

# PC715V

## High Sensitivity Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (PC715VI/PC715VP)

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

### ■ Features

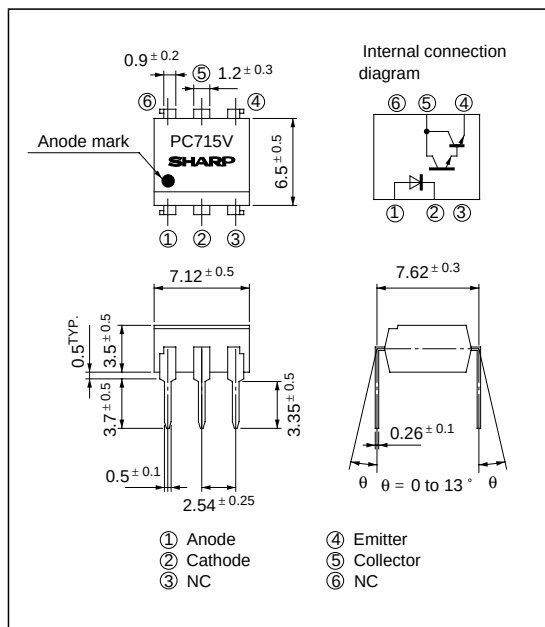
1. High current transfer ratio  
(CTR : MIN. 600% at  $I_F = 1\text{mA}$ ,  $V_{CE} = 2\text{V}$ )
2. High isolation voltage between input and output  
( $V_{iso} : 5\,000\text{V}_{rms}$ )
3. Recognized by UL, file No. E64380

### ■ Applications

1. System appliances, measuring instruments
2. Copiers, automatic vending machines
3. 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             | $I_F$     | 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           | $I_C$     | 80            | mA               |
|                          | Collector power dissipation | $P_C$     | 150           | mW               |
| Total power dissipation  |                             | $P_{tot}$ | 170           | mW               |
| *2 Isolation voltage     |                             | $V_{iso}$ | 5 000         | $V_{rms}$        |
| Operating temperature    |                             | $T_{opr}$ | - 25 to + 100 | $^\circ\text{C}$ |
| Storage temperature      |                             | $T_{stg}$ | - 40 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 minutes

\*3 For 10 seconds

■ Electro-optical Characteristics

(Ta= 25°C)

| Parameter                        |                                      |                | Symbol               | Conditions                                                                | MIN.                 | TYP.             | MAX.             | Unit |
|----------------------------------|--------------------------------------|----------------|----------------------|---------------------------------------------------------------------------|----------------------|------------------|------------------|------|
| Input                            | Forward voltage                      |                | V <sub>F</sub>       | I <sub>F</sub> = 10mA                                                     | -                    | 1.2              | 1.4              | V    |
|                                  | Peak forward voltage                 |                | V <sub>FM</sub>      | I <sub>FM</sub> = 0.5A                                                    | -                    | -                | 3.0              | V    |
|                                  | Reverse current                      |                | I <sub>R</sub>       | V <sub>R</sub> = 4V                                                       | -                    |                  | 10               | μA   |
|                                  | Terminal capacitance                 |                | C <sub>t</sub>       | V = 0, f = 1kHz                                                           | -                    | 30               | 250              | pF   |
| Output                           | Collector dark current               |                | I <sub>CEO</sub>     | V <sub>CE</sub> = 10V, I <sub>F</sub> = 0                                 | -                    | -                | 10 <sup>-6</sup> | A    |
| Transfer<br>charac-<br>teristics | Current transfer ratio               |                | CTR                  | I <sub>F</sub> = 1mA, V <sub>CE</sub> = 2V                                | 600                  | 1 600            | 7 500            | %    |
|                                  | Collector-emitter saturation voltage |                | V <sub>CE(sat)</sub> | I <sub>F</sub> = 20mA, I <sub>C</sub> = 5mA                               | -                    | -                | 1.0              | V    |
|                                  | Isolation resistance                 |                | R <sub>ISO</sub>     | DC500V, 40 to 60% RH                                                      | 5 x 10 <sup>10</sup> | 10 <sup>11</sup> | -                | Ω    |
|                                  | Floating capacitance                 |                | C <sub>f</sub>       | V = 0, f = 1MHz                                                           | -                    | 0.6              | 1.0              | pF   |
|                                  | Cut-off frequency                    |                | f <sub>C</sub>       | V <sub>CE</sub> = 2V, I <sub>C</sub> = 2mA, R <sub>L</sub> = 100 Ω, - 3dB | -                    | 6                | -                | kHz  |
|                                  | Response time                        | Rise time      | t <sub>r</sub>       | V <sub>CE</sub> = 2V, I <sub>C</sub> = 10mA, R <sub>L</sub> = 100 Ω       | -                    | 60               | 250              | μs   |
| Fall time                        |                                      | t <sub>f</sub> | -                    |                                                                           | 53                   | 250              | μs               |      |

Fig. 1 Forward Current vs. Ambient Temperature

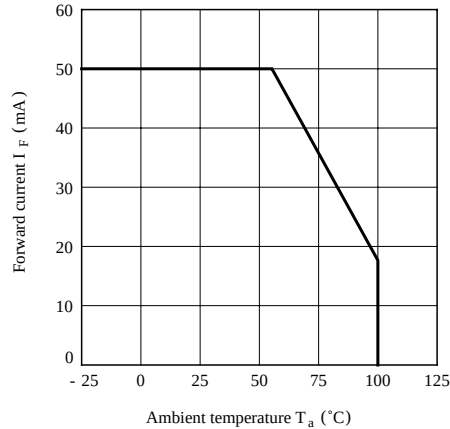


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

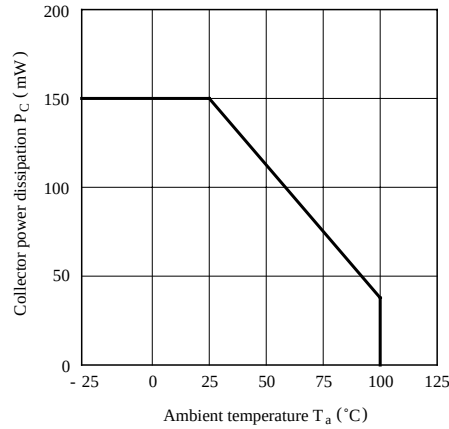


Fig. 3 Peak Forward Current vs. Duty Ratio

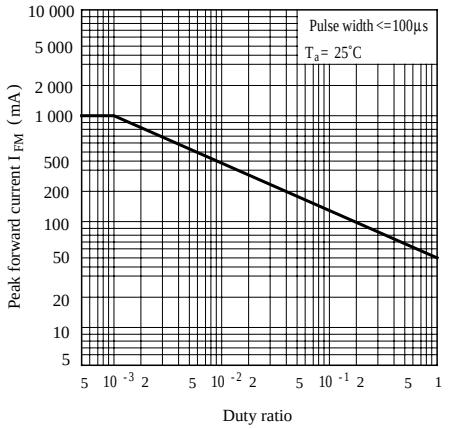


Fig. 4 Forward Current vs. Forward Voltage

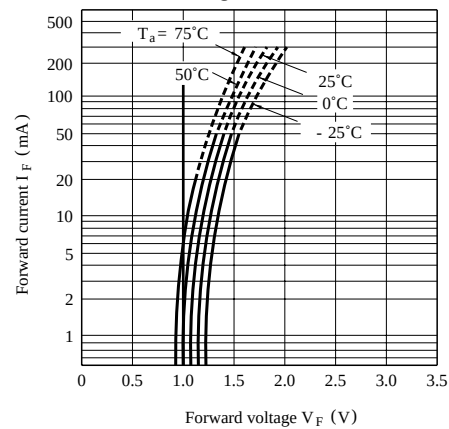


Fig. 5 Current Transfer Ratio vs. Forward Current

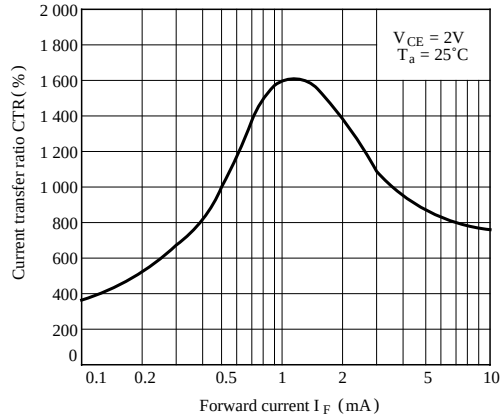


Fig. 6-a Collector Current vs. Collector-emitter Voltage

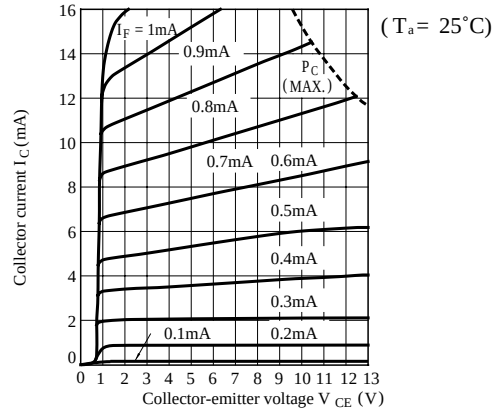


Fig. 6-b Collector Current vs. Collector-emitter Voltage

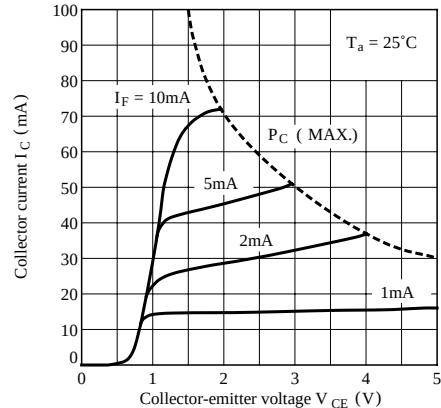


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

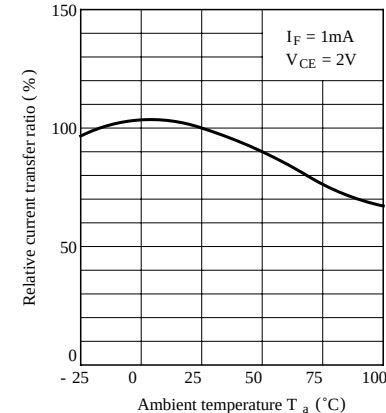


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

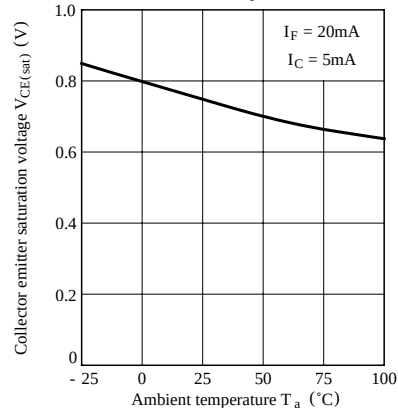


Fig. 9 Collector Dark Current vs. Ambient Temperature

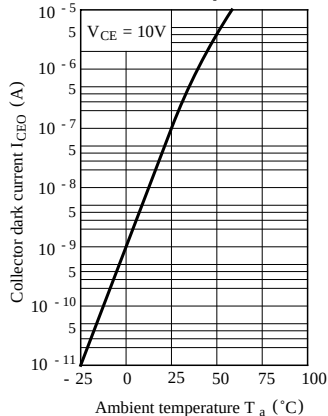


Fig.10 Response Time vs. Load Resistance

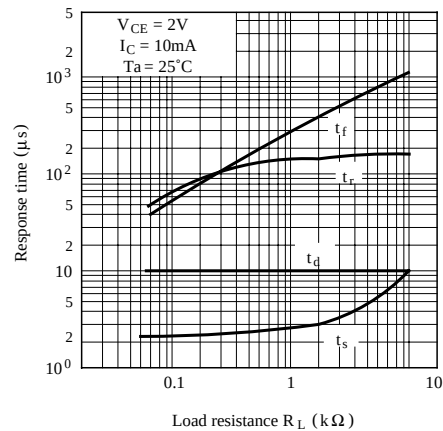
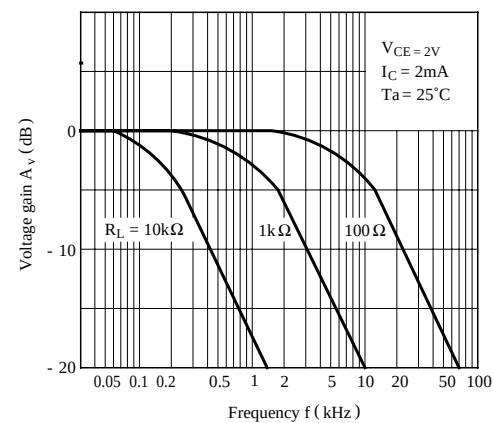
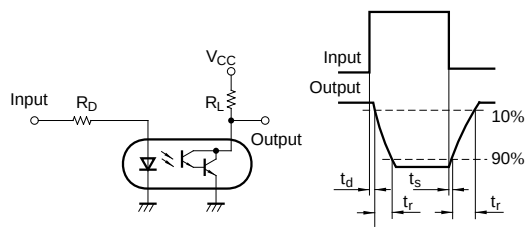


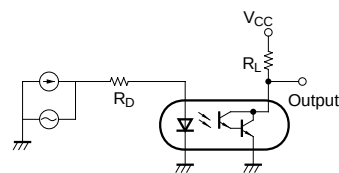
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



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

This datasheet has been download from:

[www.datasheetcatalog.com](http://www.datasheetcatalog.com)

Datasheets for electronics components.