PC367

Low Input Current Type Photocoupler

■ Features

1. Low input current type (I_F=0.5mA)
2. High resistance to noise due to high common mode rejection voltage (CMR:MIN. 10kV/µs)
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	Ic (mA)	Conditions
PC367NT	A, B or no mark	0.5 to 2.5	I_F=0.5mA
PC367N1T	A	0.75 to 1.5	V_{CE}=5V
PC367N2T	B	1.0 to 2.0	T_a=25°C

■ Absolute Maximum Ratings

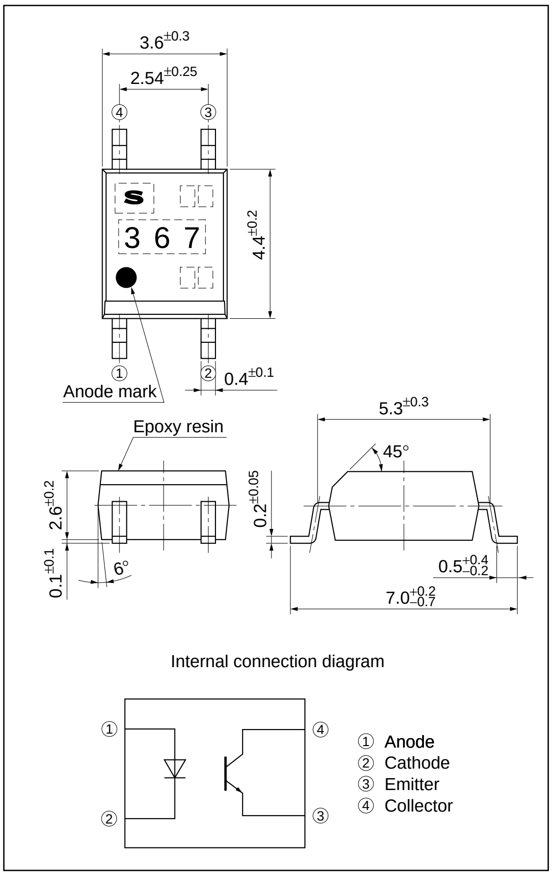
(T_a=25°C)

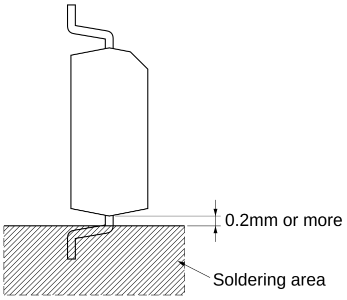
Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	10	mA
	*1 Peak forward current	I_{FM}	200	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P	15	mW
Output	Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	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	kV_{rms}
*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)





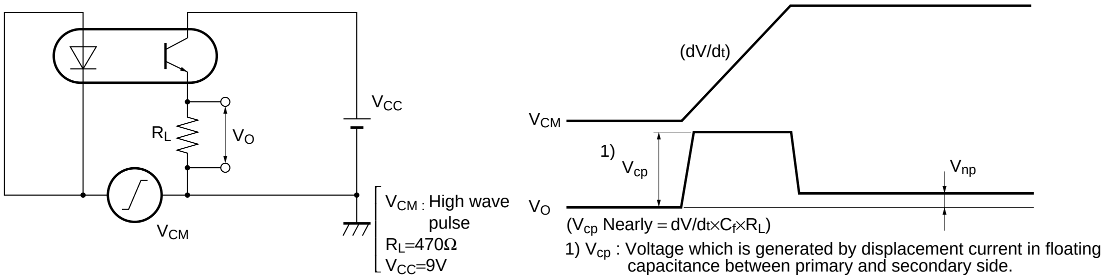
■ Electro-optical Characteristics

(Ta=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=10mA	−	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		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
	Emitter-collector breakdown voltage		BV_{ECO}	I_E=10μA, I_F=0	6	−	−	V
Transfer characteristics	Collector current		I_C	I_F=0.5mA, V_{CE}=5V	0.5	−	2.5	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, Vnp=100mV	10	−	−	kV/μs

*4 Refer to Fig.1

Fig.1 Test Circuit for Common Mode Rejection Voltage



1) V_{cp} : Voltage which is generated by displacement current in floating capacitance between primary and secondary side.

Fig.2 Forward Current vs. Ambient Temperature

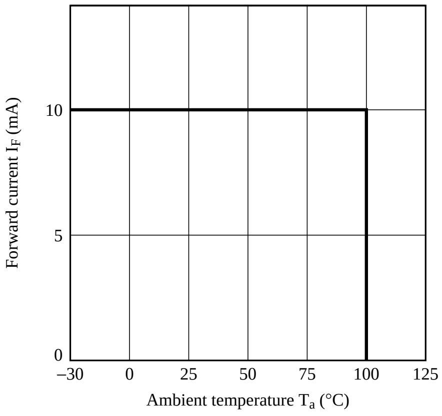


Fig.3 Diode Power Dissipation vs. Ambient Temperature

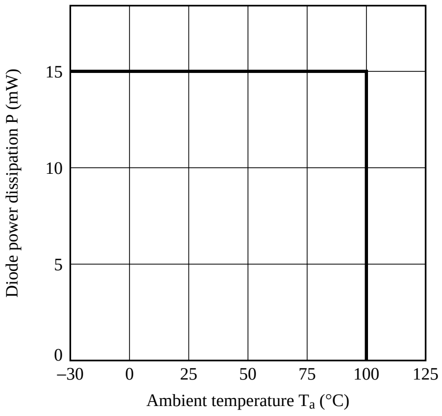


Fig.4 Collector Power Dissipation vs. Ambient Temperature

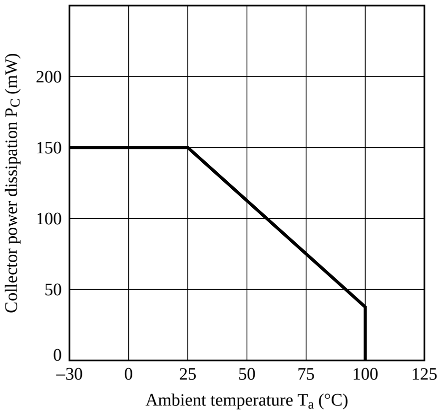


Fig.5 Total Power Dissipation vs. Ambient Temperature

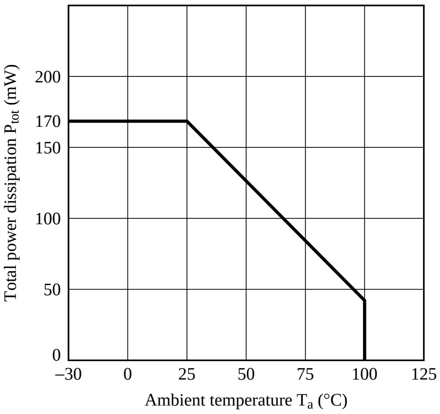


Fig.6 Peak Forward Current vs. Duty Ratio

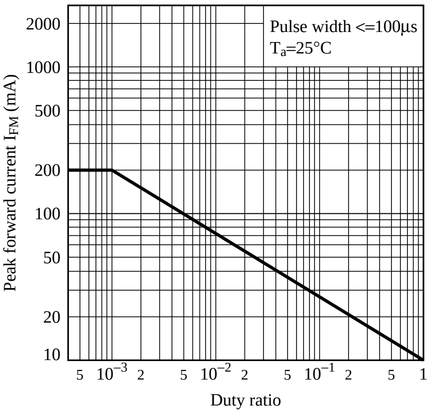


Fig.7 Forward Current vs. Forward Voltage

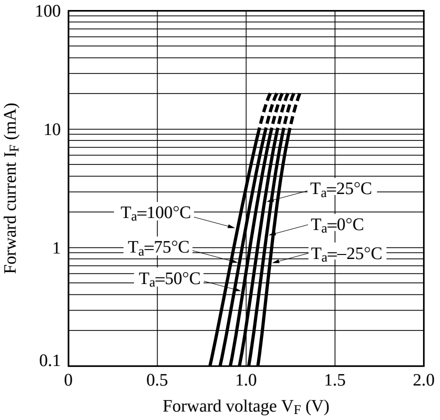


Fig.8 Current Transfer Ratio vs. Forward Current

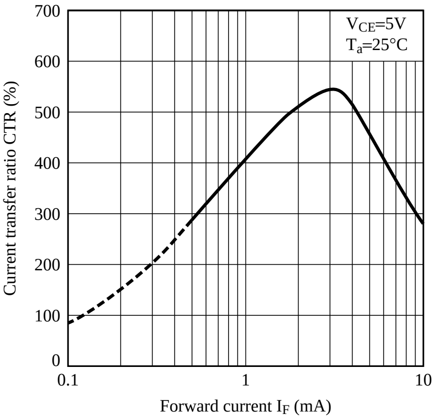


Fig.9 Collector Current vs. Collector-emitter Voltage

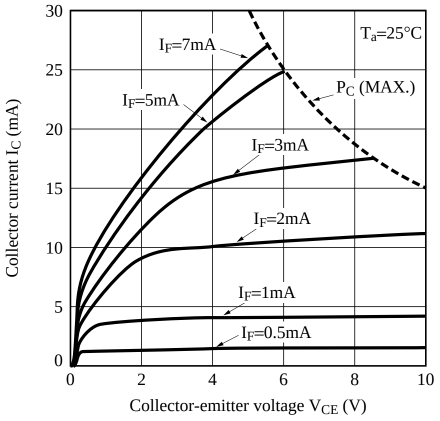


Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature

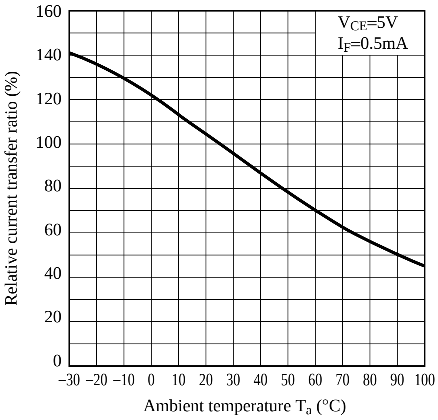


Fig.11 Collector - emitter Saturation Voltage vs. Ambient Temperature

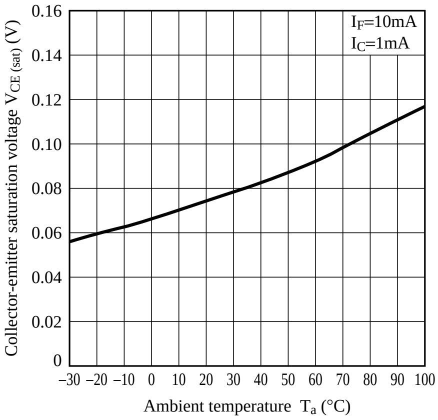


Fig.12 Collector Dark Current vs. Ambient Temperature

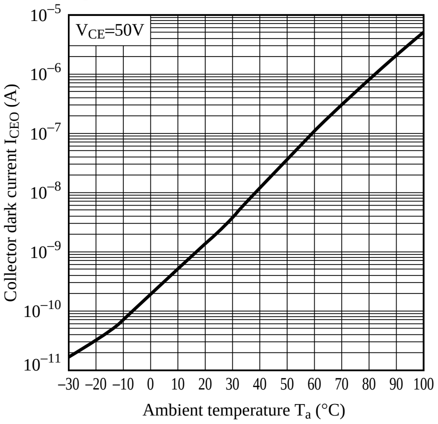


Fig.13 Response Time vs. Load Resistance

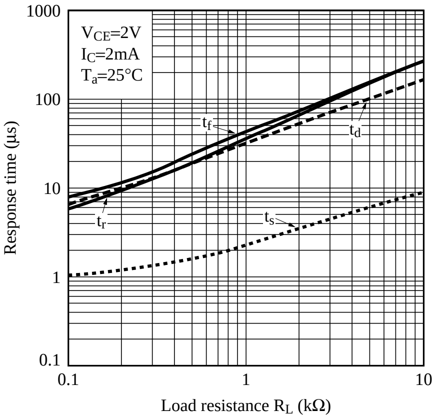


Fig.14 Response Time vs. Load Resistance (Saturation)

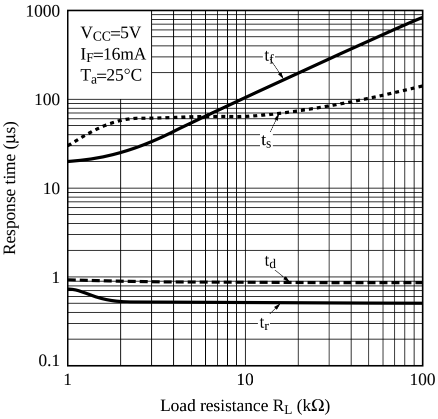


Fig.15 Test Circuit for Response Time

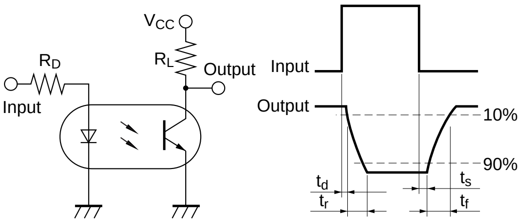


Fig.16 Voltage Gain vs Frequency

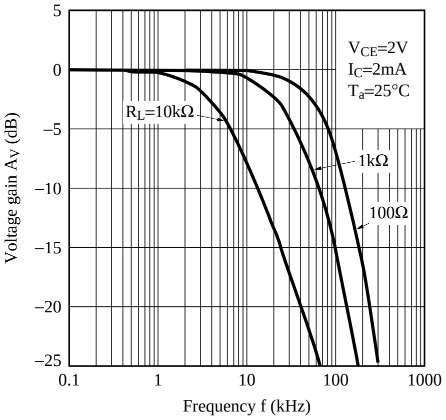


Fig.17 Collector-emitter Saturation Voltage vs. Forward Current

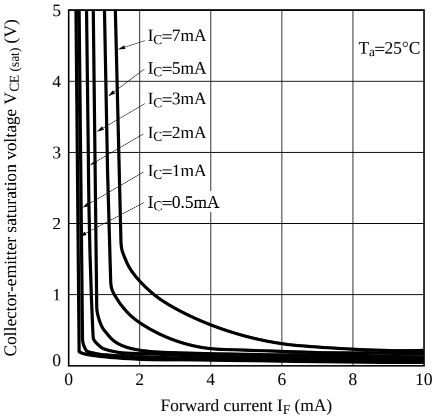


Fig.18 Reflow Soldering

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