

# PC818

## High Density Mounting Type Photocoupler

\* Lead forming type (I type) and taping reel type (P type) are also available. (PC818I/PC818P)

\* TÜV (VDE0884) approved type is also available as an option.

### ■ Features

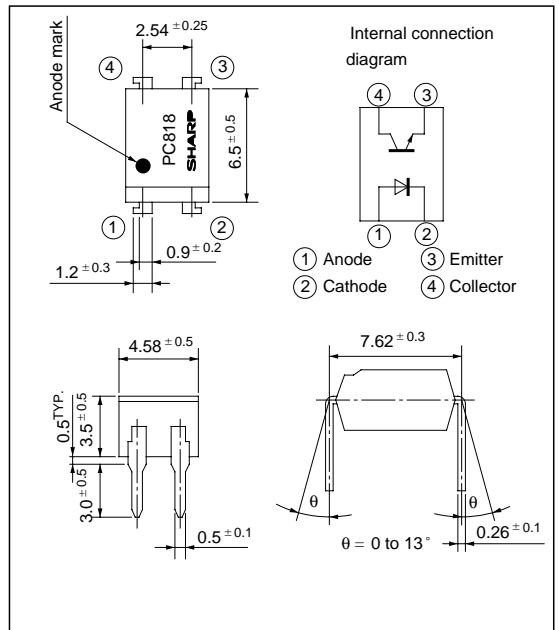
1. High isolation voltage between input and output  
( $V_{iso} : 5\,000V_{rms}$ )
2. Low collector dark current  
( $I_{CEO} : MAX. 6 \times 10^{-9}A$  at  $V_{CE} = 5V$ )
3. Current transfer ratio  
( $CTR : MIN. 10\%$  at  $I_F = 1mA$ ,  $V_{CE} = 0.4V$ )
4. Compact dual-in-line package
5. Recognized by UL, file No. E64380

### ■ Applications

1. Computer terminals
2. System appliances, measuring instruments
3. Copiers, automatic vending machines, medical instruments
4. Signal transmission between circuits of different potentials and impedances

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

( $T_a = 25^\circ C$ )

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	$^\circ C$
Storage temperature		$T_{stg}$	- 55 to + 125	$^\circ C$
*3 Soldering temperature		$T_{sol}$	260	$^\circ C$

\*1 Pulse width  $\leq 100\mu s$ , Duty ratio : 0.001

\*2 40 to 60% RH, AC for 1 minute

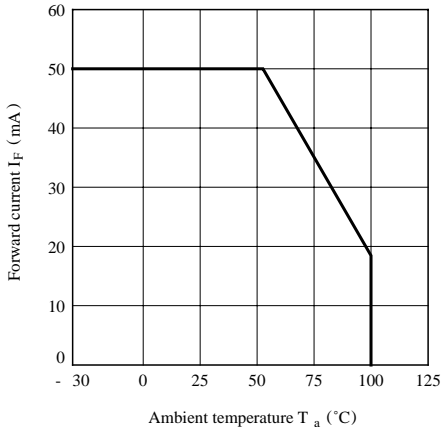
\*3 For 10 seconds

**■ Electro-optical Characteristics**

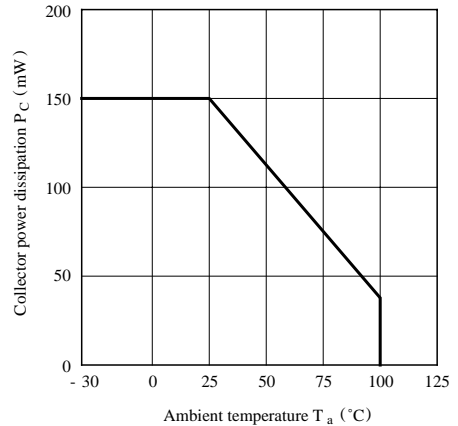
( $T_a = 25^\circ\text{C}$ )

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	$\mu\text{A}$	
	Terminal capacitance	$C_t$	$V = 0, f = 1\text{kHz}$	-	30	250	pF	
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 5\text{V}, I_F = 0$	-	-	$6 \times 10^{-9}$	A	
	Current transfer ratio	CTR	$I_F = 1\text{mA}, V_{CE} = 0.4\text{V}$	10	30	100	%	
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 1\text{mA}$	-	0.2	0.4	V	
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$	
	Floating capacitance	$C_f$	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF	
	Turn-off time	$t_{off}$	$V_{CC} = 5\text{V}, I_F = 1\text{mA}, R_L = 110\text{k}\Omega$	-	-	650	$\mu\text{s}$	
	Response time	Rise time	$t_r$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 1\text{k}\Omega$	-	7	40	$\mu\text{s}$
		Fall time	$t_f$		-	6	40	$\mu\text{s}$

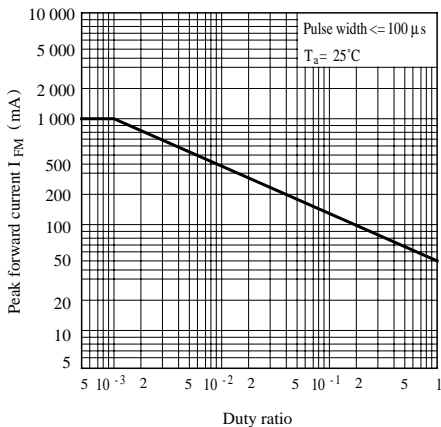
**Fig. 1 Forward Current vs. Ambient Temperature**



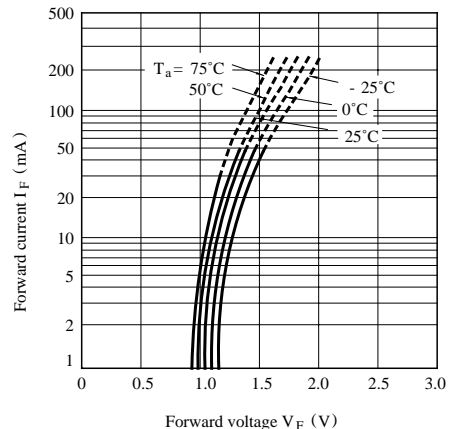
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



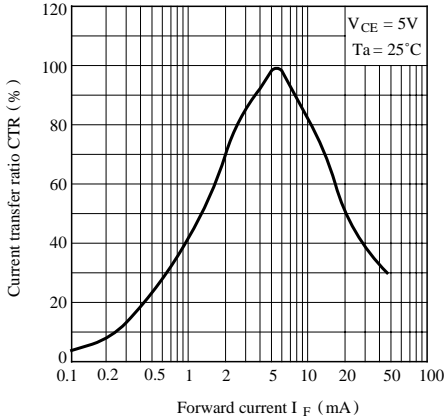
**Fig. 3 Peak Forward Current vs. Duty Ratio**



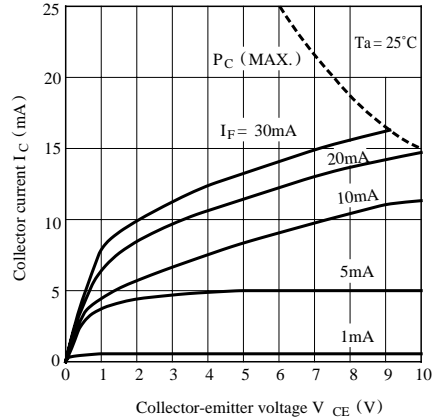
**Fig. 4 Forward Current vs. Forward Voltage**



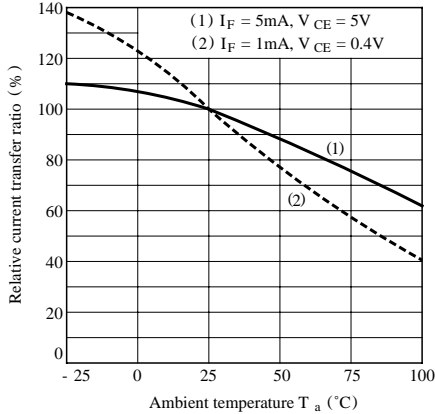
**Fig. 5 Current Transfer Ratio vs. Forward Current**



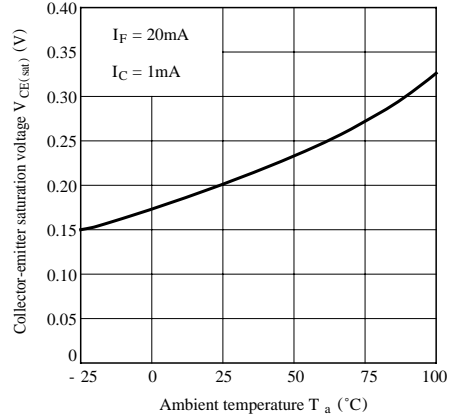
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



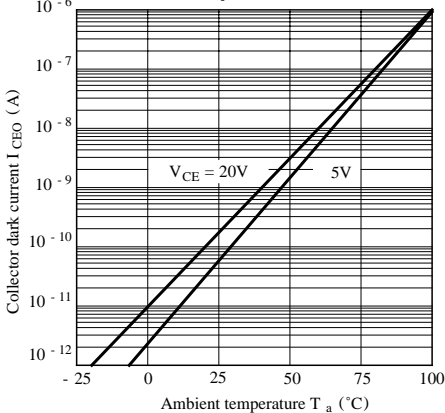
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



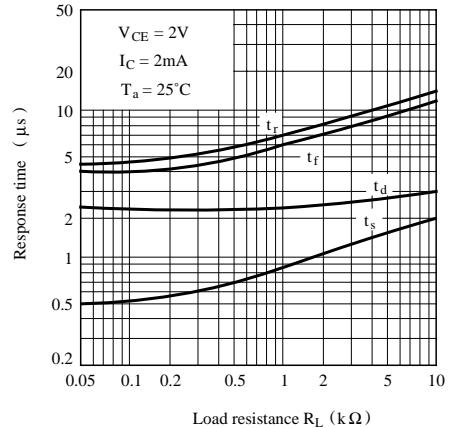
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



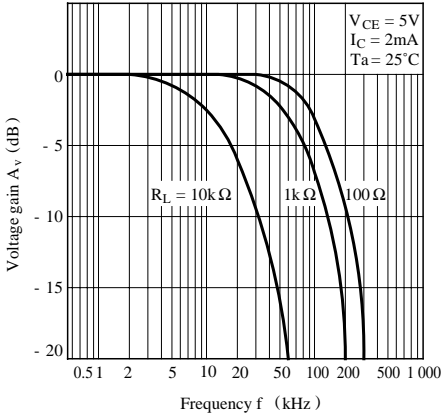
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



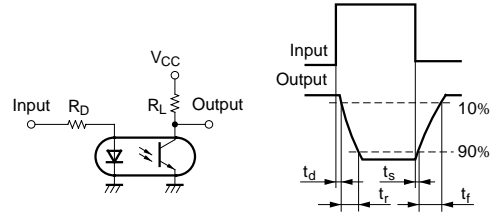
**Fig.10 Response Time vs. Load Resistance**



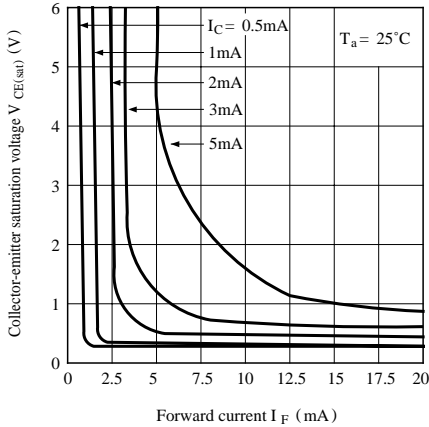
**Fig.11 Frequency Response**



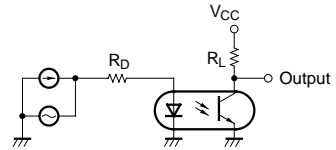
**Test Circuit for Response Time**



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



**Test Circuit for Frequency Response**



● Please refer to the chapter “Precautions for Use”

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