PC814X

AC Input Photocoupler

✻ Lead forming type (I type) and taping reel type (P type) are also available. (**PC814XI/PC814XP**)

■ Features

1. AC input
2. High isolation voltage between input and output ($V_{iso\ (rms)}$:5kV)
3. Compact dual-in-line package
4. Current transfer ratio
   CTR:MIN. 20% at I_F=±1mA, V_{CE}=5V
5. Recognized by UL, file No. E64380 (model No **PC814**)

■ Applications

1. Programmable controllers
2. Telephones
3. Facsimiles

■ Absolute Maximum Ratings

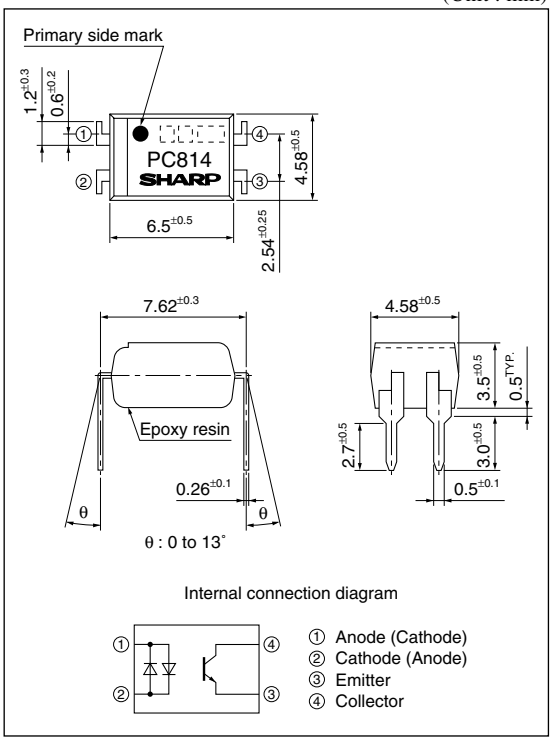
(T_a=25˚C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	±50	mA
	*1 Peak forward current	I_{FM}	±1	A
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	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}	200	mW
*2 Isolation voltage		$V_{iso\ (rms)}$	5	kV
Operating temperature		T_{opr}	−30 to +100	˚C
Storage temperature		T_{stg}	−55 to +125	˚C
*3 Soldering temperature		T_{sol}	260	˚C

*1 Pulse width≤100μs, Duty ratio:0.001
*2 40 to 60%RH, AC for 1 minute
*3 For 10s

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(T_a=25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=±20mA	–	1.2	1.4	V
	Peak forward voltage		V_{FM}	I_{FM}=±0.5V	–	–	3.0	V
	Terminal capacitance		C_t	V=0, f=1kHz	–	50	250	pF
Output	Collector dark current		I_{CEO}	V_{CE}=20V, I_F=0	–	–	100	nA
Transfer characteristics	Collector current		I_C	I_F=±1mA, V_{CE}=5V	0.2	–	3.0	mA
	Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_F=±20mA, I_C=1mA	–	0.1	0.2	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
	Cut-off frequency		f_c	V_{CE}=5V, I_C=2mA, R_L=100Ω, −3dB	15	80	–	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA, R_L=100Ω	–	4	18	µs
		Fall time	t_f		–	3	18	µs

■ Rank Table

(I_F=±1mA, V_{CE}=5V, T_a=25˚C)

Model No.	Rank mark	I_C (mA)
PC814X	A or no mark	0.2 to 3.0
PC814X1	A	0.5 to 1.5

Fig.1 Forward Current vs. Ambient Temperature

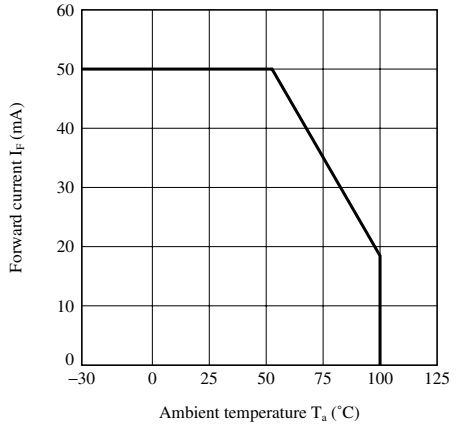


Fig.2 Collector Power Dissipation vs. Ambient Temperature

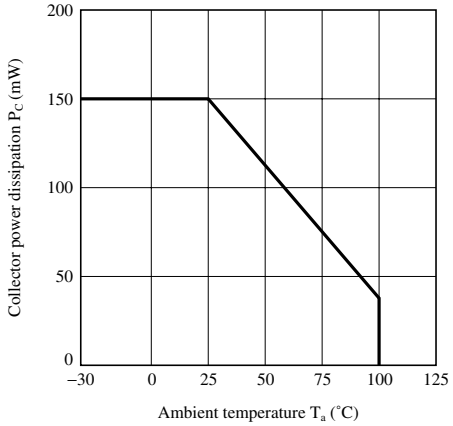


Fig.3 Peak Forward Current vs. Duty Ratio

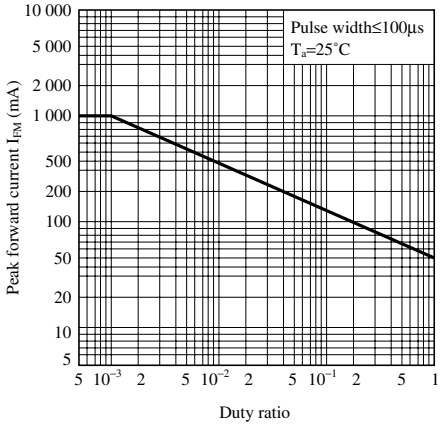


Fig.4 Forward Current vs. Forward Voltage

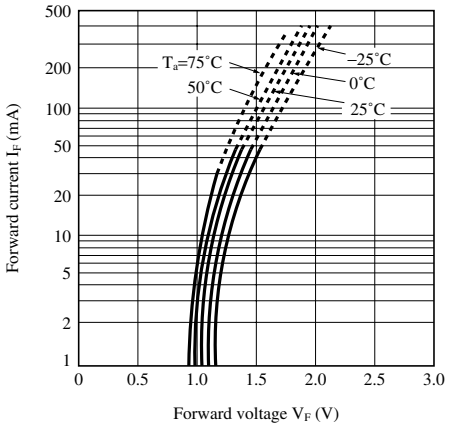


Fig.5 Current Transfer Ratio vs. Forward Current

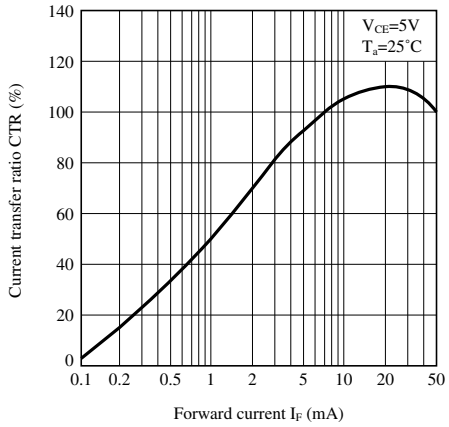


Fig.6 Collector Current vs. Collector-emitter Voltage

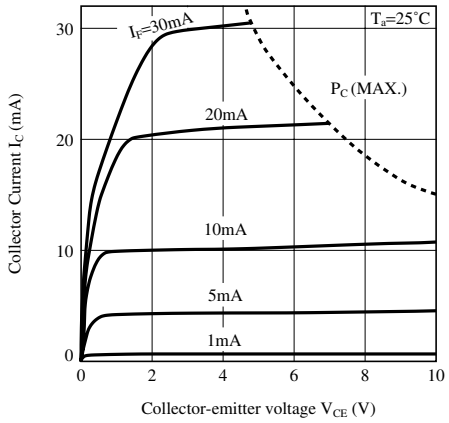


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

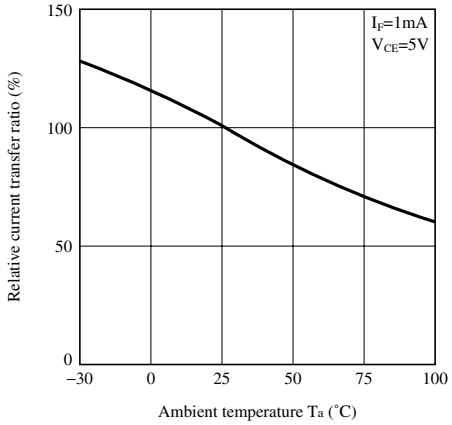


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

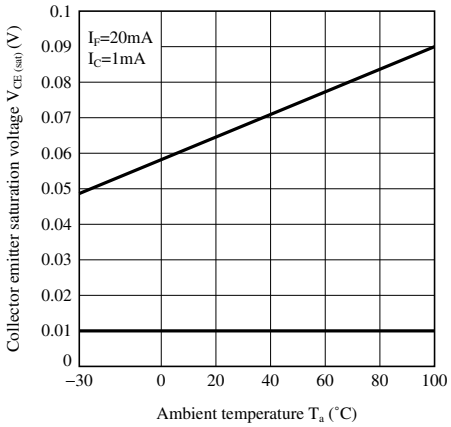


Fig.9 Collector Dark Current vs. Ambient Temperature

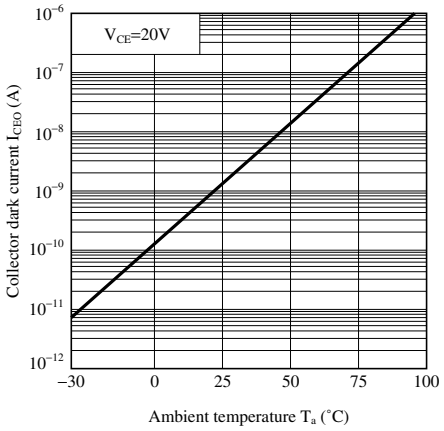


Fig.10 Collector-emitter Saturation Voltage vs. Forward Current

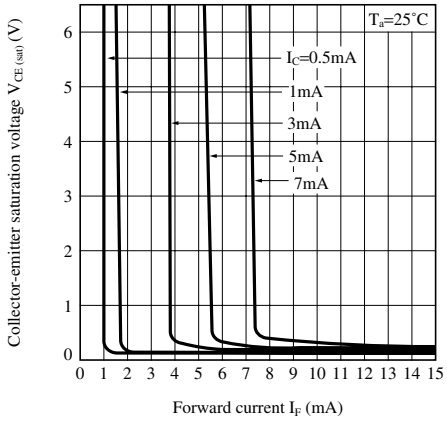
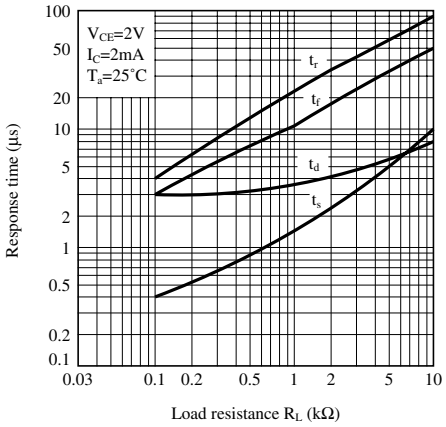


Fig.11 Response Time vs. Load Resistance



Test Circuit for Response Time

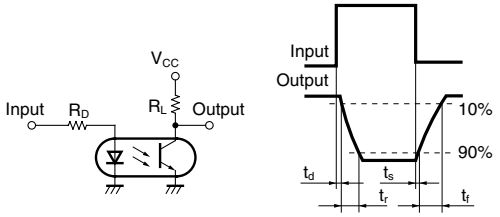
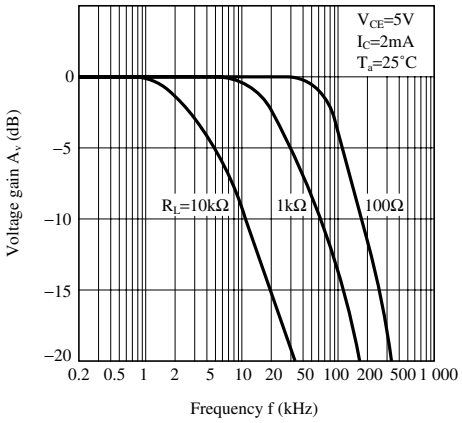
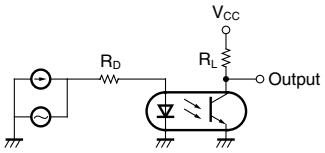


Fig.12 Frequency Response



Test Circuit for Frequency Response



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