PC817 Series

High Density Mounting Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (**PC817I/PC817P**) (Page 656)
※※TÜV (VDE0884) approved type is also available as an option.

■ Features

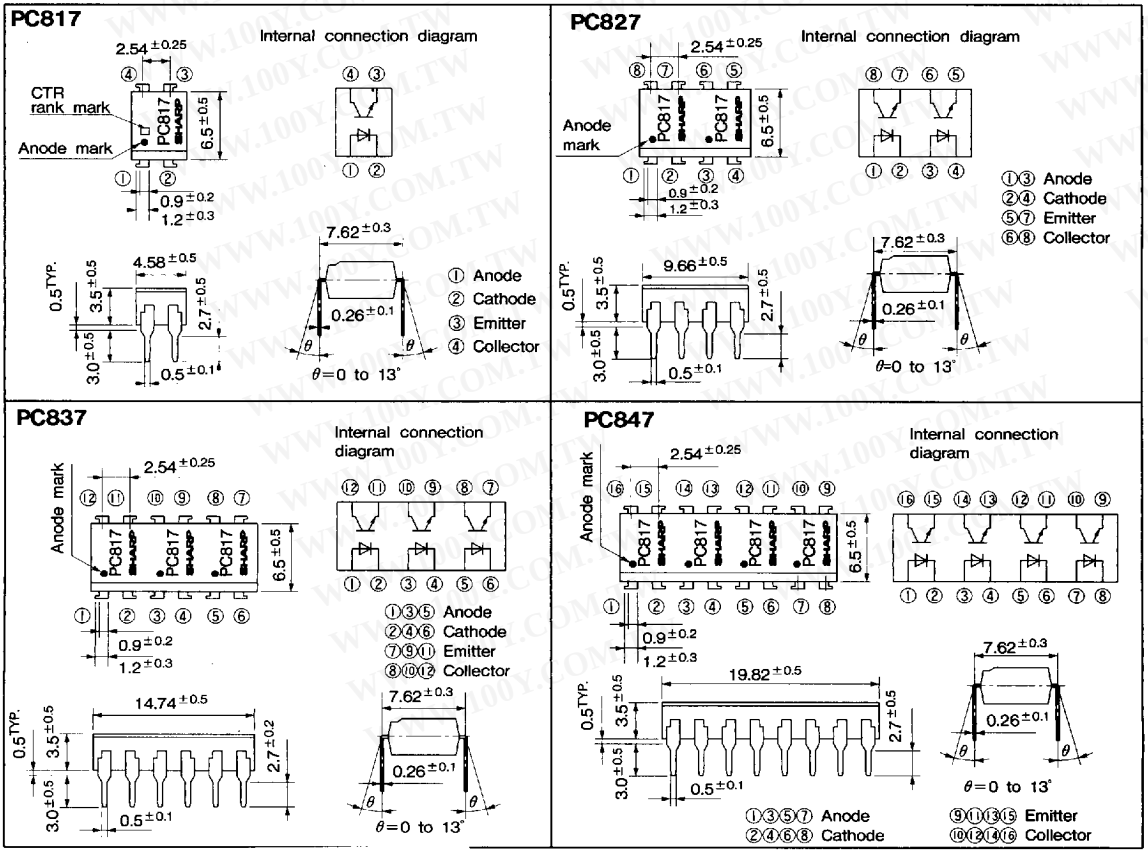
1. Current transfer ratio (CTR : MIN. 50% at I_F=5mA)
2. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
3. Compact dual-in-line package
   PC817 : 1-channel type
   PC827 : 2-channel type
   PC837 : 3-channel type
   PC847 : 4-channel type
4. Recognized by UL, file No. E64380

■ Applications

1. Computer terminals
2. System appliances, measuring instruments
3. Registers, copiers, automatic vending machines
4. Electric home appliances, such as fan heaters, etc.
5. Medical instruments, physical and chemical equipment
6. 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}	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	℃
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	−	−	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}	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, R_L=100Ω	−	4	18	μs
		Fall time	t_f		−	3	18	μs

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

Model No.	Rank mark	CTR (%)
PC817A	A	80 to 160
PC817B	B	130 to 260
PC817C	C	200 to 400
PC817D	D	300 to 600
PC8※7AB	A or B	80 to 260
PC8※7BC	B or C	130 to 400
PC8※7CD	C or D	200 to 600
PC8※7AC	A, B or C	80 to 400
PC8※7BD	B, C or D	130 to 600
PC8※7AD	A, B, C or D	80 to 600
PC8※7	A, B, C, D or No mark	50 to 600

※ : 1 or 2 or 3 or 4

Fig. 1 Forward Current vs. Ambient Temperature

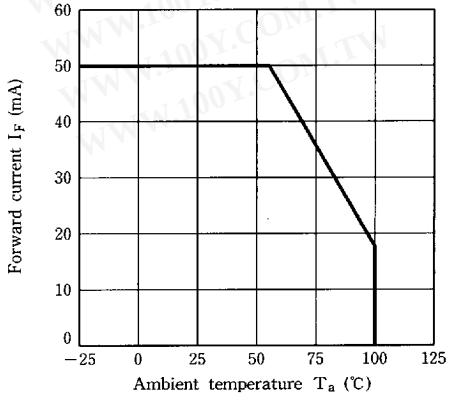


Fig. 2 Collector Power Dissipation VS. Ambient Temperature

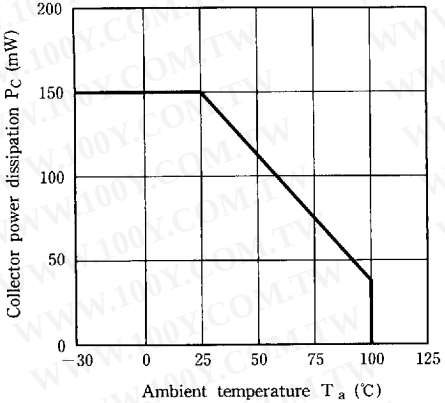


Fig. 3 Peak Forward Current vs. Duty Ratio

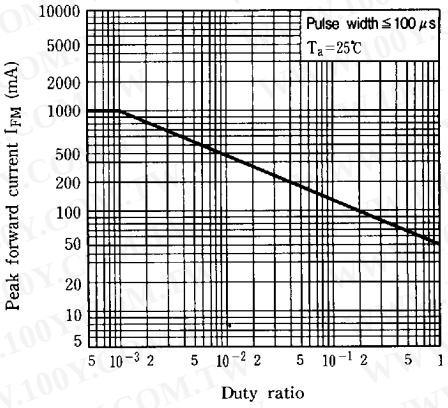


Fig. 4 Current Transfer Ratio vs. Forward Current

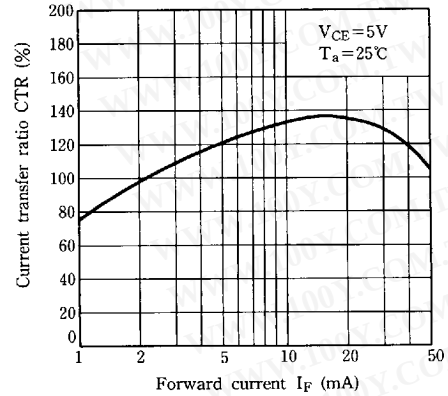


Fig. 5 Forward Current vs. Forward Voltage

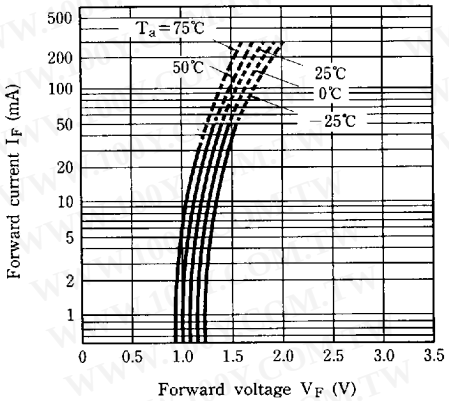


Fig. 6 Collector Current vs. Collector-emitter Voltage

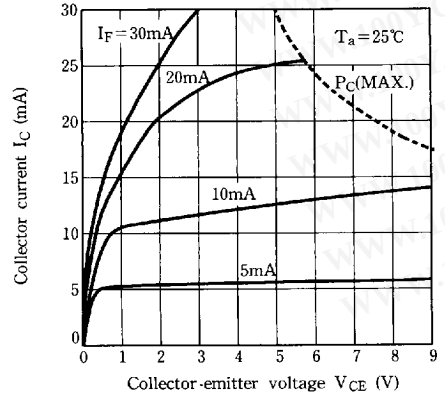


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

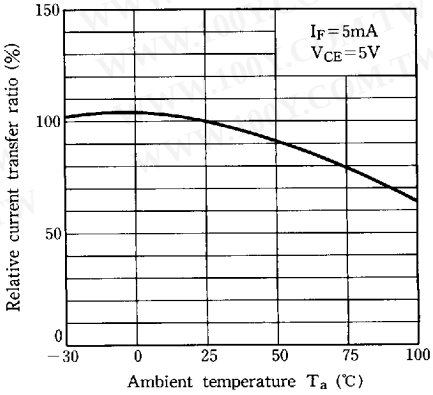


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

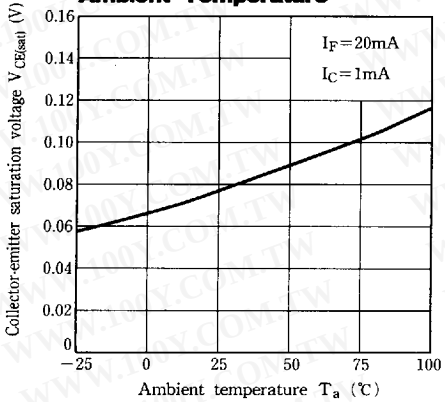


Fig. 9 Collector Dark Current vs. Ambient Temperature

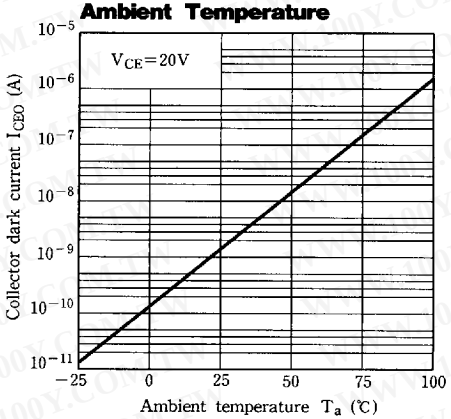


Fig.10 Response Time vs. Load Resistance

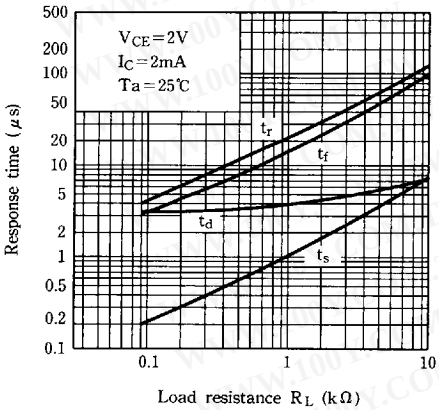
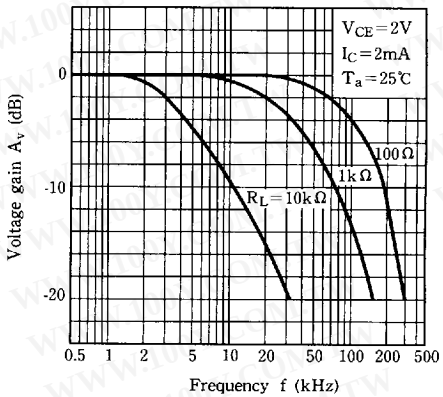
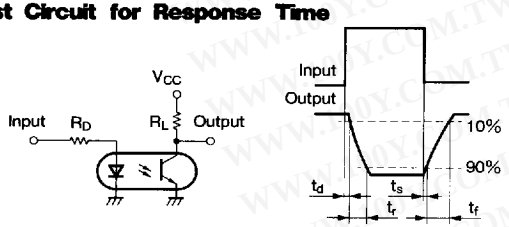


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frepuency Response

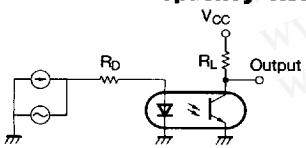
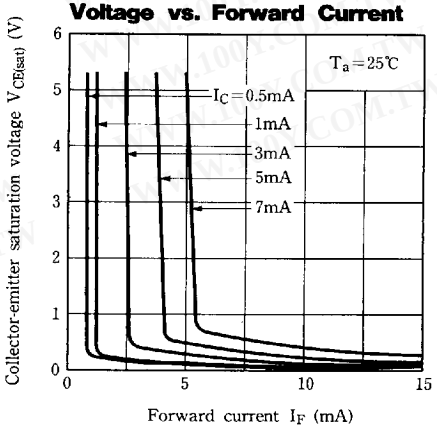


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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