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)

■ 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 $(V_{ISO}: 5000V_{rms})$

4. Current transfer ratio

(CTR: MIN. 50% at $I_F = 5mA$, $V_{CE} = 5V$)

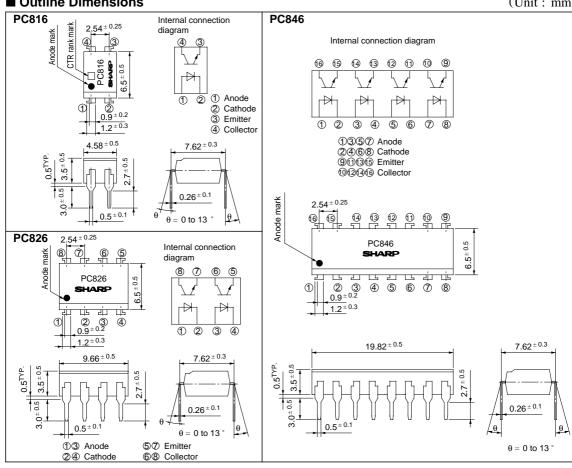
5. Recognized by UL, file No. E64380

■ 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

 $(Ta = 25^{\circ}C)$

	Parameter	Symbol	Rating	Unit
	Forward current	I_F	50	mA
T	*1Peak forward current	I_{FM}	1	A
Input	Reverse voltage	V _R	6	V
	Power dissipation	P	70	mW
	Collector-emitter voltage	V _{CEO}	70	V
0	Emitter-collector voltage	V ECO	6	V
Output	Collector current	Ic	50	mA
	Collector power dissipation	Pc	150	mW
	Total power dissipation	P tot	200	mW
	*2 Isolation voltage		5 000	V _{rms}
Operating temperature		T opr	- 30 to + 100	°C
	Storage temperature		- 55 to + 125	°C
	*3 Soldering temperature		260	°C

^{*1} Pulse width \leq =100 μ s, Duty ratio: 0.001

■ Electro-optical Characteristics

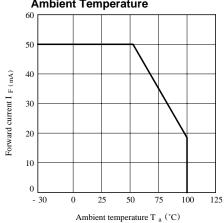
 $(Ta = 25^{\circ}C)$

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}	$I_{\text{FM}} = 0.5A$	-	-	3.0	V
	Reverse current		I_R	$V_R = 4V$	-	-	10	μΑ
	Terminal capacitance		Ct	V = 0, $f = 1kHz$	-	30	250	pF
Output	Collector dark curr	ent	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 x 10 ¹⁰	1011	-	Ω
	Floating capacitance		$C_{\rm f}$	V = 0, $f = 1MHz$	-	0.6	1.0	pF
	Cut-off frequency		fc	$V_{CE} = 5V$, $I_{C} = 2mA$, $R_{L} = 100 \Omega$, $-3dB$	-	80	-	kHz
	Response time	Rise time	$t_{\rm r}$	$V_{CE} = 2V$, $I_{C} = 2mA$	-	4	18	μs
		Fall time	t_{f}	$R_{\rm L} = 100\Omega$	-	3	18	μs

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

Model No.	Rank mark	CTR (%)		
PC816A	A	80 to 160		
PC816B	В	130 to 260		
PC816C	С	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



^{*2 40} to 60% RH, AC for 1 minute

^{*3} For 10 seconds

Fig. 2 Collector Power Dissipation VS.
Ambient Temperature

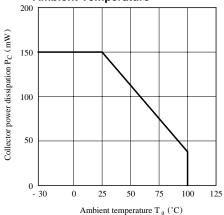


Fig. 4 Forward Current vs. Forward Voltage

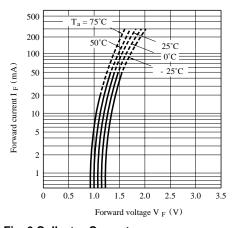


Fig. 6 Collector Current vs.
Collector-emitter Voltage

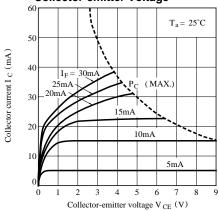


Fig. 3 Peak Forward Current vs. Duty Ratio

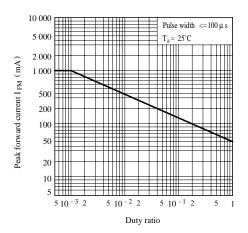


Fig. 5 Current Transfer Ratio vs. Forward Current

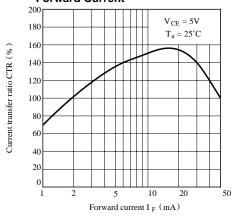


Fig. 7 Relative Current Transfer Ratio vs.
Ambient Temperature

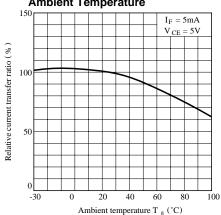


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

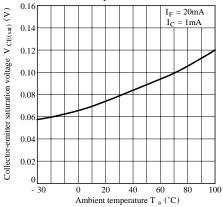


Fig.10 Response Time vs. Load Resistance

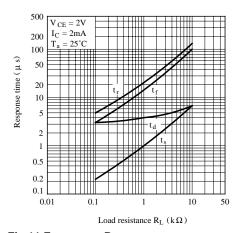


Fig.11 Frequency Response

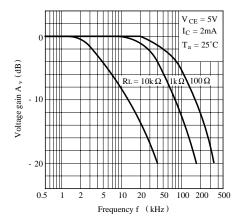
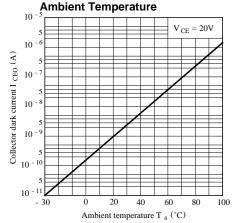
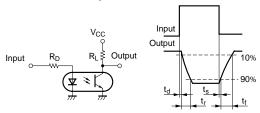


Fig. 9 Collector Dark Current vs.



Test Circuit for Response Time



Test Circuit for Frepuency Response

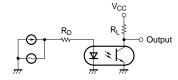
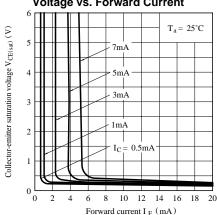


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



• Please refer to the chapter "Precautions for Use"

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