PC814 Series

AC Input Photocoupler

❋ Lead forming type（I type ）and taping reel type（P type ）are also available.（**PC814I/PC814P** ）

■ Features

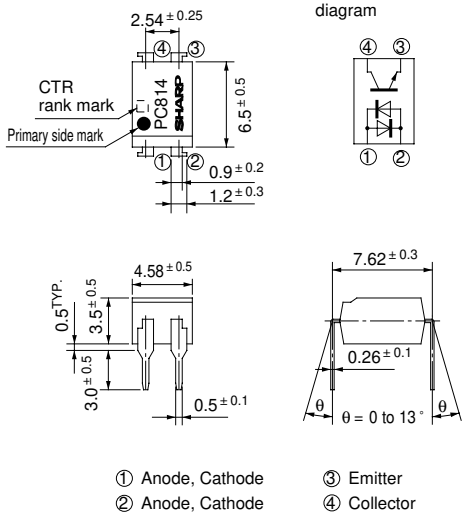
1. AC input
2. High isolation voltage between input and output（V： 5 000V_{rms} ）
3. Compact dual-in-line package
   PC814（1-channel type）
   PC824（2-channel type ）
   PC844（4-channel type）
4. Current transfer ratio
   CTR： MIN. 20% at I_F = ± 1mA, V_{CE} = 5V
5. Recognized by UL, file No. E64380

■ Applications

1. Programmable controllers
2. Telephone sets, telephone exchangers
3. System appliances
4. Signal transmission between circuits of different potentials and impedances

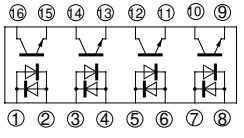
■ Outline Dimensions （Unit： mm）

PC814

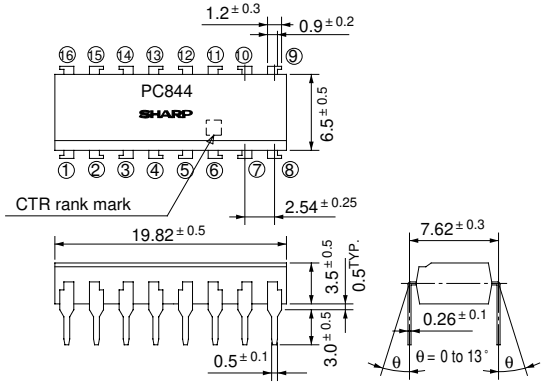


① Anode, Cathode
② Anode, Cathode
③ Emitter
④ Collector

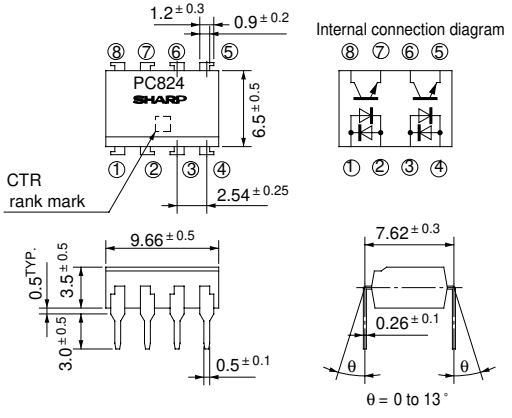
PC844 Internal connection diagram



①③⑤⑦ Anode, Cathode
②④⑥⑧ Anode, Cathode
⑨⑪⑬⑮ Emitter
⑩⑫⑭⑯ Collector



PC824



①③ Anode,Cathode
②④ Anode,Cathode
⑤⑦ Emitter
⑥⑧ Collector

■ Absolute Maximum Ratings (Ta= 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	± 50	mA
	*1Peak 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
*2Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	- 30 to + 100	°C
Storage temperature		T_{stg}	- 55 to + 125	°C
*3Soldering temperature		T_{sol}	260	°C

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

■ Electro-optical Characteristics (Ta= 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	-	-	10^{-7}	A
Transfer characteristics	*4Current transfer ratio		CTR	I_F = ± 1mA, V_{CE} = 5V	20	-	300	%
	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 x 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

*4 Classification table of current transfer ratio

Model No.	Rank mark	CTR (%)
PC814A	A	50 to 150
PC824A		
PC844A		
PC814	A or no mark	20 to 300
PC824		
PC844		

Fig. 1 Forward Current vs. Ambient Temperature

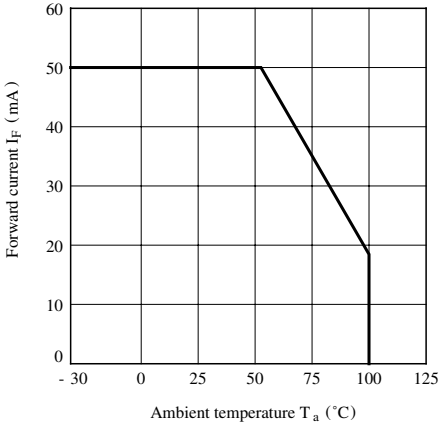


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

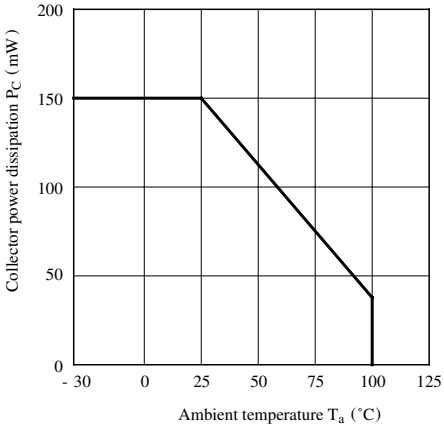


Fig. 3 Peak Forward Current vs. Duty Ratio

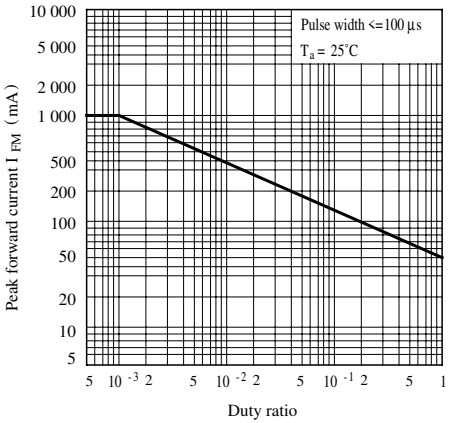


Fig. 4 Forward Current vs. Forward Voltage

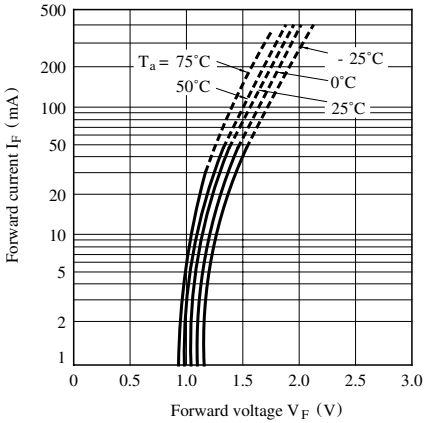


Fig. 5 Current Transfer Ratio vs. Forward Current

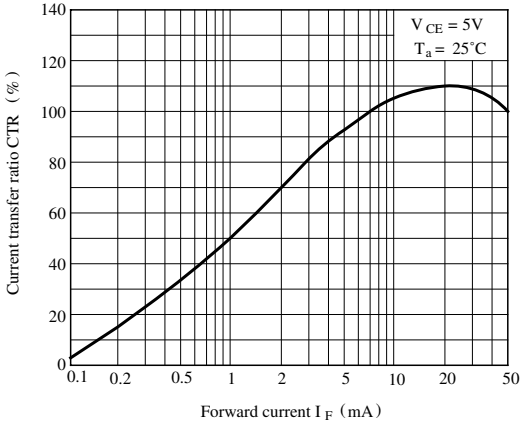


Fig. 6 Collector Current vs. Collector-emitter Voltage

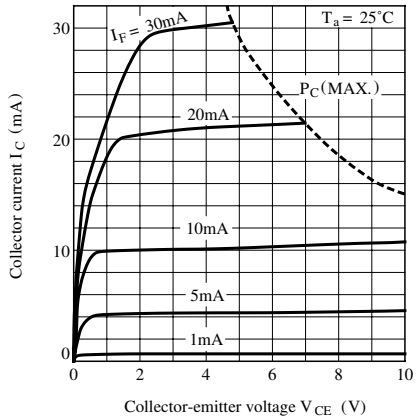


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

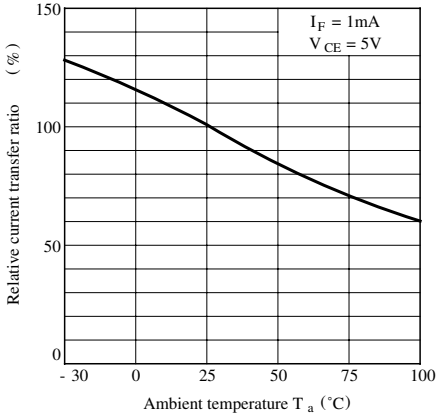


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

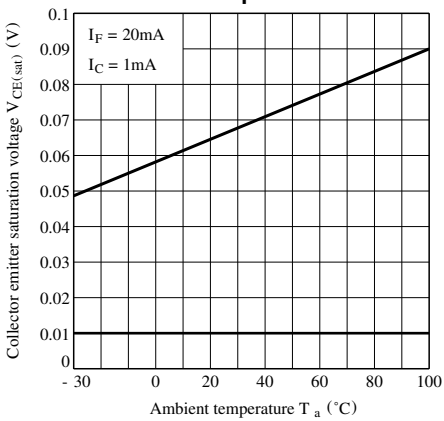


Fig. 9 Collector Dark Current vs. Ambient Temperature

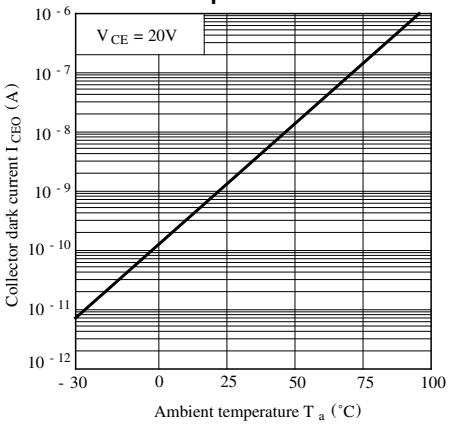


Fig.10 Response Time vs. Load Resistance

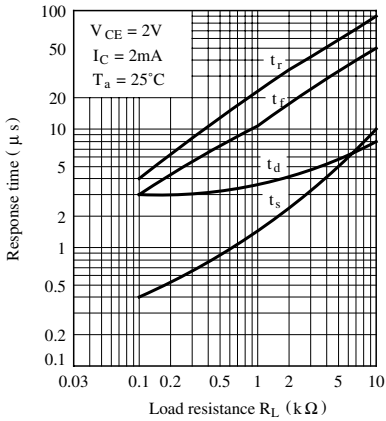
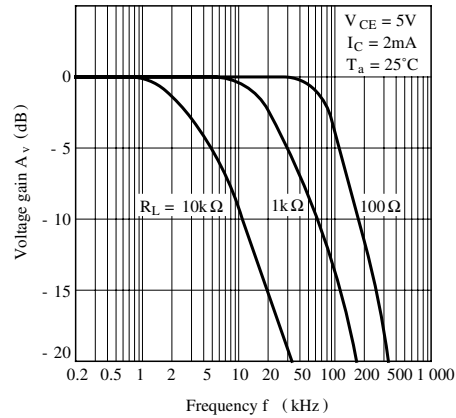


Fig.11 Frequency Response



Test Circuit for Response Time

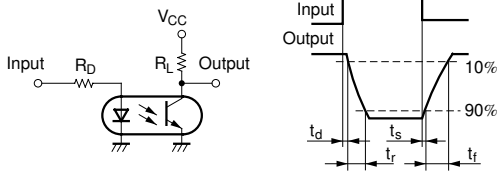
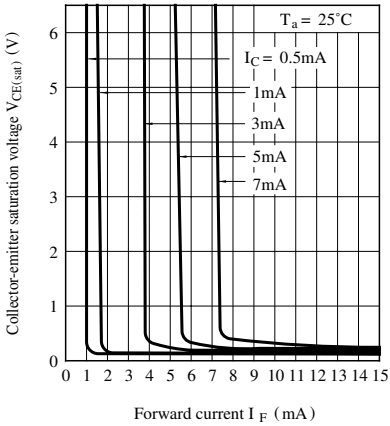
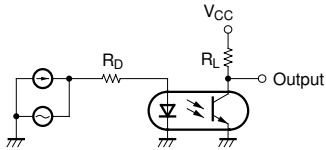


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frepuency Response



● Please refer to the chapter "Precautions for Use"