PC816 Series

High Collector-emitter Voltage, High Density Mounting Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (**PC816I/PC816P**) (Page 656)

■ Features

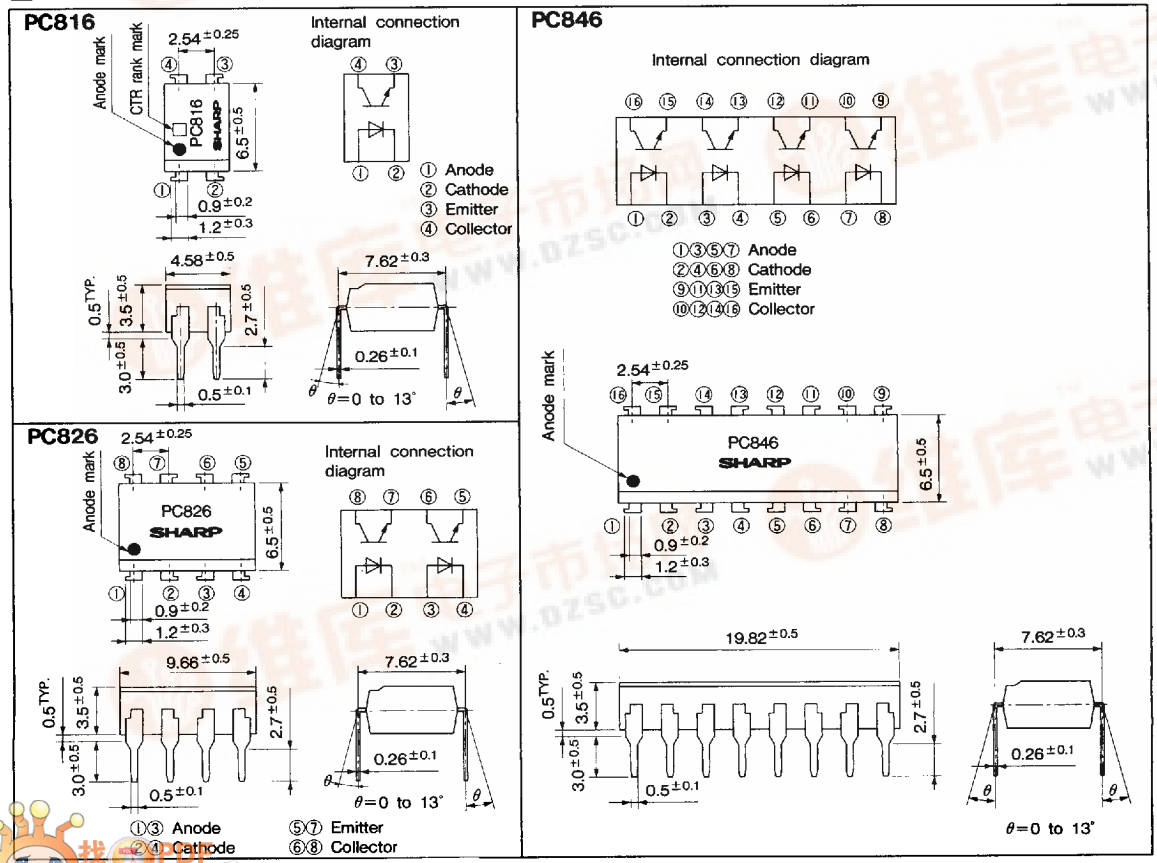
1. High collector-emitter voltage (V_{CEO} : 70V)
2. Compact dual-in-line package
   PC816 : 1-channel type
   PC826 : 2-channel type
   PC846 : 4-channel type
3. High isolation voltage between input and output (V_{ISO} : 5 000V_{rms})
4. Current transfer ratio
   (CTR : MIN. 50% at I_F=5mA, V_{CE}=5V)
5. Recognized by UL, file No. E64380

■ Applications

1. Programmable controllers, computers
2. System appliances, measuring instruments
3. Signal transmission between circuits of different potentials and impedances

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	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}	200	mW
*2Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	−30 to +100	℃
Storage temperature		T_{stg}	−55 to +125	℃
*3Soldering temperature		T_{sol}	260	℃

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

■ Electro-optical Characteristics (Ta=25℃)

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}=0.5A	−	−	3.0	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}=20V, I_F=0	−	−	10^{-7}	A
Transfer characteristics	*4Current transfer ratio		CTR	I_F=5mA, V_{CE}=5V	50	−	600	%
	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}	1×10^{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	−	80	−	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA	−	4	18	μs
		Fall time	t_f	R_L=100Ω	−	3	18	μs

*4 Classification table of current transfer ratio is shown below.

Model No.	Rank mark	CTR (%)
PC816A	A	80 to 160
PC816B	B	130 to 260
PC816C	C	200 to 400
PC816D	D	300 to 600
PC816AB	A or B	80 to 260
PC816BC	B or C	130 to 400
PC816CD	C or D	200 to 600
PC816AC	A, B or D	80 to 400
PC816BD	B, C or D	130 to 600
PC816AD	A, B, C or D	80 to 600
PC816	A, B, C, D or No mark	50 to 600

Fig. 1 Forward Current vs. Ambient Temperature

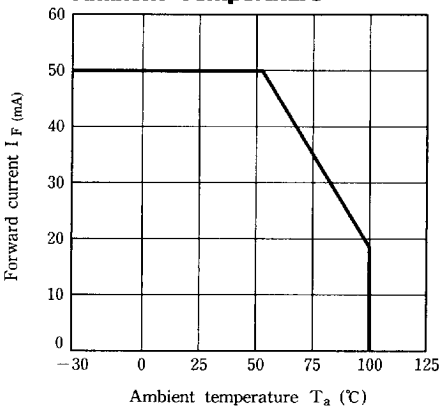


Fig. 2 Collector Power Dissipation VS. Ambient Temperature

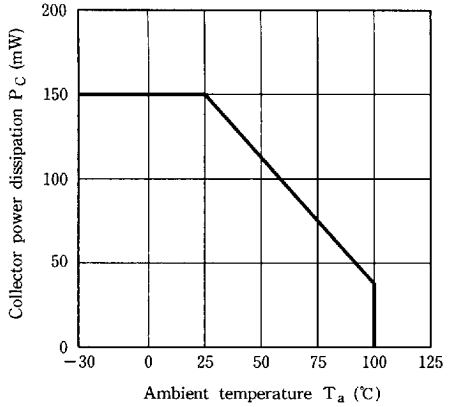


Fig. 3 Peak Forward Current vs. Duty Ratio

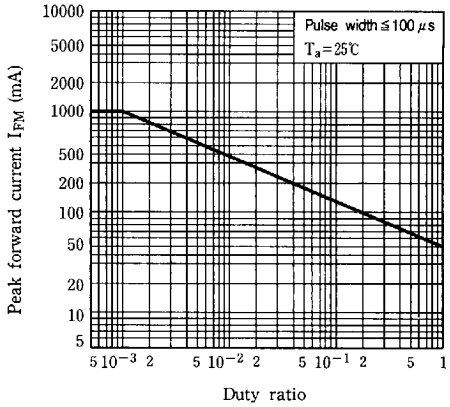


Fig. 4 Forward Current vs. Forward Voltage

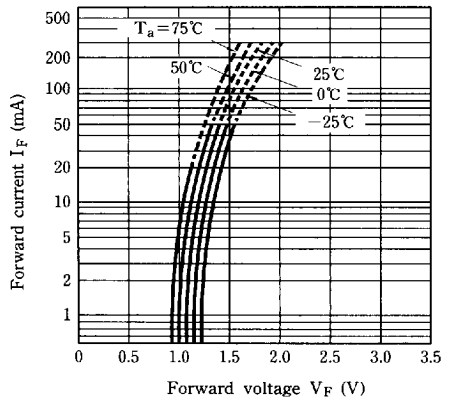


Fig. 5 Current Transfer Ratio vs. Forward Current

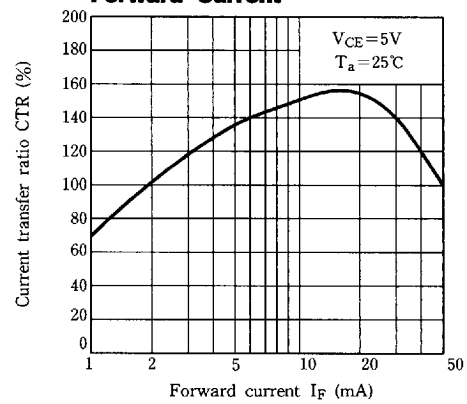


Fig. 6 Collector Current vs. Collector-emitter Voltage

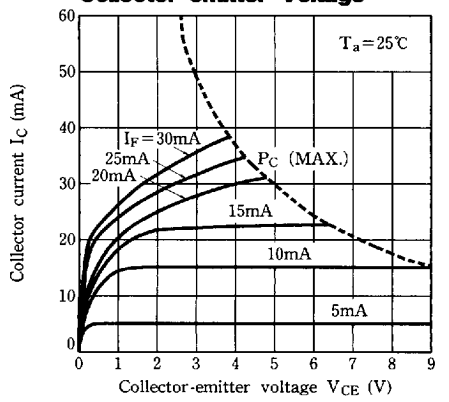
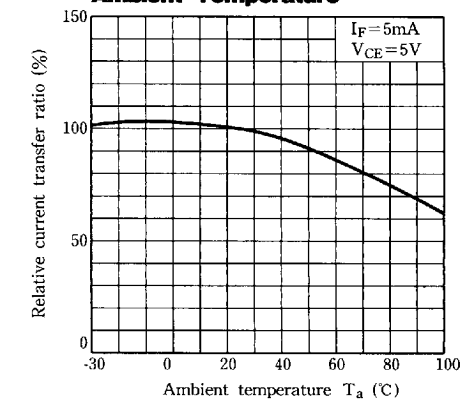


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature



6 Photocouplers

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

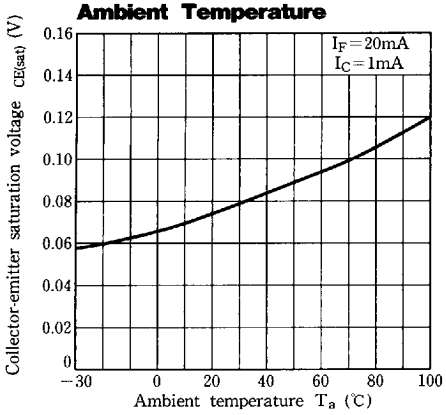


Fig. 9 Collector Dark Current vs. Ambient Temperature

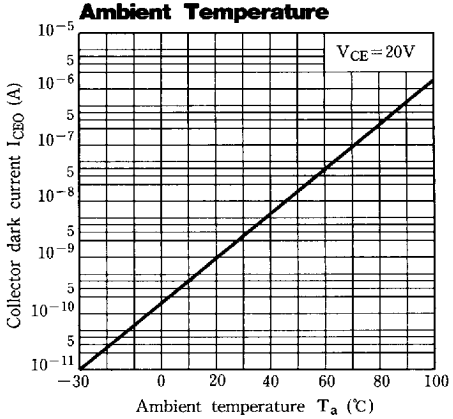
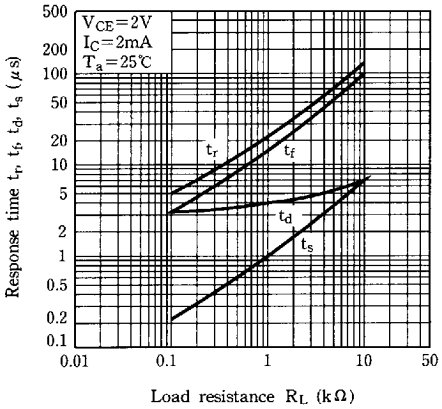
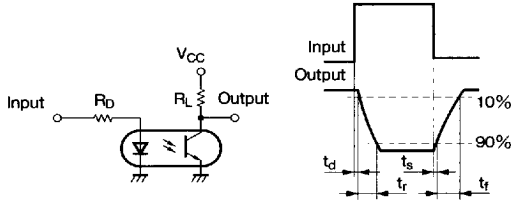


Fig.10 Response Time vs. Load Resistance



Test Circuit for Response Time



Test Circuit for Frepuency Response

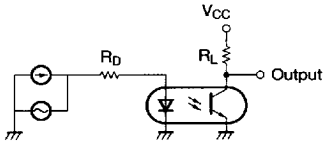


Fig.11 Frequency Response

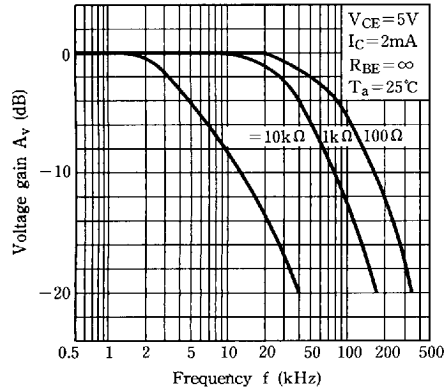
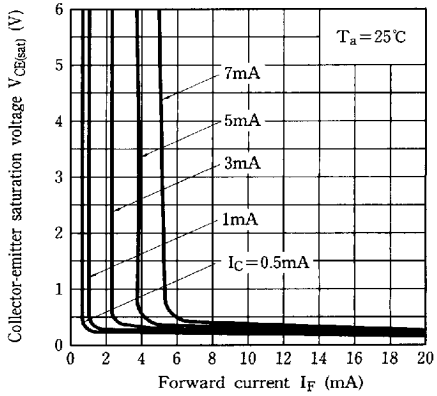


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



● Please refer to the chapter "Precautions for Use" (Page 78 to 93)