

PC817 Series

High Density Mounting Type Photocoupler

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

■ Features

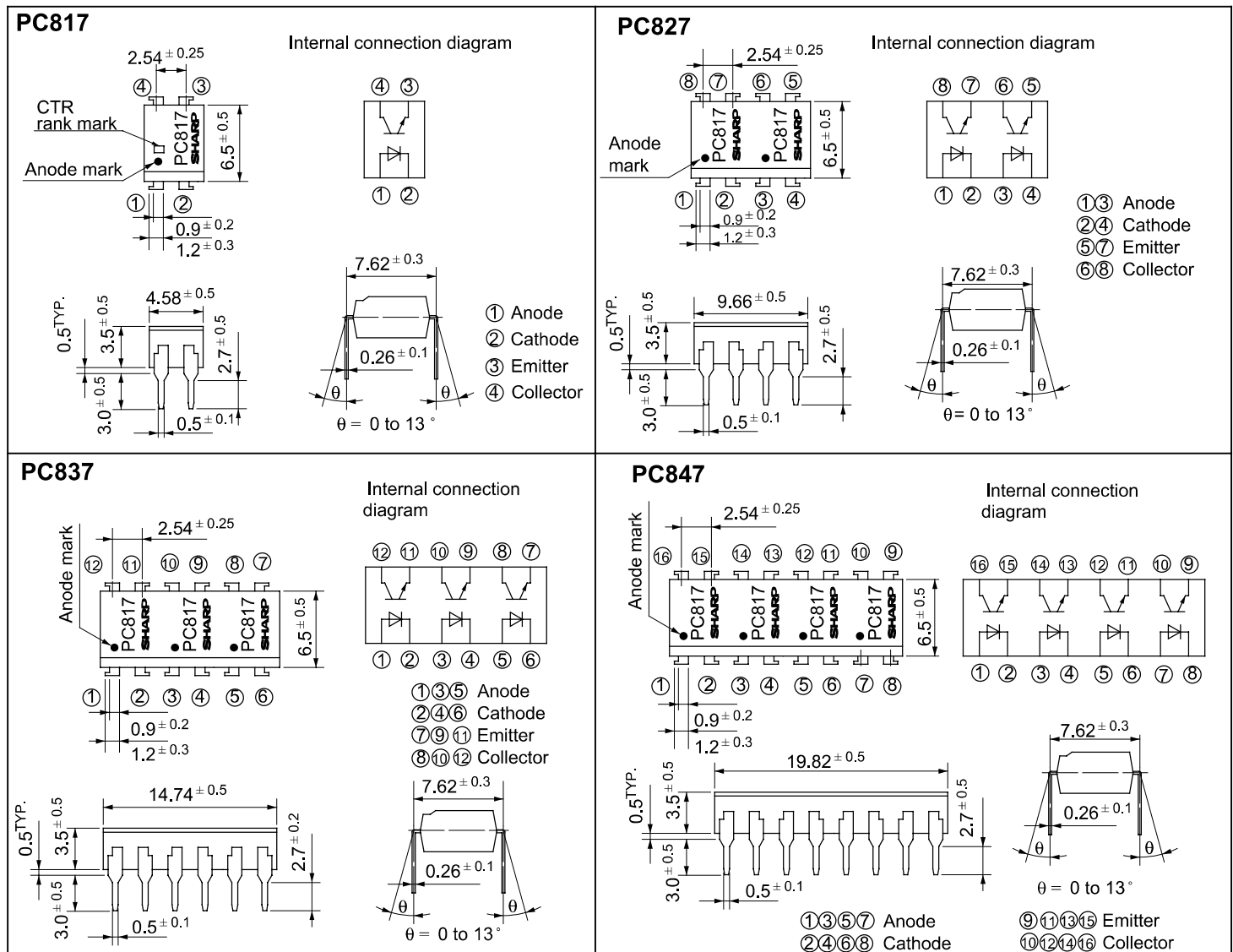
- Current transfer ratio
(CTR: MIN. 50% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
- Compact dual-in-line package
PC817 : 1-channel type
PC827 : 2-channel type
PC837 : 3-channel type
PC847 : 4-channel type
- Recognized by UL,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

■ Applications

- Computer terminals
- System appliances, measuring instruments
- Registers, copiers, automatic vending machines
- Electric home appliances, such as fan heaters, etc.
- Signal transmission between circuits of different potentials and impedances

■ Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings

(Ta = 25°C)

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}	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
*2 Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	- 30 to + 100	°C
Storage temperature		T_{stg}	- 55 to + 125	°C
*3 Soldering 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	$I_F = 20\text{mA}$	-	1.2	1.4	V
	Peak forward voltage	V_{FM}	$I_{FM} = 0.5\text{A}$	-	-	3.0	V
	Reverse current	I_R	$V_R = 4\text{V}$	-	-	10	μA
	Terminal capacitance	C_t	$V = 0, f = 1\text{kHz}$	-	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}$	-	-	10^{-7}	A
Transfer characteristics	*4 Current transfer ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$	50	-	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 1\text{mA}$	-	0.1	0.2	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	-	80	-	kHz
	Response time	Rise time	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	-	4	18	μs
		Fall time		-	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

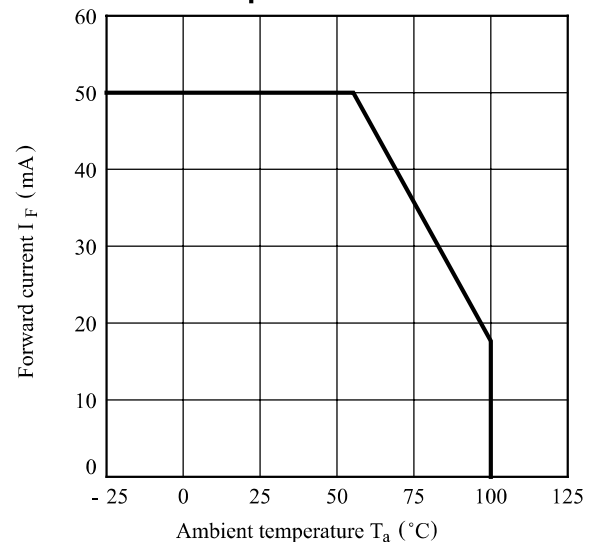


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

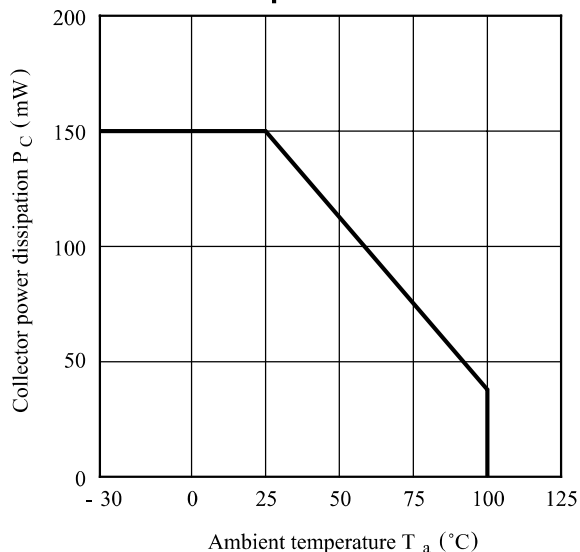


Fig. 3 Peak Forward Current vs. Duty Ratio

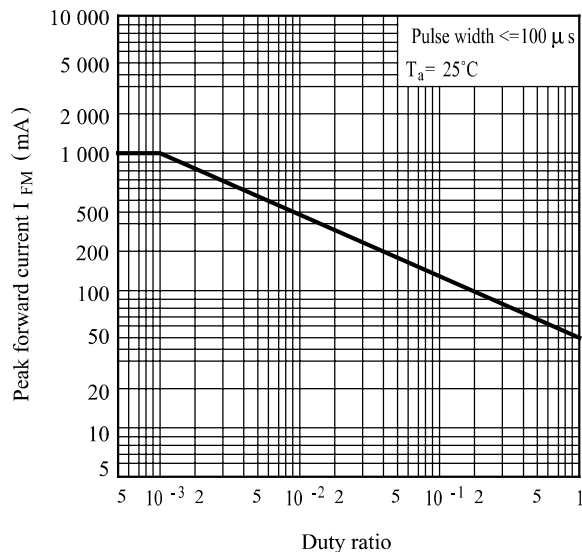


Fig. 4 Current Transfer Ratio vs. Forward Current

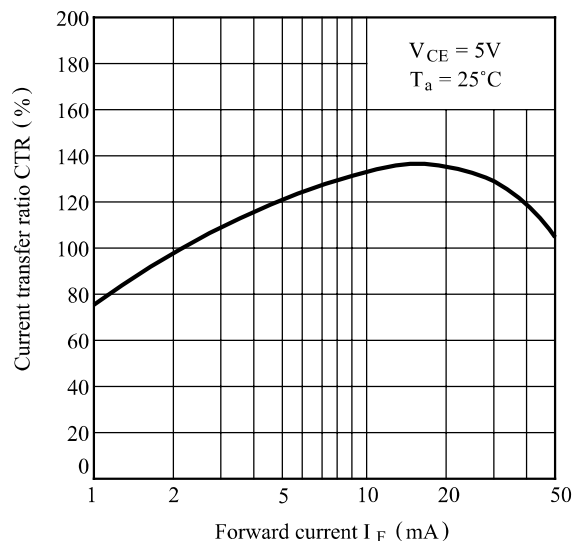


Fig. 5 Forward Current vs. Forward Voltage

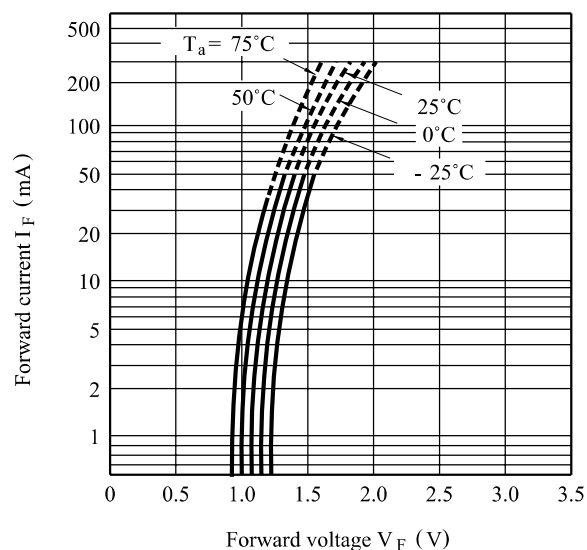


Fig. 6 Collector Current vs. Collector-emitter Voltage

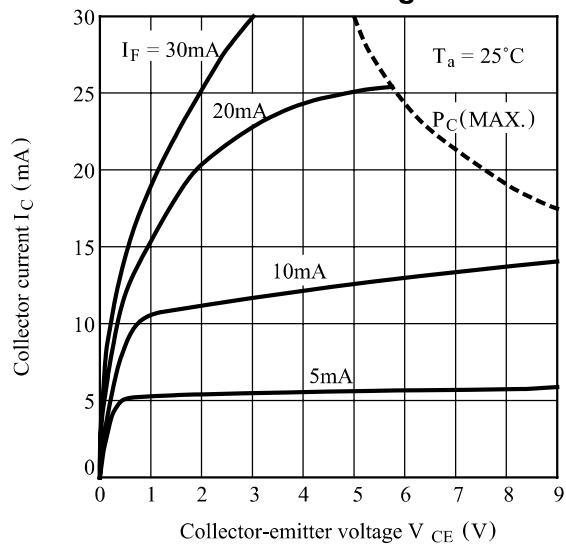


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

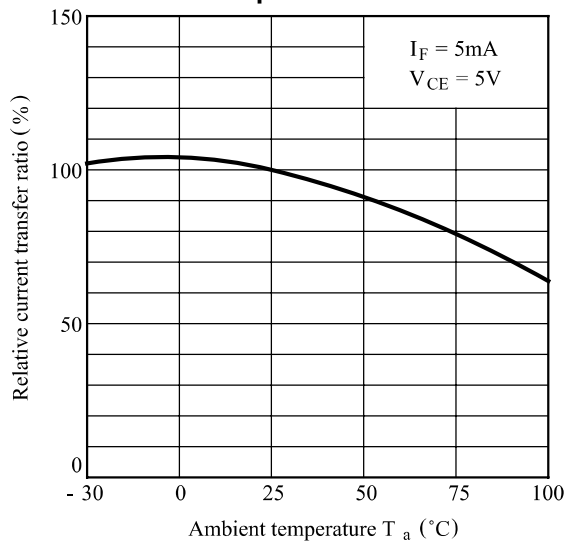
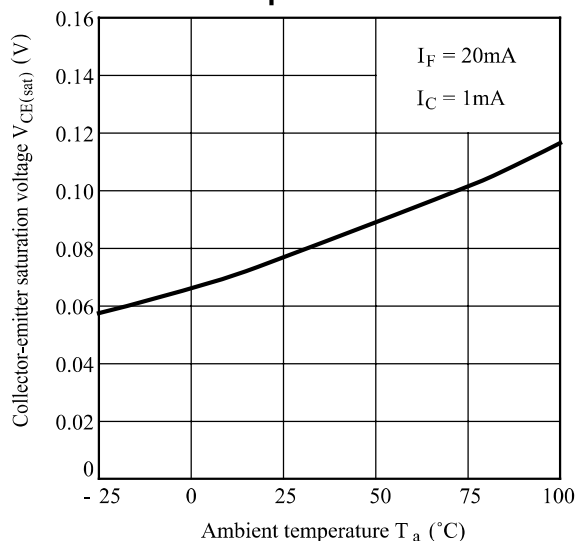
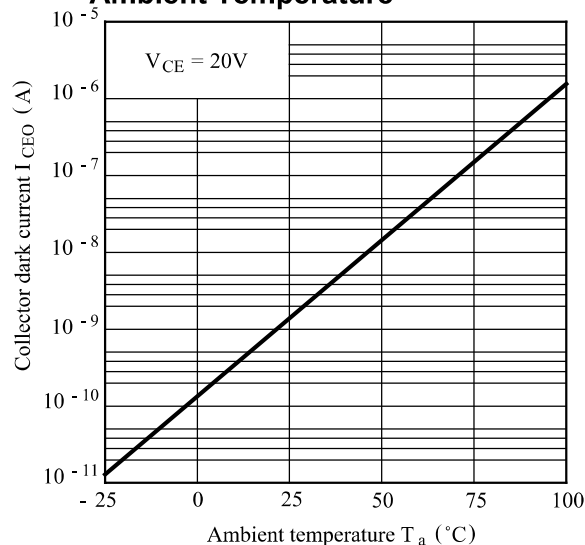
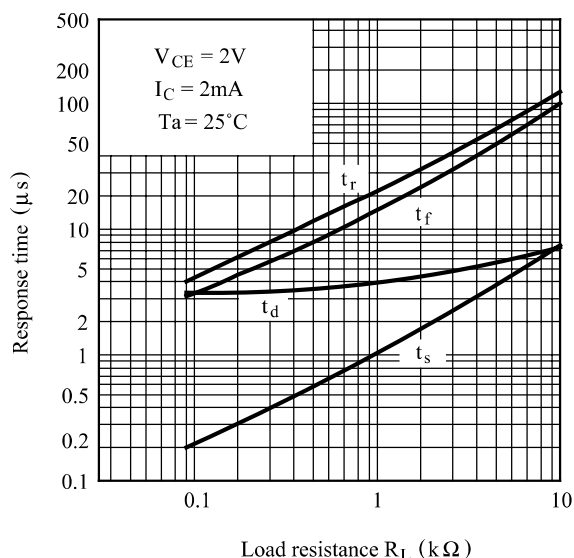
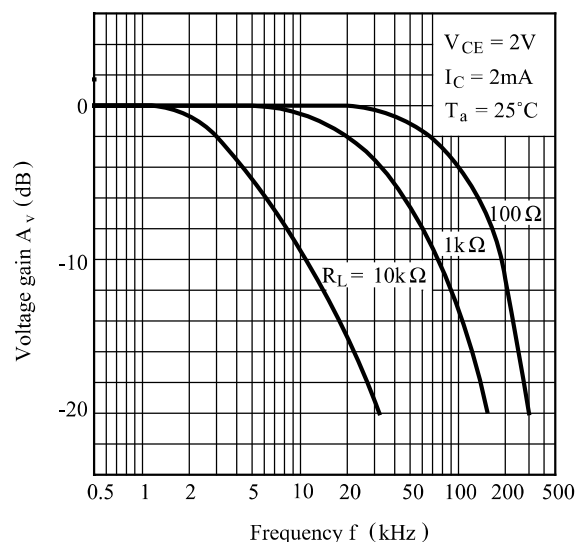
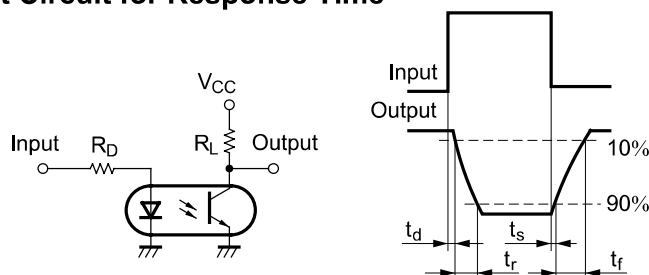
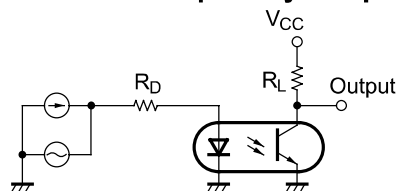


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**Fig. 9 Collector Dark Current vs. Ambient Temperature****Fig.10 Response Time vs. Load Resistance****Fig.11 Frequency Response****Test Circuit for Response Time****Test Circuit for Frequency Response****Fig.12 Collector-emitter Saturation Voltage vs. Forward Current**