# PC419K

## Compact Surface Mounted, Bi-directional Linear Output Type Photocoupler

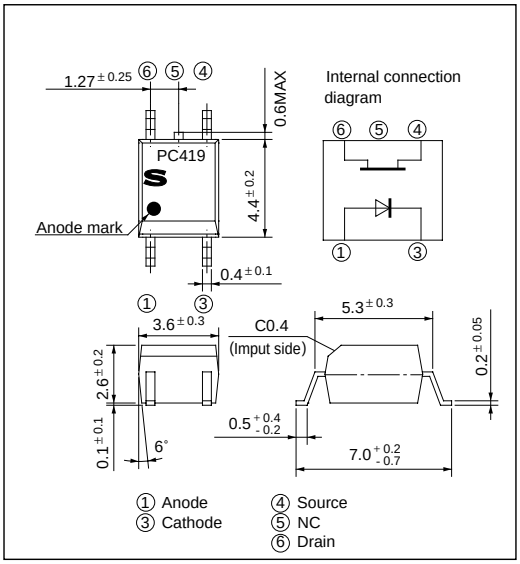
### ■ Features

1. Bi-directional linear output
2. High breakdown voltage
   ( $V_{BR}$ : 120V)
3. Low collector dark current
   ( $I_d$ : MAX. 10nA )
4. High isolation voltage between input and output ( $V_{iso}$ : 3 750 $V_{rms}$ )

### ■ Applications

1. Board testers
2. Programmable controllers
3. Analog switch
4. Hybrid substrates which require high density mounting

### ■ Outline Dimensions (Unit : mm)

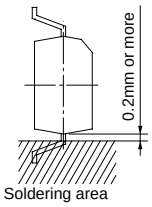



### ■ Package Specifications

| Model No. | Package specifications | Diameter of reel | Tape width |
|---|---|---|---|
| **PC419K** | Taping package (Net : 3 000pcs. ) | ϕ 370mm | 12mm |
| **PC419KT** | Taping package (Net : 750pcs. ) | ϕ 178mm | 12mm |
| **PC419KZ** | Sleeve package (Net : 100pcs. ) | - | - |

### ■ Absolute Maximun Ratings (Ta= 25°C)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input | Forward current | $I_F$ | 50 | mA |
| | Reverse voltage | $V_R$ | 6 | V |
| | *1Power dissipation | P | 70 | mW |
| Output | Output current | $I_O$ | 10 | mA |
| | Breakdown voltage | $V_{BR}$ | 120 | V |
| | *1Power dissipation | $P_O$ | 100 | mW |
| Total power dissipation | | $P_{tot}$ | 120 | mW |
| *1Isolation voltage | | $V_{iso}$ | 3 750 | $V_{rms}$ |
| Operating temperature | | $T_{opr}$ | - 25 to + 100 | °C |
| Storage temperature | | $T_{stg}$ | - 40 to + 125 | °C |
| *2Soldering temperature | | $T_{sol}$ | 260 | °C |




*1 AC for 1 minute, 40 to 60% RH
*2 10 seconds or less, 0.2mm or more from the root of lead.

## ■ Electro-optical Characteristics (Ta= 25˚C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|
| Input | Forward voltage | $V_F$ | $I_F$ = 16mA | - | 1.2 | 1.4 | V |
| | Reverse current | $I_R$ | $V_R$ = 6V | - | - | 10 | μA |
| | Terminal capacitance | $C_{t1}$ | V= 0, f= 1kHz | - | 50 | 250 | pF |
| Output | *3Breakdown voltage | $V_{BR}$ | $I_{46}$= 100 μA, $I_F$ = 0 | 120 | - | - | V |
| | *3Collector dark current | $I_d$ | $V_{46}$= 100V, $I_F$ = 0 | - | - | 10 | nA |
| | *3OFF-state resistance | $R_{OFF}$ | $V_{46}$= 100V, $I_F$ = 0 | $10^{10}$ | - | - | Ω |
| | Terminal capacitance | $C_{t2}$ | $V_{46}$= 0, f= 1MHz | - | - | 25 | pF |
| Transfer characteristics | *3ON-state resistance | $R_{ON}$ | $I_F$ = 16mA, $I_{46}$ = 100 μA | - | - | 200 | Ω |
| | Isolation resistance | $R_{ISO}$ | DC500V, 40 to 60% RH | 5 x $10^{10}$ | $10^{11}$ | - | Ω |
| | Floating capacitance | Cf | V= 0, f= 1MHz | - | - | 2.5 | pF |
| | Turn-on time | $t_{on}$ | $I_F$ = 16mA, $V_{46}$ = 5V | - | - | 65 | μs |
| | Turn-off time | $t_{off}$ | $R_L$ = 50Ω | - | - | 65 | |

*3 Applies to forward and reverse directions between terminals 4 and 6.

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

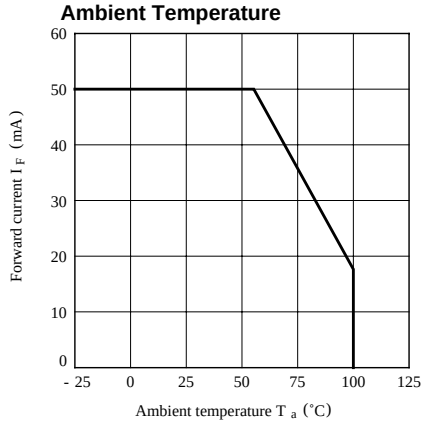



**Fig. 2 Power Dissipation vs. Ambient Temperature**

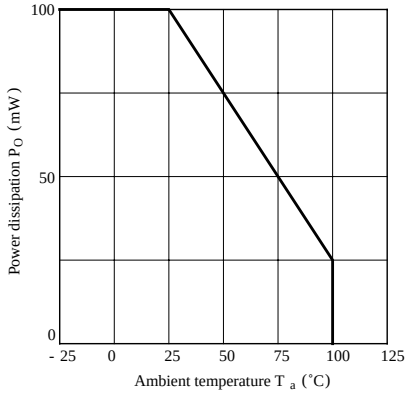


**Fig. 3 Peak Forward Current vs. Duty Ratio**

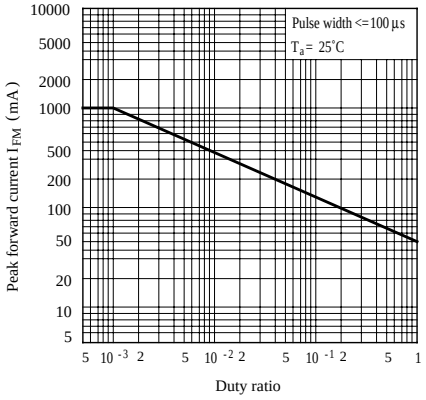



**Fig. 4 Forward Current vs. Forward Voltage**

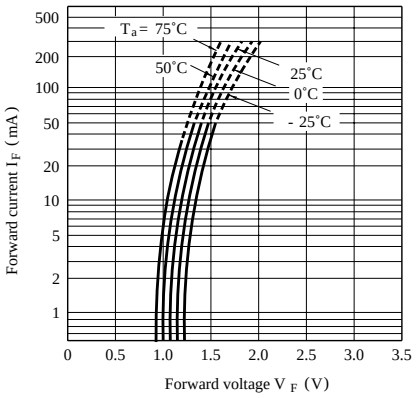



**Fig. 5 Output Current vs. Output Voltage**

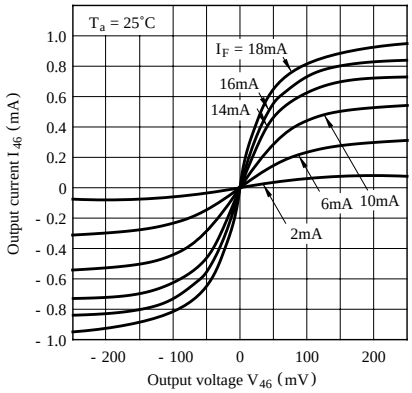



**Fig. 6 ON-state Resistance vs. Forward Current**

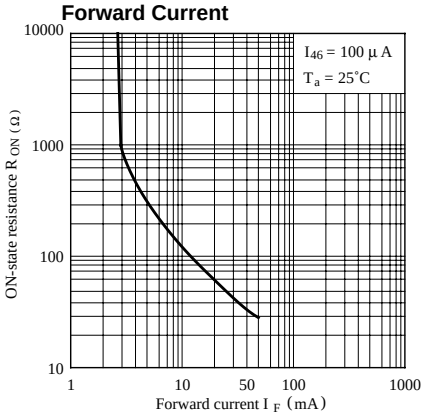



**Fig. 7 Relative ON-state Resistance vs. Ambient Temperature**

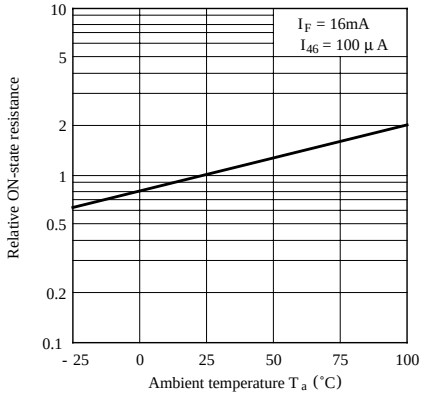
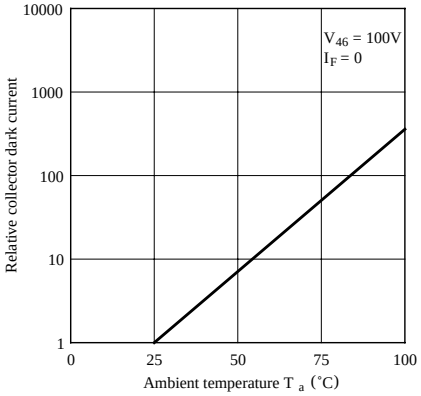



**Fig. 8 Relative Collector Dark Current vs. Ambient Temperature**




● Please refer to the chapter "Precautions for Use".