

# PC724V

## High Input Current Type Photocoupler

\* Lead forming type ( W type ) and taping reel type ( P type ) are also available. ( PC724W/PC724VP )

### ■ Features

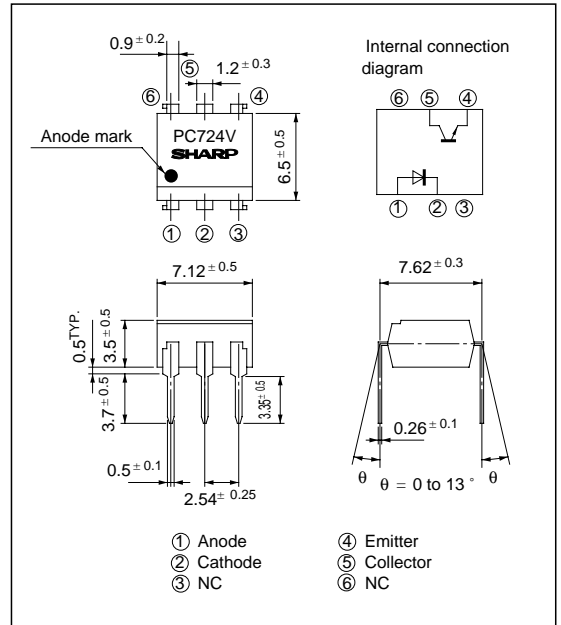
1. High input current (  $I_F$  : MAX. 150mA )
2. High isolation voltage between input and output  
(  $V_{iso}$  : 5 000V<sub>rms</sub> )
3. Standard dual-in-line package
4. Recognized by UL, file no. E64380

### ■ Applications

1. Telephone sets
2. I/O interfaces for microcomputer
3. System appliances, measuring instruments
4. Signal transmission between circuits of different potentials and impedances

### ■ Outline Dimensions

( Unit : mm )



### ■ Absolute Maximum Ratings

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

|                          | Parameter                   | Symbol    | Rating        | Unit             |
|--------------------------|-----------------------------|-----------|---------------|------------------|
| Input                    | Forward current             | $I_F$     | 150           | mA               |
|                          | *1 Peak forward current     | $I_{FM}$  | 1             | A                |
|                          | Reverse voltage             | $V_R$     | 6             | V                |
|                          | Power dissipation           | $P$       | 230           | mW               |
| Output                   | Collector-emitter voltage   | $V_{CEO}$ | 35            | V                |
|                          | Emitter-collector voltage   | $V_{ECO}$ | 6             | V                |
|                          | Collector current           | $I_C$     | 80            | mA               |
|                          | Collector power dissipation | $P_C$     | 160           | mW               |
| Total power dissipation  |                             | $P_{tot}$ | 320           | mW               |
| *2 Isolation voltage     |                             | $V_{iso}$ | 5 000         | V <sub>rms</sub> |
| Operating temperature    |                             | $T_{opr}$ | - 25 to + 100 | $^\circ\text{C}$ |
| Storage temperature      |                             | $T_{stg}$ | - 55 to + 125 | $^\circ\text{C}$ |
| *3 Soldering temperature |                             | $T_{sol}$ | 260           | $^\circ\text{C}$ |

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

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

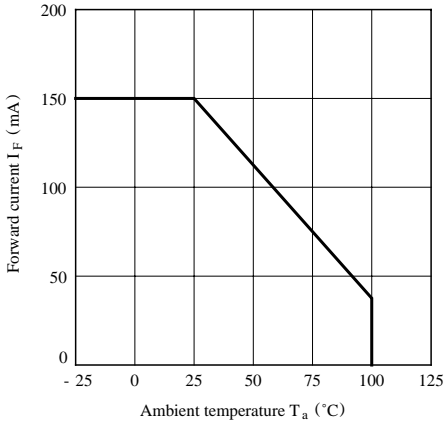
\*3 For 10 seconds

**■ Electro-optical Characteristics**

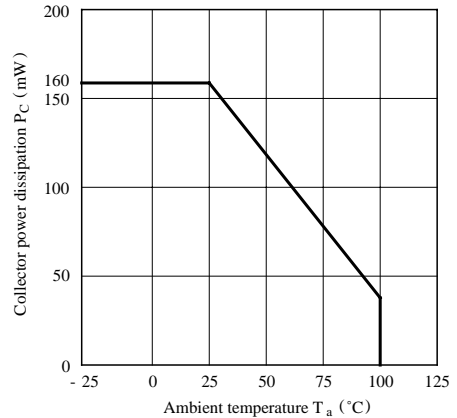
( $T_a = 25^\circ\text{C}$ )

| Parameter                |                                      | Symbol            | Conditions                               | MIN.   | TYP.               | MAX.      | Unit          |               |
|--------------------------|--------------------------------------|-------------------|--|--|--------------------|-----------|---------------|---------------|
| Input                    | Forward voltage                      | $V_F$             | $I_F = 100\text{mA}$                     | -  | 1.4                | 1.7       | 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               | $I_{CEO}$         | $V_{CE} = 20\text{V}, I_F = 0$           | -  | -                  | $10^{-7}$ | A             |               |
| Transfer characteristics | Current transfer ratio               | CTR               | $I_F = 100\text{mA}, V_{CE} = 2\text{V}$ | 20   | -                  | 80        | %             |               |
|                          | Collector-emitter saturation voltage | $V_{CE(sat)}$     | $I_F = 100\text{mA}, I_C = 1\text{mA}$   | -  | 0.1                | 0.2       | V             |               |
|                          | Isolation resistance                 | $R_{ISO}$         | DC500V, 40 to 60% RH                     | $5 \times 10^{10}$   | $1 \times 10^{11}$ | -         | $\Omega$      |               |
|                          | Floating capacitance                 | $C_f$             | $V = 0, f = 1\text{MHz}$                 | -  | 0.6                | 1.0       | pF            |               |
|                          | Response time                        | Cut-off frequency | $f_c$                                    | $V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$ | -                  | 100       | -             | kHz           |
|                          |                                      | Rise time         | $t_r$                                    | $V_{CE} = 5\text{V}, I_C = 2\text{mA}$                               | -                  | 4         | 18            | $\mu\text{s}$ |
| Fall time                | $t_f$                                | $R_L = 100\Omega$ | -  |  | 3                  | 18        | $\mu\text{s}$ |               |

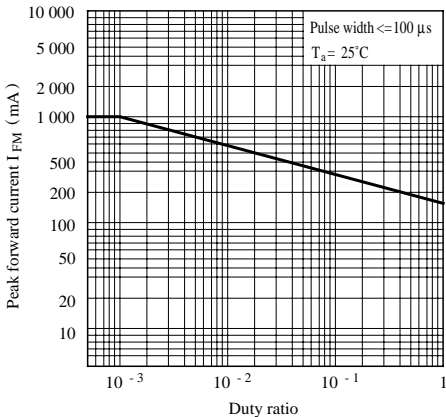
**Fig. 1 Forward Current vs. Ambient Temperature**



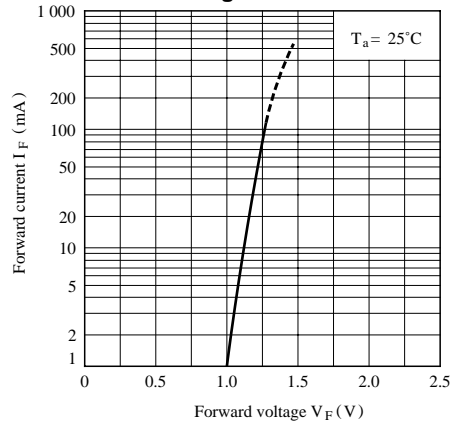
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



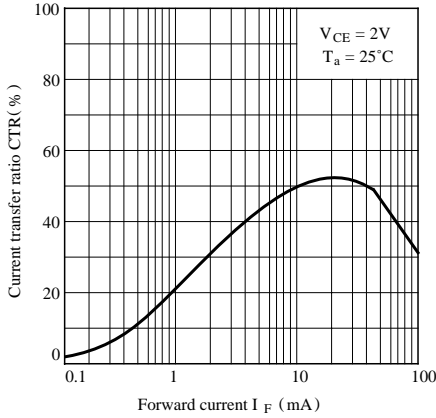
**Fig. 3 Peak Forward Current vs. Duty Ratio**



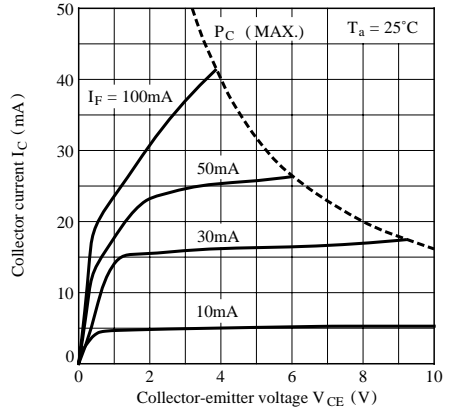
**Fig. 4 Forward Current vs. Forward Voltage**



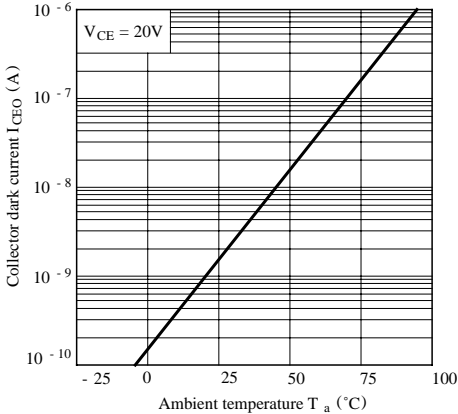
**Fig. 5 Current Transfer Ratio vs. Forward Current**



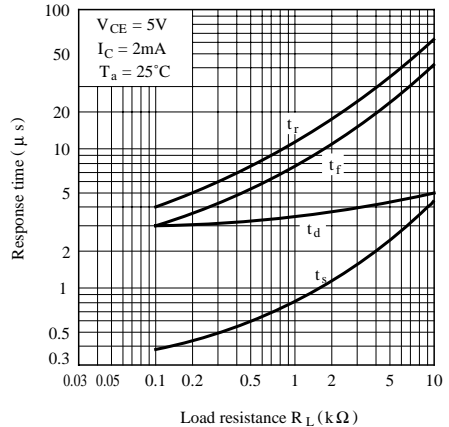
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



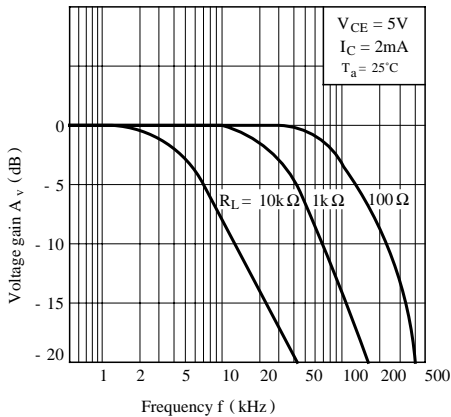
**Fig. 7 Collector Dark Current vs. Ambient Temperature**



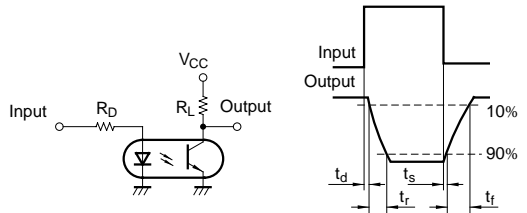
**Fig. 8 Response Time vs. Load Resistance**



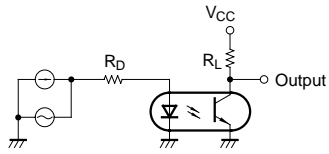
**Fig. 9 Frequency Response**



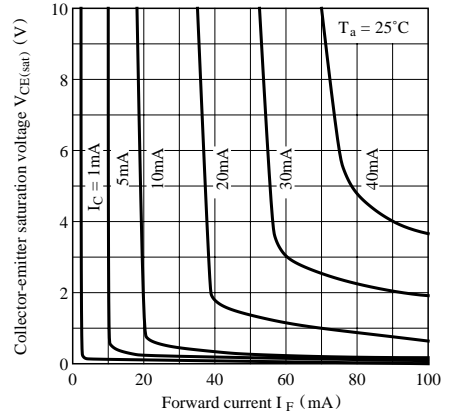
**Test Circuit for Response Time**



**Test Circuit for Frequency Response**



**Fig.10 Collector-emitter Saturation Voltage vs. Forward Current**



● Please refer to the chapter “Precautions for Use”.