# PC716V0NSZX/ PC716V0YSZX

#### **■** Features

- 1. High collector current (Ic:MAX. 200mA)
- 2. High sensitivity (CTR:MIN. 1 000%)
- 3. Isolation voltage (Viso (rms):5kV)
- Recognized by UL, file No.E64380
   Approved by TÜV (VDE0884)(PC716V0YSZX)
- 5. 6-pin DIP package

# ■ Applications

- 1. Home appliances
- 2. Programmable controllers
- 3. Peripheral equipment of personal computers

# **■** Model Line-up

| M- 4-1 N-   | * Safty Standard Approval |              |  |
|-------------|---------------------------|--------------|--|
| Model No.   | UL                        | TÜV(VDE0884) |  |
| PC716V0NSZX | 0                         | _            |  |
| PC716V0YSZX | 0                         | 0            |  |

<sup>\*</sup> Application Model No. PC716V

### ■ Absolute Maximum Ratings

| ( | Га=25° | C) |
|---|--------|----|
|   |        |    |

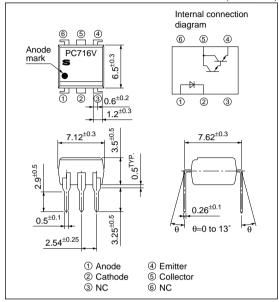
| Parameter                |                             | Symbol     | Rating      | Unit |  |
|--------------------------|-----------------------------|------------|-------------|------|--|
| Input                    | Forward current             | $I_F$      | 50          | mA   |  |
|                          | *1 Peak forward current     | IFM        | 1           | A    |  |
|                          | Reverse voltage             | $V_R$      | 6           | V    |  |
|                          | Power dissipation           | P          | 70          | mW   |  |
| Output                   | Collector-emitter voltage   | Vceo       | 35          | V    |  |
|                          | Emitter-collector voltage   | Veco       | 6           | V    |  |
|                          | Collector current           | Ic         | 200         | mA   |  |
|                          | Collector power dissipation | Pc         | 300         | mW   |  |
| Total power dissipation  |                             | Ptot       | 350         | mW   |  |
| *2 Isolation voltage     |                             | Viso (rms) | 5           | kV   |  |
| Operating temperature    |                             | $T_{opr}$  | -25 to +100 | °C   |  |
| Storage temperature      |                             | Tstg       | -40 to +125 | °C   |  |
| *3 Soldering temperature |                             | Tsol       | 260         | °C   |  |

<sup>\*1</sup> Pulse width≤100µs, Duty ratio=0.001

# High Sensitivity and High Collector Current Type Photocoupler

#### **■** Outline Dimensions





<sup>\*2 40</sup> to 60% RH, AC for 1 min

<sup>\*3</sup> For 10 s

| ■ Electro-optical Characteristics (Ta=25°C |                                      |           |                      |  |                    |      |      | Ta=25°C) |
|--|--------------------------------------|-----------|----------------------|--|--------------------|------|------|----------|
|  | Parameter                            |           |                      | Conditions                                 | MIN.               | TYP. | MAX. | Unit     |
| Input                                      | Forward voltage                      |           | VF                   | 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                      |           | IR                   | V <sub>R</sub> =4V                         | _                  | _    | 10   | μΑ       |
|  | Terminal capacitance                 |           | Ct                   | V=0, f=1kHz                                | _                  | 30   | 250  | pF       |
| Output                                     | Collector dark curren                | t         | Iceo                 | Vce=10V, I <sub>F</sub> =0                 | _                  | _    | 10-6 | A        |
| Transfer characteristics                   | Collector current                    |           | Ic                   | I <sub>F</sub> =1mA, V <sub>CE</sub> =2V   | 10                 | 60   | 150  | mA       |
|  | Collector-emitter saturation voltage |           | V <sub>CE(sat)</sub> | I <sub>F</sub> =20mA, I <sub>C</sub> =10mA | -                  | _    | 1.2  | V        |
|  | Isolation resistance                 |           | Riso                 | DC500V, 40 to 60%RH                        | 5×10 <sup>10</sup> | 1011 | _    | Ω        |
|  | Floating capacitance                 |           | Cf                   | V=0, f=1MHz                                | _                  | 0.6  | 1.0  | pF       |
|  | Cut-off frequency                    |           | fc                   | Vce=2V, Ic=10mA, Rt=100Ω, -3dB             | _                  | 3    | _    | kHz      |
|  | Response time                        | Rise time | tr                   | Vce=2V, Ic=20mA                            | =                  | 130  | 400  | μs       |
|  |                                      | Fall time | <b>t</b> f           | R <sub>L</sub> =100Ω                       | _                  | 60   | 350  | μs       |

Fig.1 Forward Current vs. Ambient Temperature

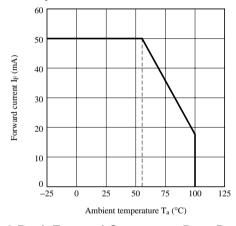


Fig.2 Collector Power Dissipation vs. Ambient Temperature

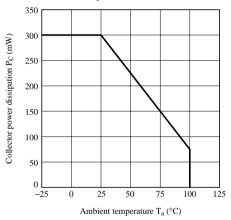


Fig.3 Peak Forward Current vs. Duty Ratio

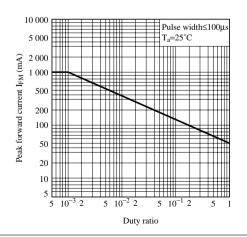


Fig.4 Forward Current vs. Forward Voltage

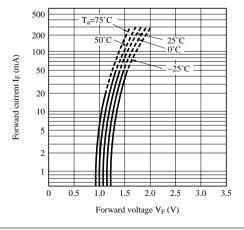


Fig.5 Current Transfer Ratio vs. Forward Current

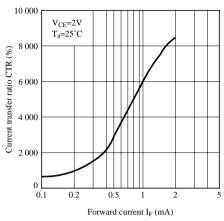


Fig.7 Collector Current vs. Collector-emitter Voltage

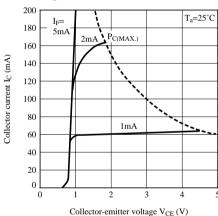


Fig.9 Collector - emitter Saturation Voltage vs. Ambient Temperature

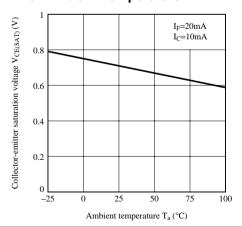


Fig.6 Collector Current vs. Collector-emitter Voltage

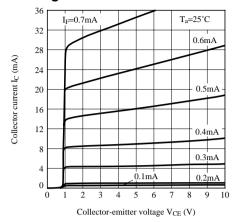


Fig.8 Relative Current Transfer Ratio vs.
Ambient Temperature

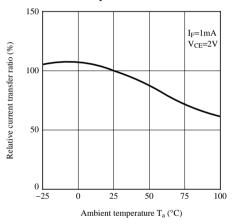


Fig.10 Collector Dark Current vs. Ambient Temperature

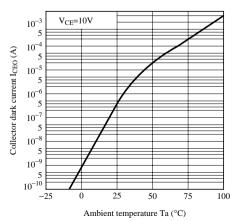


Fig.11 Response Time vs. Load Resistance

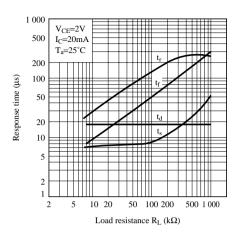


Fig.13 Frequency Response

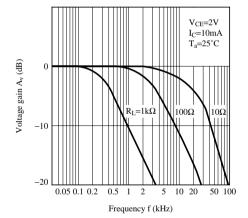


Fig.12 Test Circuit for Response Time

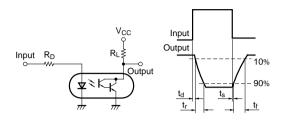
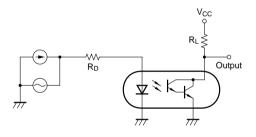


Fig.14 Test Circuit for Frequency Response



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