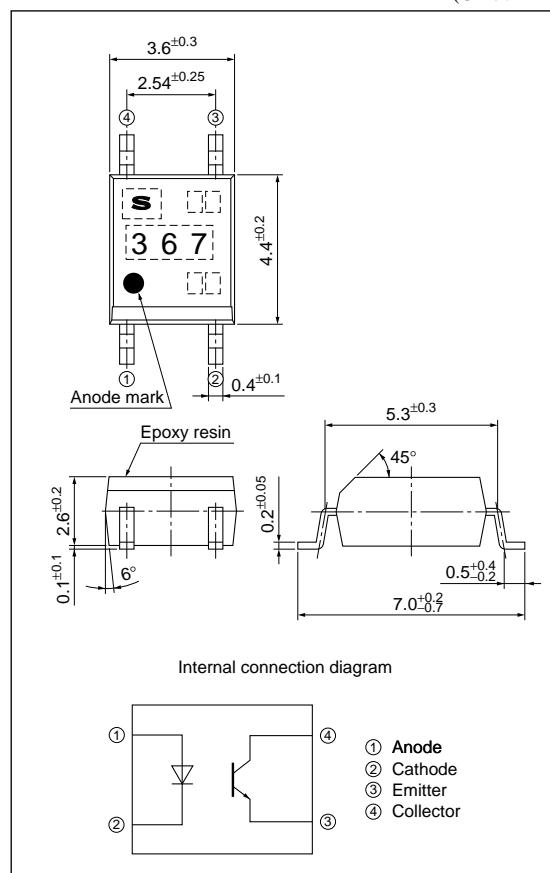
\*1 Pulse width<=100μs, Duty ratio=0.001

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

\*3 For 10 seconds

### ■ Outline Dimensions

(Unit : mm)



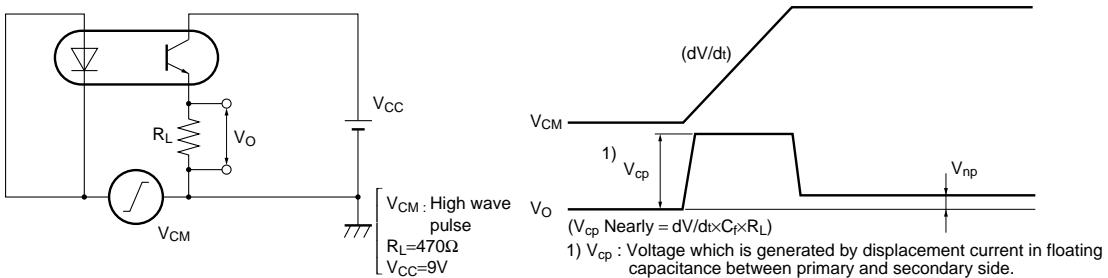
## ■ Electro-optical Characteristics

(Ta=25°C)

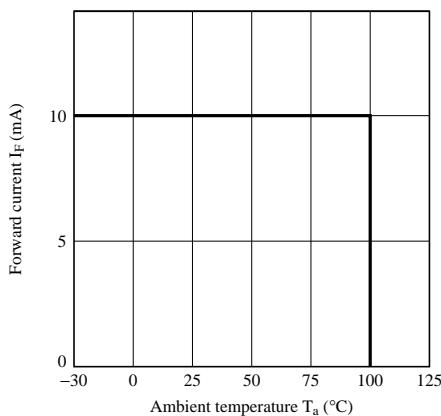
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =10mA	—	1.2	1.4	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =4V	—	—	10	μA
	Terminal capacitance	C <sub>t</sub>	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =50V, I <sub>F</sub> =0	—	—	100	nA
	Collector-emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>c</sub> =0.1mA, I <sub>F</sub> =0	70	—	—	V
	Emitter-collector breakdown voltage	BV <sub>ECO</sub>	I <sub>E</sub> =10μA, I <sub>F</sub> =0	6	—	—	V
Transfer characteristics	Collector current	I <sub>c</sub>	I <sub>F</sub> =0.5mA, V <sub>CE</sub> =5V	0.5	—	2.5	mA
	Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>F</sub> =10mA, I <sub>c</sub> =1mA	—	—	0.2	V
	Isolation resistance	R <sub>ISO</sub>	DC500V 40 to 60% RH	5×10 <sup>10</sup>	1×10 <sup>11</sup>	—	Ω
Floating capacitance	Floating capacitance	C <sub>f</sub>	V=0, f=1MHz	—	0.6	1.0	pF
	Rise time	tr	V <sub>CE</sub> =2V, I <sub>c</sub> =2mA, R <sub>L</sub> =100Ω	—	4	18	μs
	Fall time	tf		—	3	18	μs
*4 Common mode rejection voltage		CMR	Ta=25°C, R <sub>L</sub> =470Ω, V <sub>CM</sub> =1.5kV (peak), I <sub>F</sub> =0mA, V <sub>CC</sub> =9V, V <sub>np</sub> =100mV	10	—	—	kV/μs

\*4 Refer to Fig.1

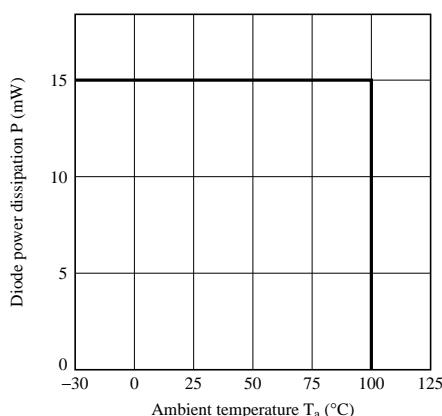
**Fig.1 Test Circuit for Common Mode Rejection Voltage**



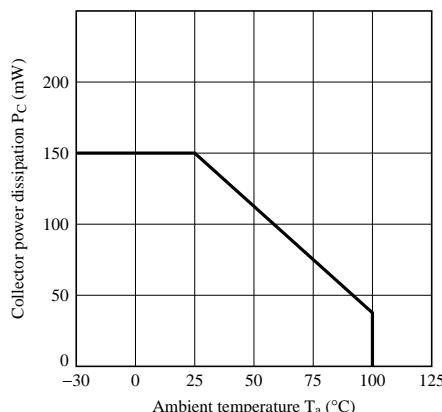
**Fig.2 Forward Current vs. Ambient Temperature**



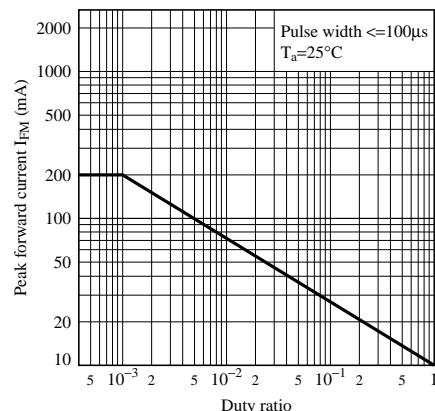
**Fig.3 Diode Power Dissipation vs. Ambient Temperature**



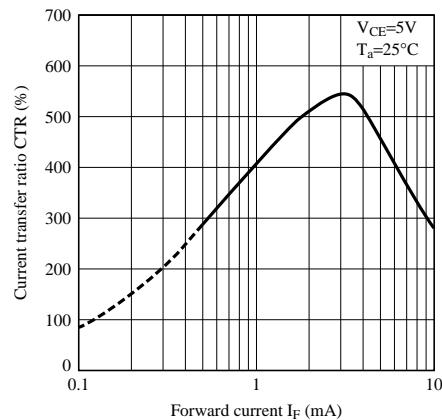
**Fig.4 Collector Power Dissipation vs. Ambient Temperature**



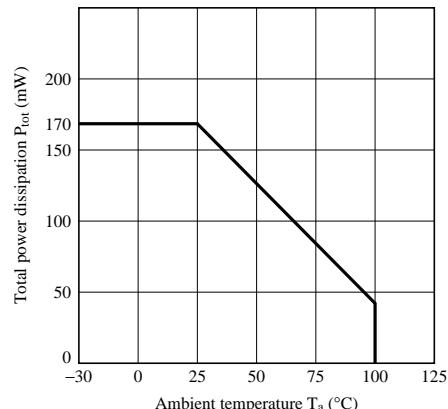
**Fig.6 Peak Forward Current vs. Duty Ratio**



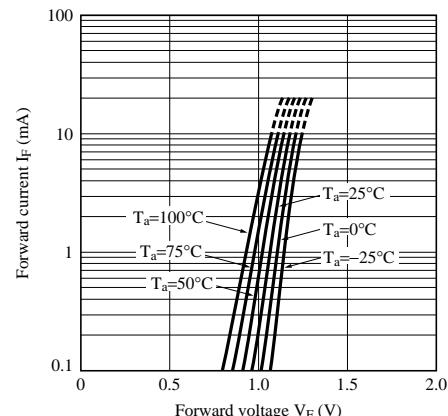
**Fig.8 Current Transfer Ratio vs. Forward Current**



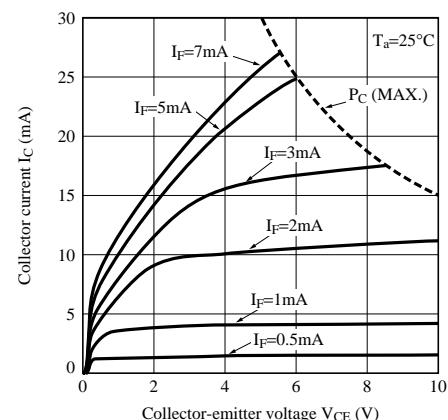
**Fig.5 Total Power Dissipation vs. Ambient Temperature**



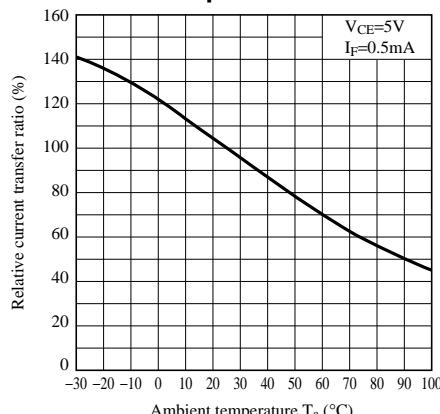
**Fig.7 Forward Current vs. Forward Voltage**



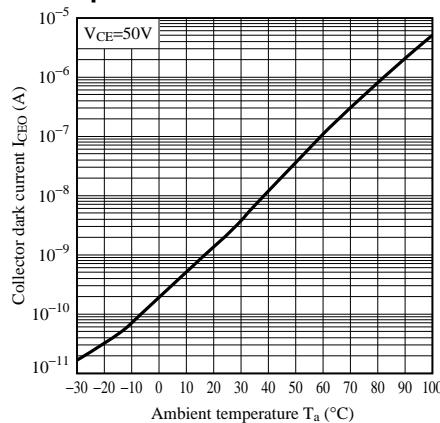
**Fig.9 Collector Current vs. Collector-emitter Voltage**



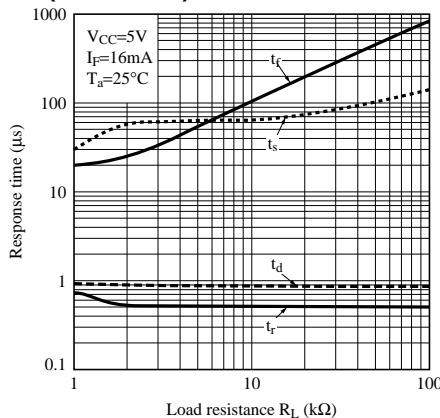
**Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature**



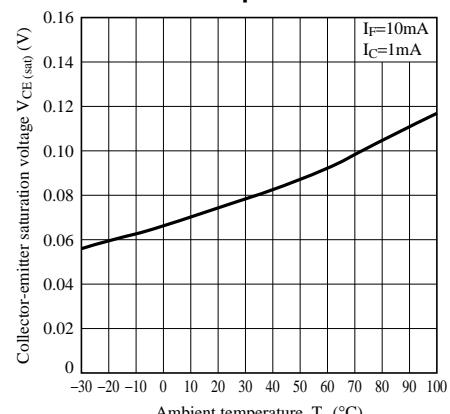
**Fig.12 Collector Dark Current vs. Ambient Temperature**



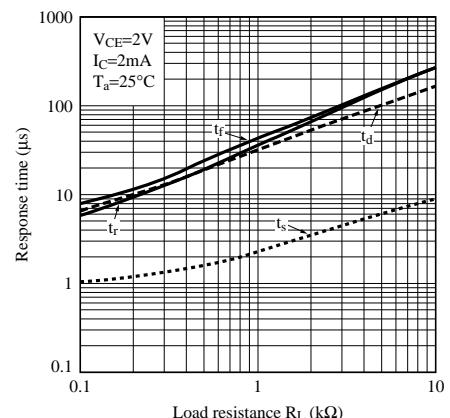
**Fig.14 Response Time vs. Load Resistance (Saturation)**



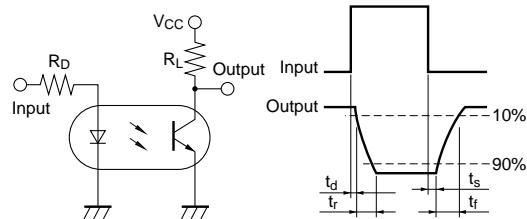
**Fig.11 Collector - emitter Saturation Voltage vs. Ambient Temperature**

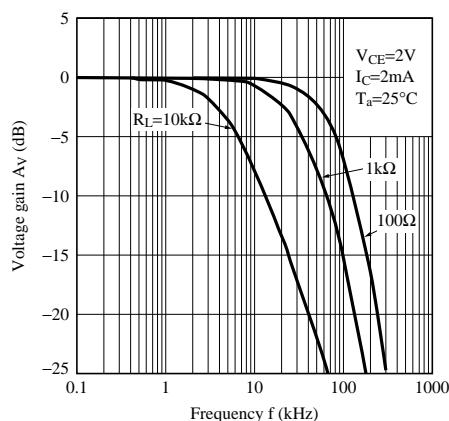
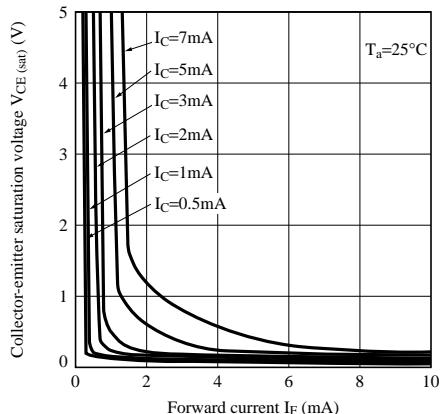


**Fig.13 Response Time vs. Load Resistance**



**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.

