PC81510NSZ

Low Input Current Photocoupler

■ Features

1. Low input drive current (I_F=0.5mA)
2. High sensitivity
   (Darlington type, CTR:MIN.600%)
3. Isolation voltage (Viso (rms):5kV)
4. 4-pin DIP package

■ Applications

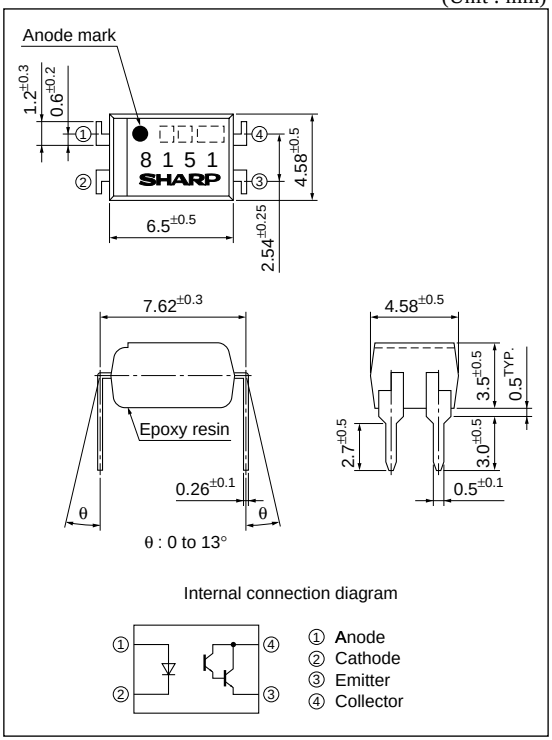
1. Various types of home appliances
2. Programmable controllers

■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	*1 Forward current	I_F	10	mA
	*2 Peak forward current	I_{FM}	200	mA
	Reverse voltage	V_R	6	V
	*1 Power dissipation	P	15	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	80	mA
	*1 Collector power dissipation	P_C	150	mW
*1 Total power dissipation		P_{tot}	170	mW
Operating temperature		T_{opr}	−30 to +100	°C
Storage temperature		T_{stg}	−55 to +125	°C
*3 Isolation voltage		$V_{iso\ (rms)}$	5	kV
*4 Soldering temperature		T_{sol}	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=0.001(shown in Fig.6)
*3 40 to 60%RH, AC for 1 min, f=60Hz
*4 For 10 s

■ Outline Dimensions (Unit : mm)



■ Electro-optical Characteristics

(Ta=25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=5mA	–	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}=10V, I_F=0	–	–	1000	nA
	Collector-emitter breakdown voltage		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		I_C	I_F=0.5mA, V_{CE}=2V	3	14	60	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=1mA, I_C=2mA	–	–	1.0	V
	Isolation resistance		R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	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=10mA, R_L=100Ω	–	60	300	μs
		Fall time	t_f		–	53	250	μs

Fig.1 Forward Current vs. Ambient Temperature

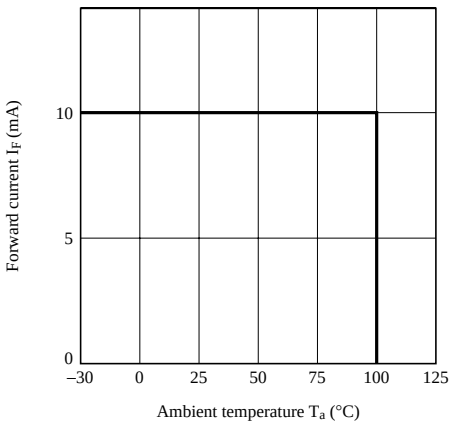


Fig.2 Diode Power Dissipation vs. Ambient Temperature

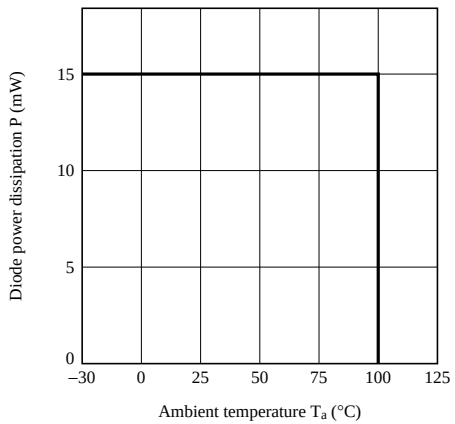


Fig.3 Collector Power Dissipation vs. Ambient Temperature

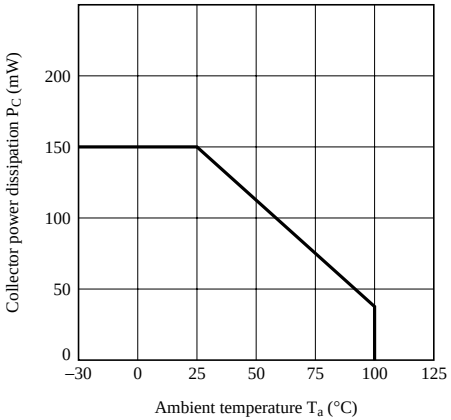


Fig.4 Total Power Dissipation vs. Ambient Temperature

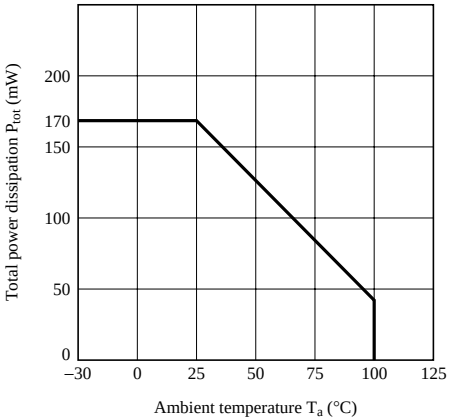
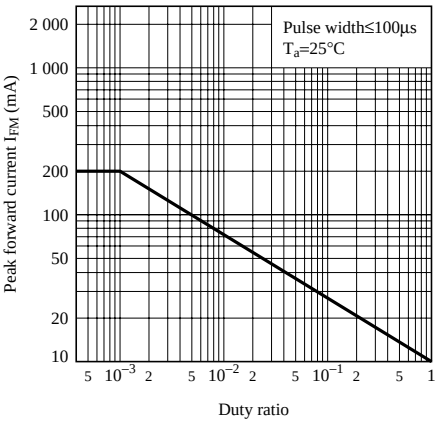


Fig.5 Peak Forward Current vs. Duty Ratio



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— Gas leakage sensor breakers
— Alarm equipment
— Various safety devices, etc.

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