

T-41-83

**PC4N25V/PC4N26V**  
**PC4N27V/PC4N28V**General Purpose Type  
Photocoupler

※ Lead forming type (I type) is also available. (PC4N25VI/PC4N26VI/PC4N27VI/PC4N28VI) (Page 482)

## ■ Features

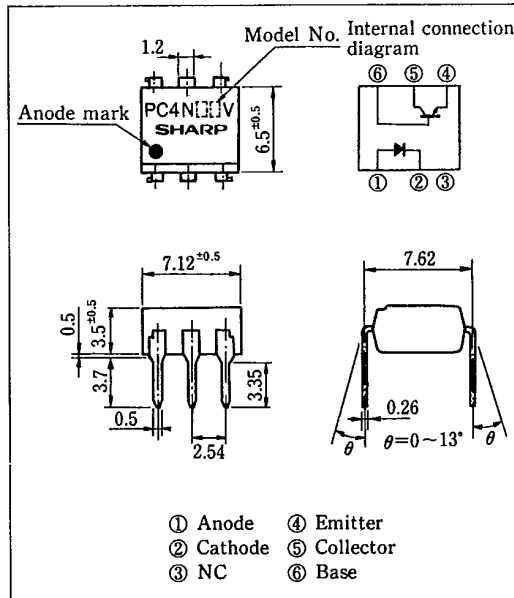
- Response time  
 $t_r$ : TYP.  $3\mu s$  at  $V_{CE}=10V$ ,  $I_C=2mA$ ,  $R_L=100\Omega$
- UL recognized, file No. E64380  
TUV approved (PC4N25V: No. R40182,  
PC4N26V/27V: No. R40183)

## ■ Applications

- I/O interfaces for computers
- System appliances, measuring instruments
- 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             | $I_F$     | 80       | mA   |
|                         | *1Peak forward current      | $I_{FM}$  | 3        | A    |
|                         | Reverse voltage             | $V_R$     | 6        | V    |
|                         | Power dissipation           | P         | 150      | mW   |
| Output                  | Collector-emitter voltage   | $V_{CEO}$ | 30       | V    |
|                         | Emitter-collector voltage   | $V_{ECO}$ | 7        | V    |
|                         | Collector-base voltage      | $V_{CBO}$ | 70       | V    |
|                         | Collector current           | $I_C$     | 100      | mA   |
|                         | Collector power dissipation | $P_C$     | 150      | mW   |
| Total power dissipation |                             | $P_{tot}$ | 250      | mW   |
| *2Isolation voltage     | PC4N25V                     | $V_{iso}$ | 2500     | Vrms |
|                         | PC4N26V,27V                 |           | 1,500    |      |
|                         | PC4N28V                     |           | 500      |      |
| Operating temperature   |                             | $T_{opr}$ | -55~+100 | °C   |
| Storage temperature     |                             | $T_{stg}$ | -55~+150 | °C   |
| *3Soldering temperature |                             | $T_{sol}$ | 260      | °C   |

\*1 Pulse width $\leq 1\mu s$ , Duty ratio=0.001 \*3 For 10 seconds

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

SHARP

## ■ Electro-optical Characteristics

T-41-83

(Ta=25°C)

| Parameter                |                                      | Symbol        | Conditions                                                         | MIN.            | TYP.      | MAX.               | Unit          |
|--------------------------|--------------------------------------|---------------|--------------------------------------------------------------------|-----------------|-----------|--------------------|---------------|
| Input                    | Forward voltage                      | $V_F$         | $I_F=10\text{mA}$                                                  | —               | 1.2       | 1.5                | V             |
|                          | Reverse current                      | $I_R$         | $V_R=4\text{V}$                                                    | —               | —         | 10                 | $\mu\text{A}$ |
|                          | Terminal capacitance                 | $C_t$         | $V=0, f=1\text{kHz}$                                               | —               | 50        | —                  | pF            |
| Output                   | Collector dark current               | $I_{CEO}$     | $V_{CE}=10\text{V}$                                                | —               | —         | $5 \times 10^{-8}$ | A             |
|                          |                                      |               | $I_F=0$                                                            | —               | —         | $10^{-7}$          |               |
|                          | Collector-emitter breakdown voltage  | $BV_{CEO}$    | $I_C=0.1\text{mA}, I_F=0$                                          | 30              | —         | —                  | V             |
|                          | Emitter-collector breakdown voltage  | $BV_{ECO}$    | $I_E=10\mu\text{A}, I_F=0$                                         | 7               | —         | —                  | V             |
| Transfer characteristics | Collector-base breakdown voltage     | $BV_{CBO}$    | $I_C=0.1\text{mA}, I_F=0$                                          | 70              | —         | —                  | V             |
|                          | Current transfer ratio               | CTR           | $I_F=10\text{mA}, V_{CE}=10\text{V}$                               | 20              | —         | —                  | %             |
|                          |                                      |               | Pulse test: input width=300 $\mu\text{s}$ , duty ratio $\leq 0.02$ | 10              | —         | —                  |               |
|                          | Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_F=50\text{mA}, I_C=2\text{mA}$                                  | —               | 0.1       | 0.5                | V             |
|                          | Isolation resistance                 | $R_{ISO}$     | DC500V, RH=40~60%                                                  | $5 \times 10^9$ | $10^{11}$ | —                  | $\Omega$      |
|                          | Floating capacitance                 | $C_f$         | $V=0, f=1\text{MHz}$                                               | —               | 1.0       | —                  | PF            |
|                          | Response time (Rise)                 | $t_r$         | $V_{CE}=10\text{V}, I_C=2\text{mA}$                                | —               | 3         | —                  | $\mu\text{s}$ |
|                          | Response time (Fall)                 | $t_f$         | $R_L=100\Omega, R_{BE}=\infty$                                     | —               | 3         | —                  | $\mu\text{s}$ |

Fig. 1 Forward Current vs. Ambient Temperature

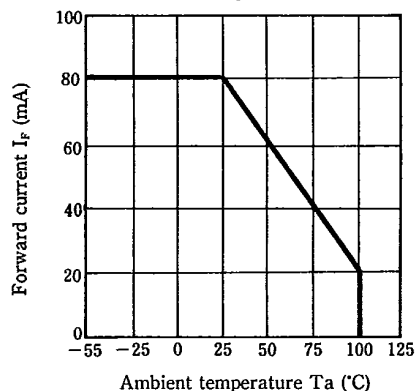


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

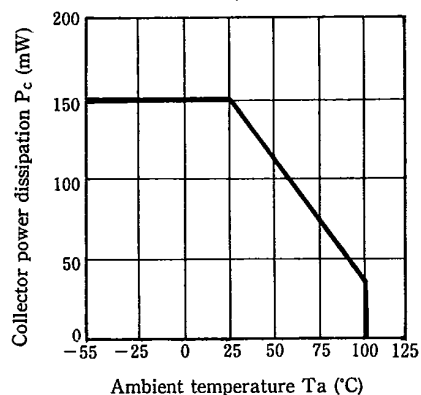


Fig. 3 Forward Current vs. Forward Voltage

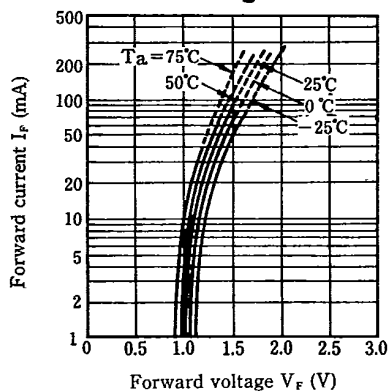
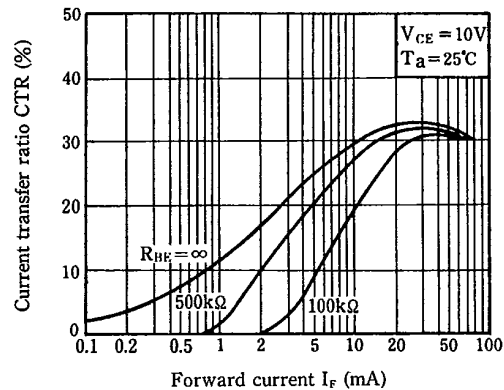
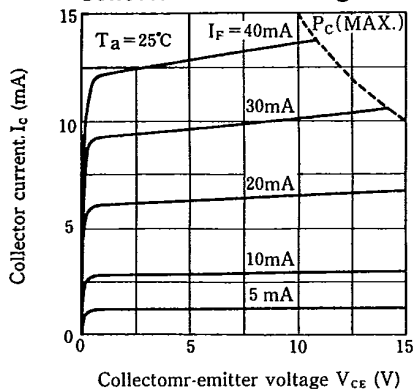
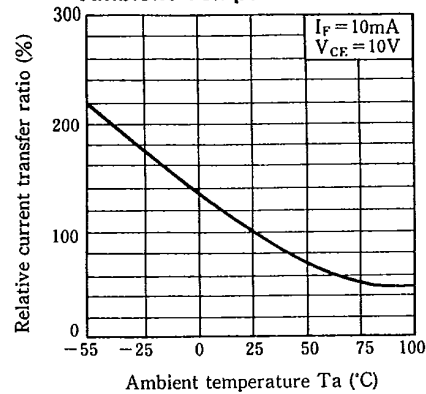
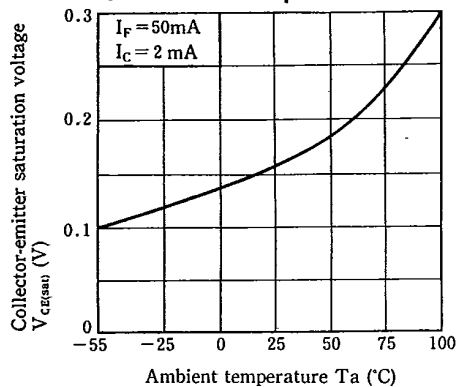
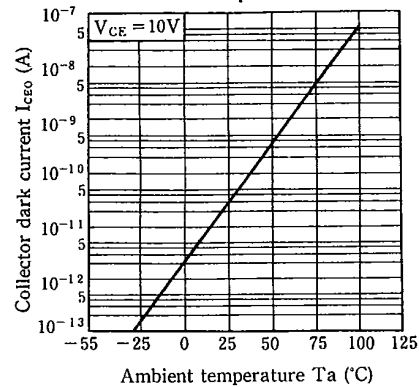
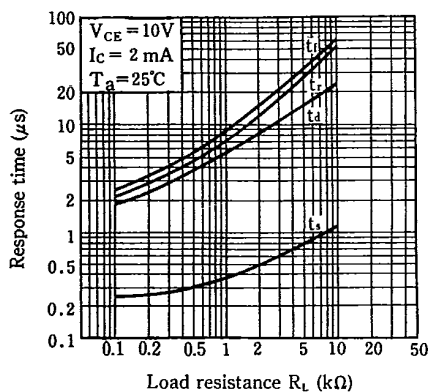
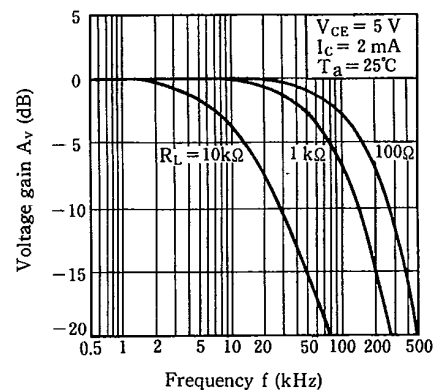
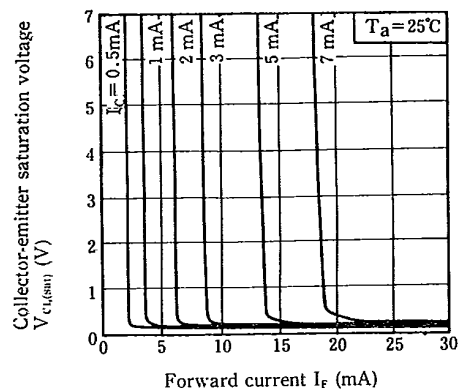


Fig. 4 Current Transfer Ratio vs. Forward Current

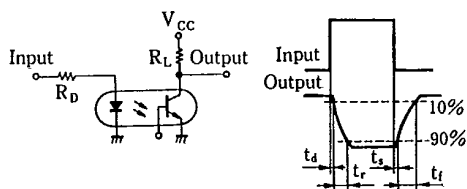


**Fig. 5 Collector Current vs. Collector-emitter Voltage****Fig. 6 Relative Current Transfer Ratio vs. Ambient Temperature****Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature****Fig. 8 Collector Dark Current vs. Ambient Temperature****Fig. 9 Response Time vs. Load Resistance****Fig. 10 Frequency Response**

**Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current**



**Test Circuit for Response Time**



**Test Circuit for Frequency Response**

