

# PC3ST21NSZ Series

## ■ Features

1. Low zero-cross voltage ( $V_{OX[MAX.]}=20V$ )
2. Isolation voltage between input and output ( $V_{iso(rms)}:5kV$ )
3. High critical rate of rise of OFF-state voltage  
( $dV/dt$ :MIN. 1 000V/ $\mu s$ )
4. Compact dual-in line package
5. Recognized by UL, file No.E64380 (model No.**3ST21**)  
Approved by CSA, file No.CA95323 (model No.**3ST21**)  
Under preparation for VDE

## ■ Applications

1. Home appliances
2. OA equipment, FA equipment
3. SSRs

## ■ Model Line-up

| Minimum trigger current ( $I_{FT[MAX.]}$ ) | Model No.          |
|--|--------------------|
| 7mA  | <b>PC3ST21NSZB</b> |
| 5mA  | <b>PC3ST21NSZC</b> |

## ■ Absolute Maximum Ratings ( $T_a=25^{\circ}C$ )

|        | Parameter                         | Symbol         | Rating               | Unit        |
|--------|-----------------------------------|----------------|----------------------|-------------|
| Input  | *1 Forward current                | $I_F$          | 50                   | mA          |
|        | Reverse voltage                   | $V_R$          | 6                    | V           |
| Output | *1 RMS ON-state current           | $I_T(rms)$     | 0.1                  | A           |
|        | Peak one cycle surge current      | $I_{surge}$    | 1.2 (50Hz sine wave) | A           |
|        | Repetitive peak OFF-state voltage | $V_{DRM}$      | 600                  | V           |
|        | Operating temperature             | $T_{opr}$      | -30 to +100          | $^{\circ}C$ |
|        | Storage temperature               | $T_{stg}$      | -55 to +125          | $^{\circ}C$ |
|        | *2 Isolation voltage              | $V_{iso(rms)}$ | 5                    | kV          |
|        | Soldering temperature             | $T_{sol}$      | 260 (For 10s)        | $^{\circ}C$ |

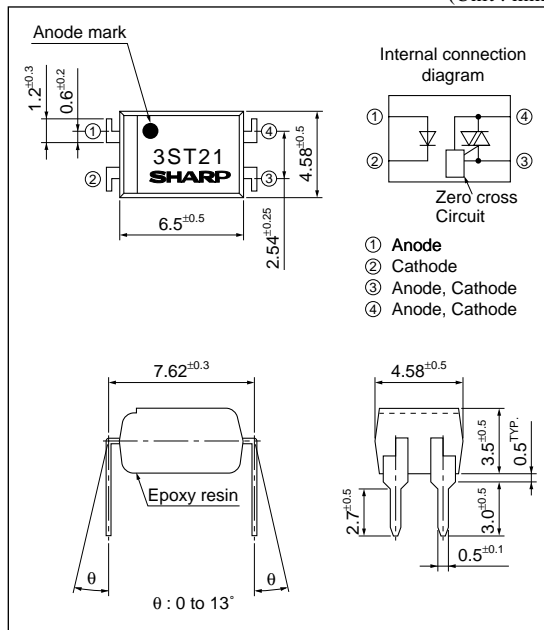
\*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.1, 2

\*2 40 to 60%RH, AC for 1minute,  $f=60Hz$

## Compact Phototriac Coupler for Triggering

## ■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(T<sub>a</sub>=25°C)

| Parameter                |  | Symbol         | Conditions           | MIN.   | TYP.               | MAX.               | Unit               |
|--------------------------|--|----------------|----------------------|--|--------------------|--------------------|--------------------|
| Input                    | Forward voltage                            | V <sub>F</sub> | I <sub>F</sub> =20mA | —  | 1.2                | 1.4                | V                  |
|                          | Reverse current                            | I <sub>R</sub> | V <sub>R</sub> =3V   | —  | —                  | 10 <sup>-5</sup>   | A                  |
| Output                   | Repetitive peak OFF-state current          |                | I <sub>DRM</sub>     | V <sub>D</sub> =V <sub>DRM</sub>                               | —                  | —                  | 10 <sup>-6</sup> A |
|                          | ON-state voltage                           |                | V <sub>T</sub>       | I <sub>T</sub> =0.1mA  | —                  | —                  | 3.0 V              |
|                          | Holding current                            |                | I <sub>H</sub>       | V <sub>D</sub> =4V   | 0.1                | —                  | 3.5 mA             |
|                          | Critical rate of rise of OFF-state voltage |                | dV/dt                | V <sub>D</sub> =(1/√2) • V <sub>DRM</sub>                      | 1 000              | 2 000              | — V/μs             |
|                          | Zero-cross voltage                         | PC3ST21NSZB    | V <sub>OX</sub>      | Resistance load, I <sub>F</sub> =15mA                          | —                  | —                  | 20 V               |
|                          |  | PC3ST21NSZC    |                      | Resistance load, I <sub>F</sub> =8mA                           |                    |                    |                    |
| Transfer characteristics | Minimum trigger current                    | PC3ST21NSZB    | I <sub>FT</sub>      | V <sub>D</sub> =4V, R <sub>L</sub> =100Ω                       | —                  | —                  | 7 mA               |
|                          |  | PC3ST21NSZC    |                      |  | —                  | —                  | 5                  |
|                          | Isolation resistance                       |                | R <sub>ISO</sub>     | DC=500V, 40 to 60%RH   | 5×10 <sup>10</sup> | 1×10 <sup>11</sup> | — Ω                |
|                          | Turn-on time                               |                | t <sub>on</sub>      | V <sub>D</sub> =4V, R <sub>L</sub> =100Ω, I <sub>F</sub> =20mA | —                  | —                  | 50 μs              |

Fig.1 RMS ON-state Current vs. Ambient Temperature

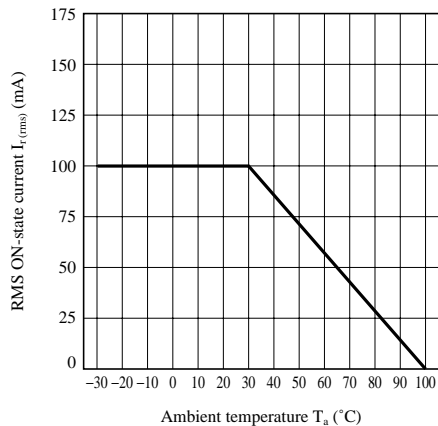
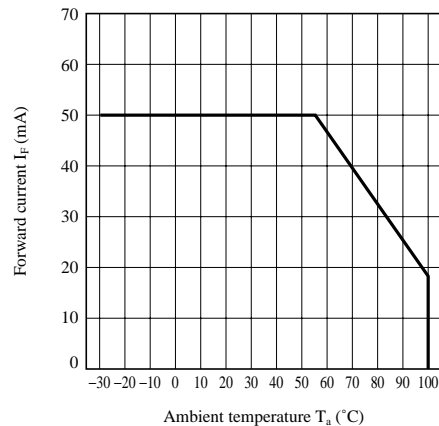


Fig.2 Forward Current vs. Ambient Temperature



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