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

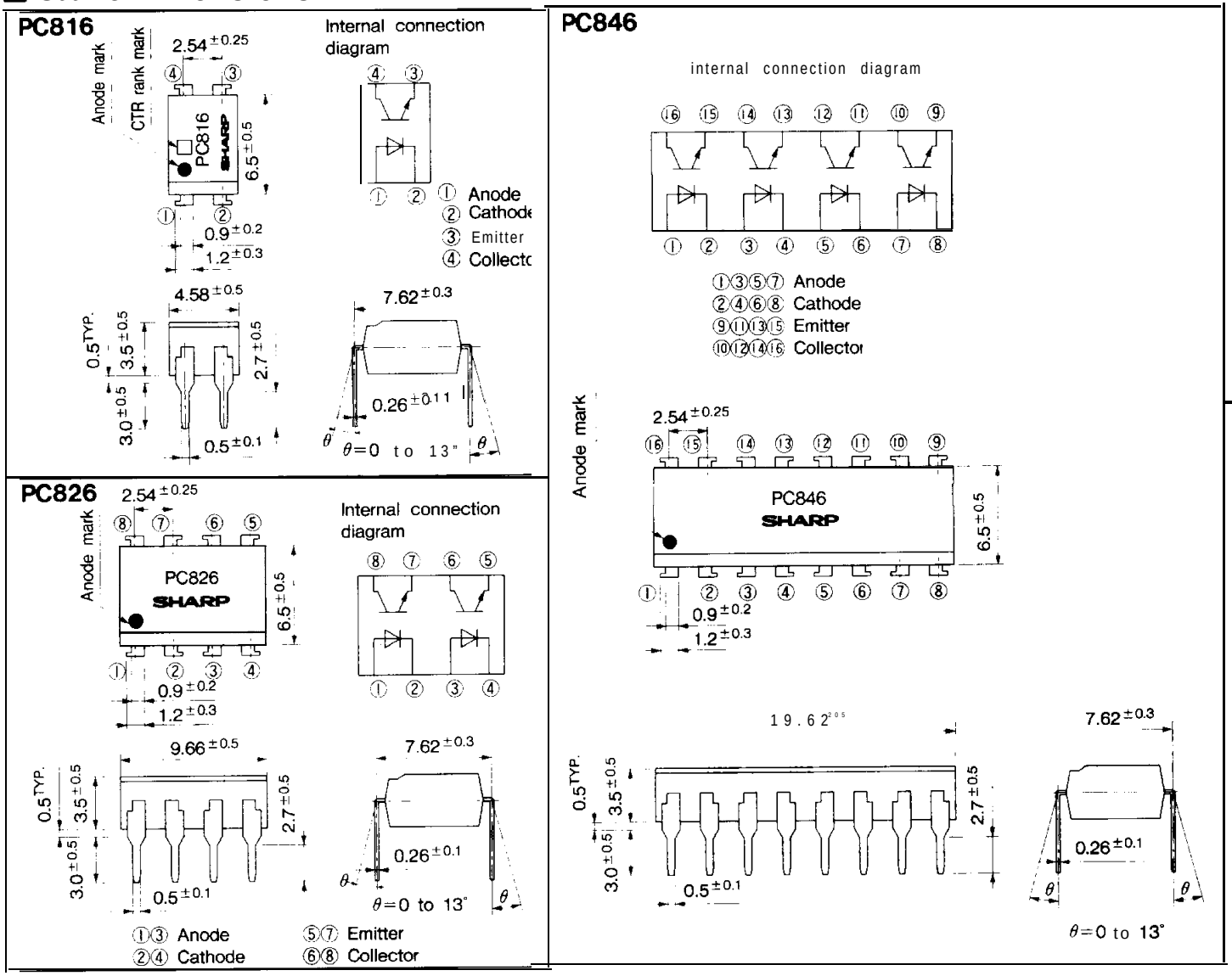
1. High collector-emitter voltage (V_{CEO} : 70V)
2. Compact dual-in-line package
   PC816 : l-channel type
   PC826 : 2-channel type
   PC846 : 4-channel type
3. High isolation voltage between input and output (V_{ISO} : 5 000V_{rms})
4. Current transfer ratio
   (CTR : MIN. 50% at I_F=5mA, V_{CE}=5V
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



"In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in waler to obtain the latest version of the device specification sheets before using any SHARP's device."

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■ Absolute Maximum Ratings (Ta = 25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak 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
*2 Isolation voltage		V_{iso}	5000	V_{rms}
Operating temperature		T_{opr}	-30 to + 100	℃
Storage temperature		T_{stg}	−55 to +125	℃
*3 Soldering 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 Characteristic (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} = 0.5A			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, IF=O	−	−	10^{-7}	A
Transfer characteristics	*4 Current 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=O, 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 = 100 Ω	−	3	18	μs

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

Model No.	Rank mark	CTR (%)
PC616A	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
Pc616AD	A, B, C or D	80 to 600
PC816	A, B, C. D or So mark	50 to 600

Fig. 1 Forward Current vs. Ambient Temperature

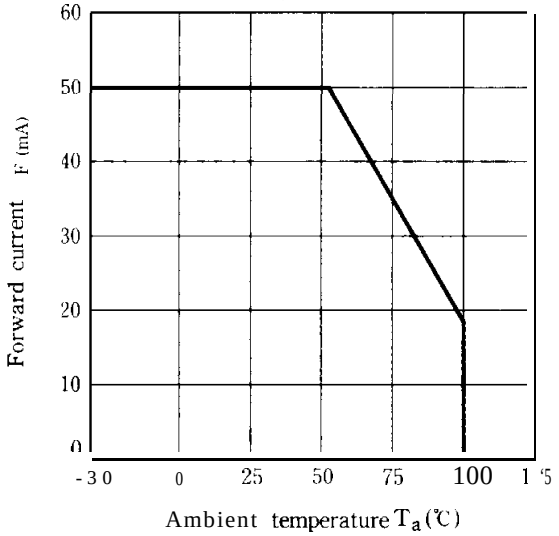

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Fig. 2 Collector Power Dissipation VS. Ambient Temperature

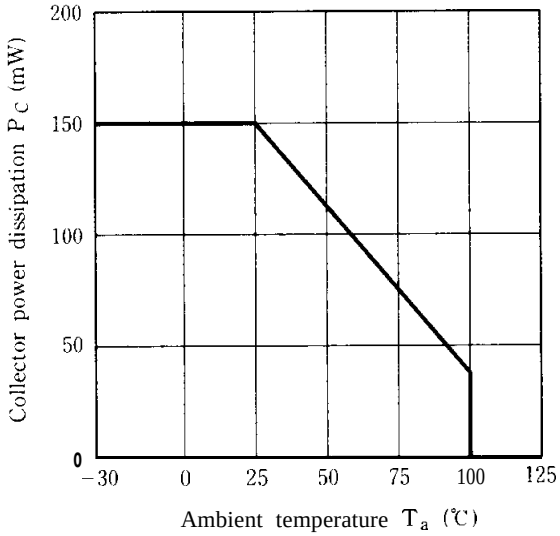

Fig. 3 Paak Forward Currant vs. Duty Ratio

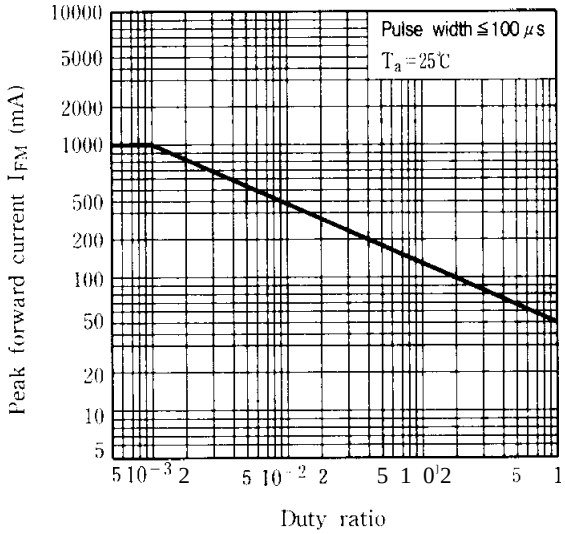

Fig. 4 Forward Current vs. Forward Voltage

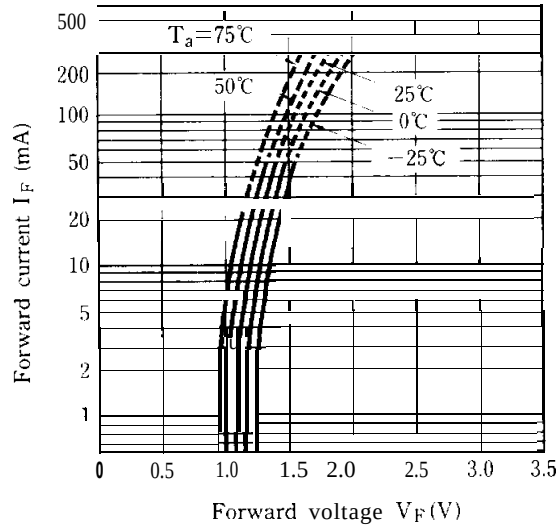

Fig. 5 Current Transfer Ratio vs. Forward Currant

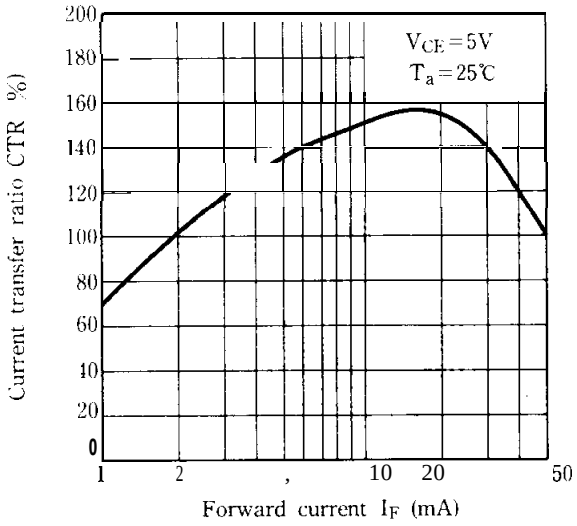

Fig. 6 Collector Current vs. Collector-emitter Voltage

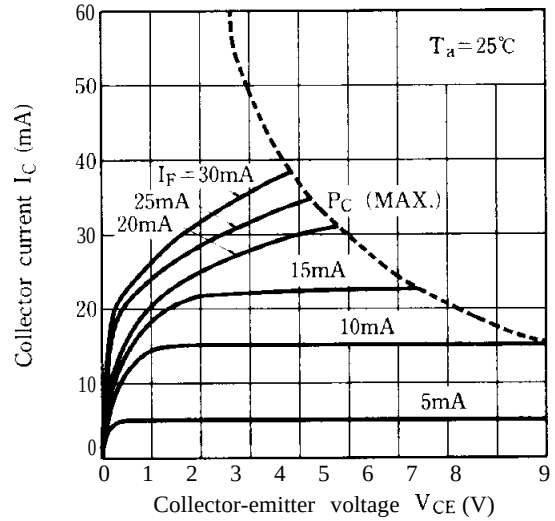

Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

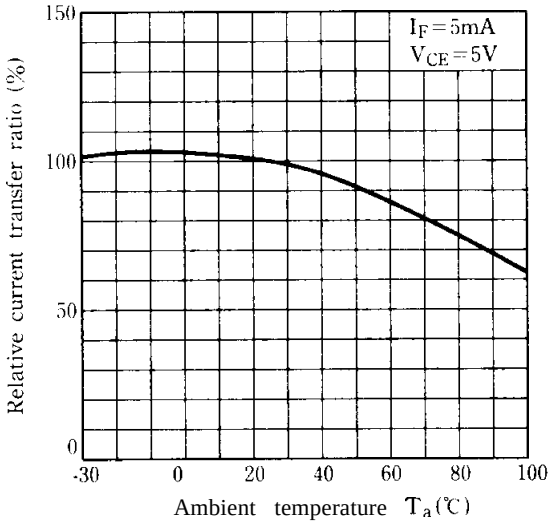

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Fig. 8 Collector-emitter Saturation voltage vs. Ambient Temperature

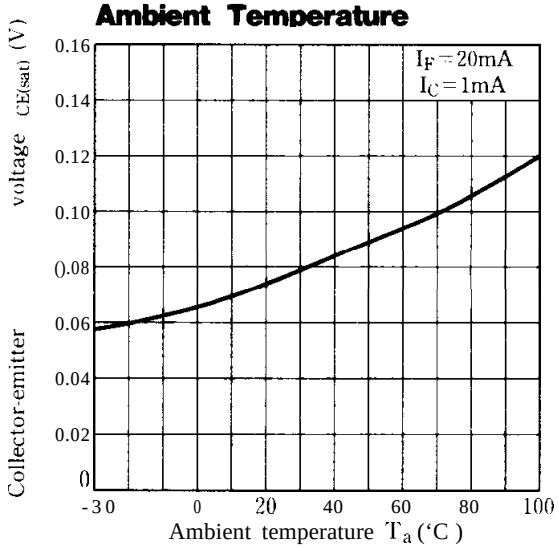


Fig. 9 Collector Dark Current vs. Ambient Temperature

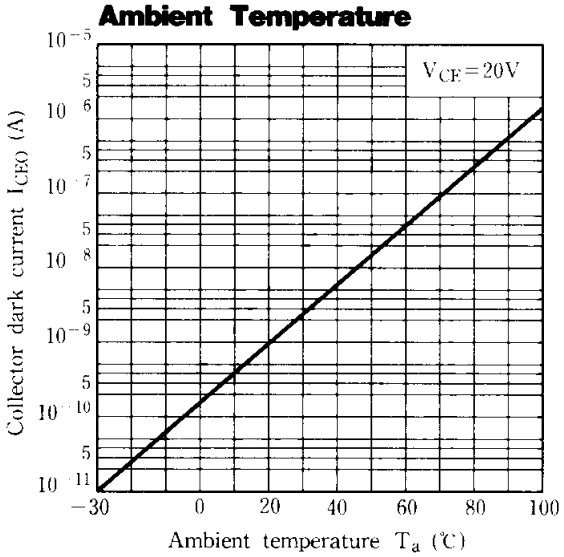
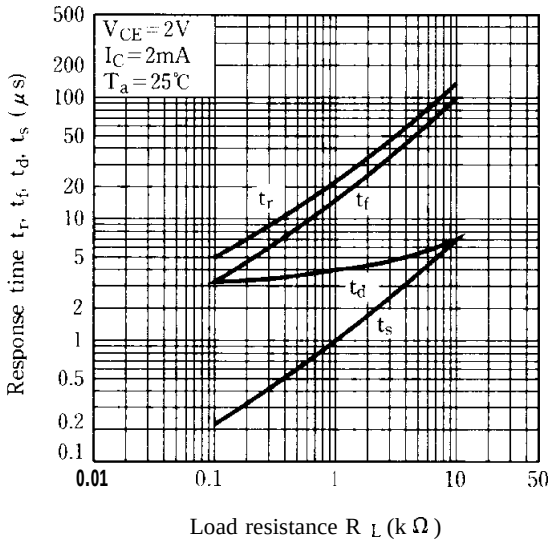
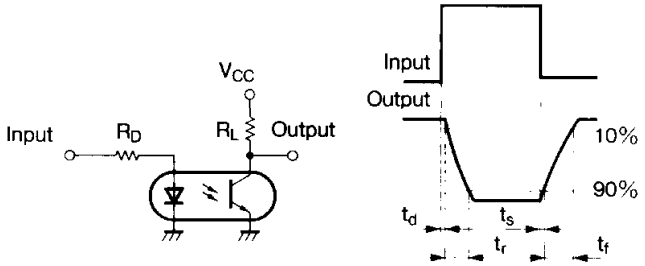


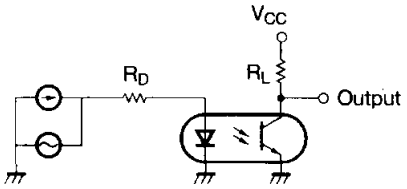
Fig.10 Response Time vs. Load Resistance



Test Circuit for Response Time



Test Circuit for Frepuency Response



Figmll Frequency **Response**

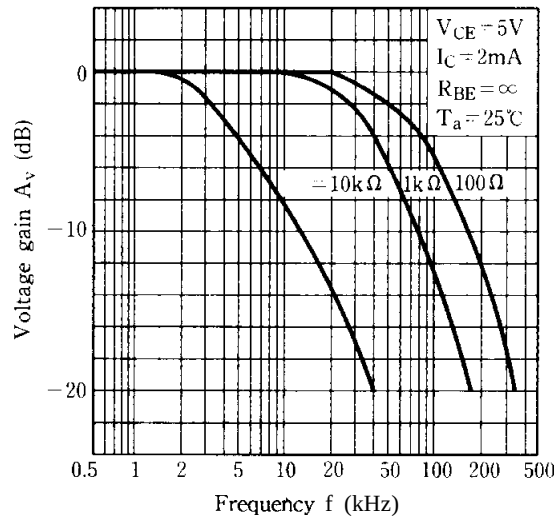
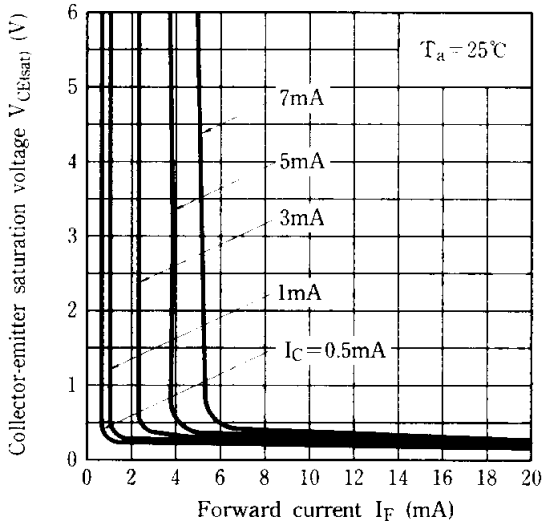


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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

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