



DC Input  
PhotoSCR

## DESCRIPTION

The SPT601 consists of an AlGaAs LED optically coupled to a photo-sensitive SCR. Optical coupling provides high isolation levels while maintaining low-level DC signal control capability. With high load voltage and low input current, the SPT601 is an ideal solution to drive SCR Triacs and Solid State Relays.

## FEATURES

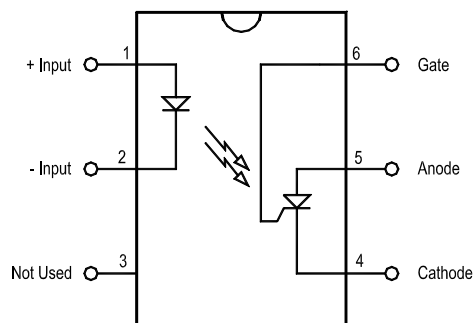
- Low input control current (5mA MAX)
- High blocking voltage (400V MIN)
- 400mA maximum continuous current
- High input-to-output isolation (3.75kV MIN, 5.3kV MAX)
- High Transient Immunity ( $dV/dt = 400V/\mu s$  MIN)
- RoHS compliant / LeadFree Component
- Solid state reliability

## OPTIONS/SUFFIXES\*

- -H High Input-Output Isolation (5.3kVrms)
- -S Surface Mount Leadform Option
- -TR Tape and Reel Option

NOTE: Suffixes listed above are not included in marking on device for part number identification.

## SCHEMATIC DIAGRAM



## APPLICATIONS

- Valve control
- Solenoids
- Remote switching
- Home appliances
- Metering equipment
- Heating elements

## ABSOLUTE MAXIMUM RATINGS\*

| PARAMETER                       | UNIT | MIN | TYP | MAX |
|---------------------------------|------|-----|-----|-----|
| Storage Temperature             | °C   | -55 |     | 125 |
| Operating Temperature           | °C   | -40 |     | 85  |
| Continuous Input Current        | mA   |     |     | 40  |
| Transient Input Current         | mA   |     |     | 400 |
| Reverse Input Control Voltage   | V    | 6   |     |     |
| Total Package Power Dissipation | mW   |     |     | 500 |
| Surge Current Rating            | A    |     |     | 10  |

\*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

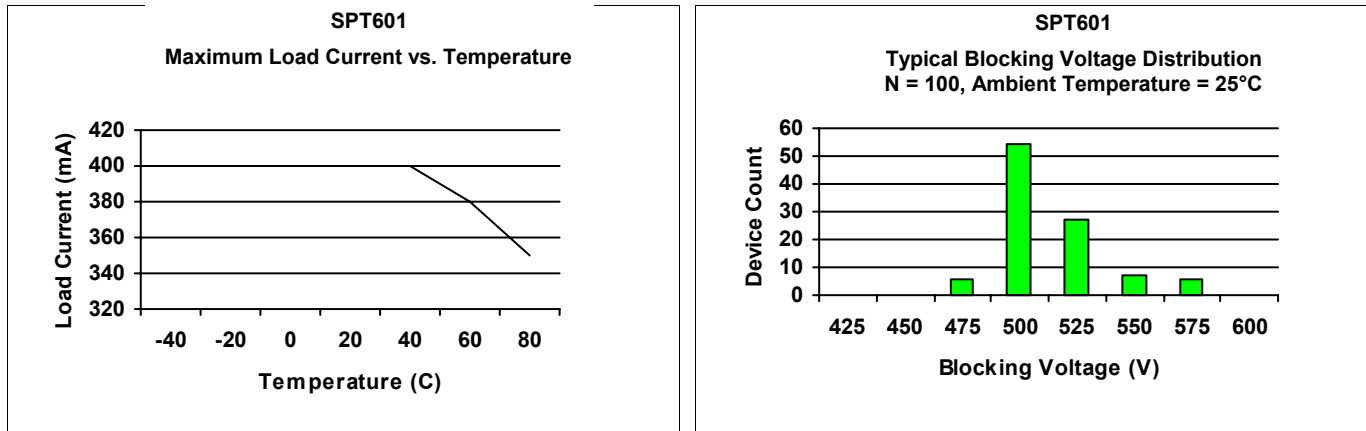
## APPROVALS

- UL, C-UL Pending

## ELECTRICAL CHARACTERISTICS - 25°C

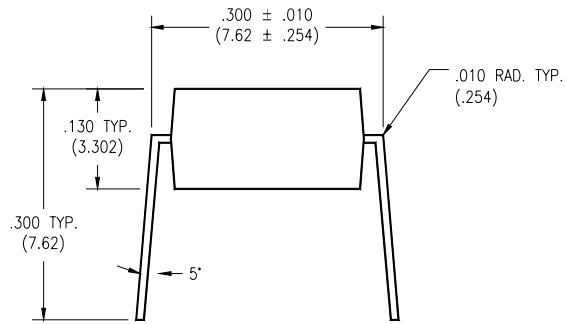
| PARAMETER                     | UNIT | MIN  | TYP | MAX | TEST CONDITIONS                    |
|-------------------------------|------|------|-----|-----|------------------------------------|
| <b>INPUT SPECIFICATIONS</b>   |      |      |     |     |                                    |
| LED Forward Voltage           | V    |      | 1.2 | 1.5 | If = 10mA                          |
| LED Reverse Voltage           | V    | 6    | 12  |     | Ir = 10uA                          |
| Must Operate Current          | m A  |      | 2.5 | 5   | Io = 400mA, resistive load         |
| Reverse Current               | μ A  |      |     | 10  | Vr = 6.0V                          |
| Junction Capacitance          | p F  |      | 5   |     | Vf = 0V                            |
| <b>OUTPUT SPECIFICATIONS</b>  |      |      |     |     |                                    |
| Forward Blocking Voltage      | V    | 400  |     |     | RGK = 10KΩ, TA = 100°C, Id = 150μA |
| Reverse Blocking Voltage      | V    | 400  |     |     | RGK=10KΩ, TA=100°C, Id=150μA       |
| Continuous Load Current       | m A  |      |     | 400 | If = 5mA                           |
| Surge Current Rating          | A    |      |     | 10  | T = 16us                           |
| Holding Current               | μ A  |      |     | 500 | RGK = 27KΩ, VFX = 50V              |
| On-Voltage                    | V    |      | 1.1 | 1.4 | Io = 400mA                         |
| Leakage Current               | μ A  |      |     | 10  | Vo = 400V, Rgk = 47k               |
| Gate Trigger Voltage          | V    |      | 0.6 | 1   | VFX=100V, RGK=27KΩ, RL=10KΩ        |
| Forward Leakage Current       | μ A  |      | 1   | 10  | RGK=10KΩ, VRX=400V, IF=0, TA=100°C |
| Reverse Leakage Current       | μ A  |      | 1   | 10  | RGK=10KΩ, VRX=400V, IF=0, TA=100°C |
| Gate Trigger Current          | μ A  |      | 20  | 50  | VFX=100V, RRG=27KΩ, RL=10KΩ        |
| <b>COUPLED SPECIFICATIONS</b> |      |      |     |     |                                    |
| Isolation Voltage             | V    | 3750 |     |     | T = 1 minute                       |
| -H Suffix                     | V    | 5300 |     |     | T = 1 minute                       |
| Isolation Resistance          | G Ω  | 100  |     |     |                                    |
| Coupled Capacitance           | p F  |      | 2   |     |                                    |

## PERFORMANCE DATA

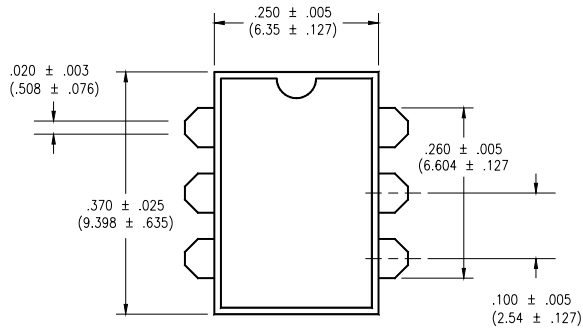


## MECHANICAL DIMENSIONS

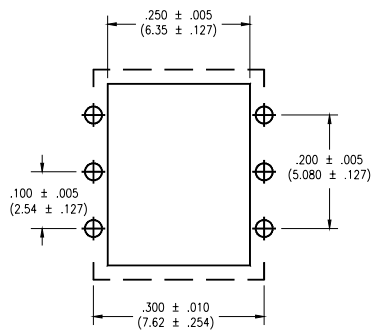
### 6 PIN DUAL IN-LINE PACKAGE



END VIEW

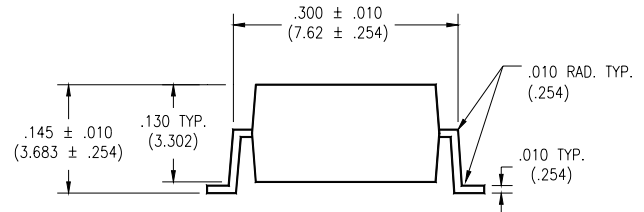


TOP VIEW

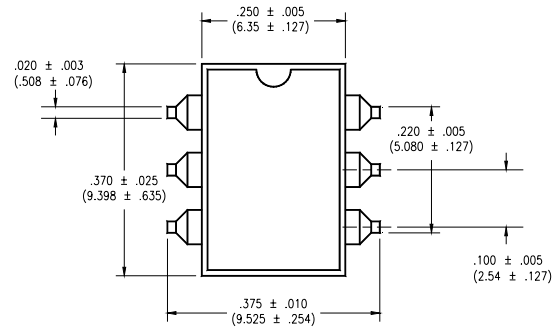


BOTTOM VIEW/  
BOARD PATTERN

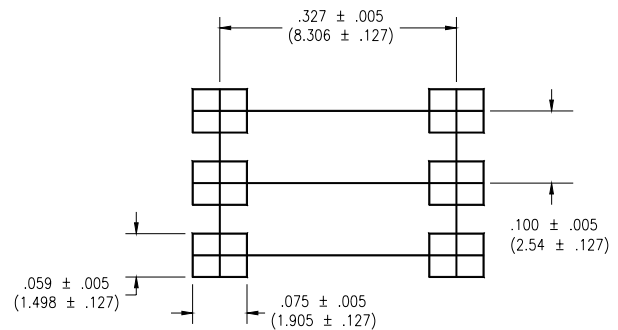
### 6 PIN SURFACE MOUNT DEVICE



END VIEW



TOP VIEW



BOTTOM VIEW/  
BOARD PATTERN

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