



CTH Series

Capacitive Touch Sensor Display

15.0 x 15.0 x 11.0 mm



CTHS15CIC04 - White Capacitive Touch Sensor Through Hole with a Display Size of 0.59 x 0.59 inches (15 x 15 mm) square



Applications

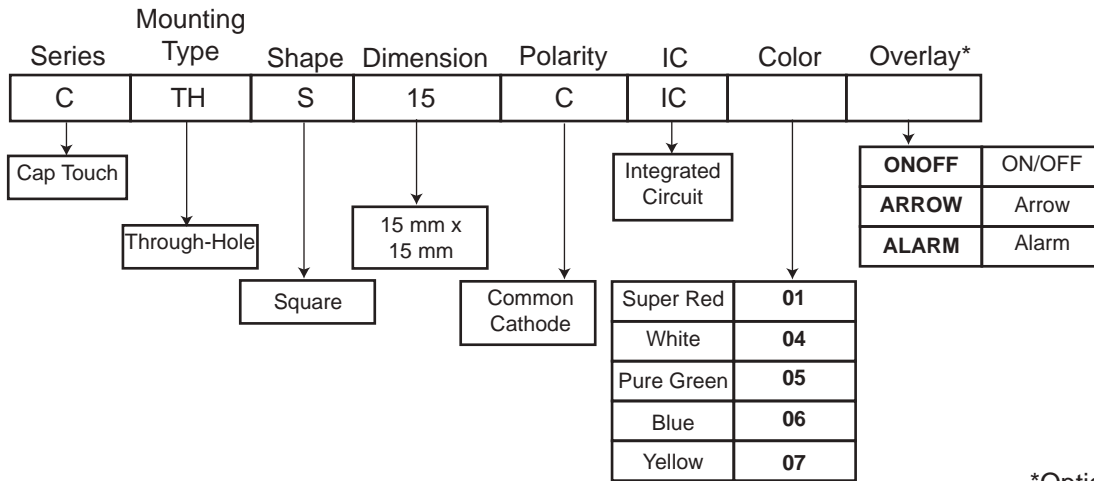
- Mobile communication devices
- Electronic devices
- Point of sale Terminals
- Gaming
- Industrial control displays
- Touch Screen Monitors
- Portable Instruments
- Media Players
- Medical devices
- Appliances and consumer equipments

Key Features

- Integrated touch sensing and display technology
- Enables the device interface to be more user friendly and intuitive
- Mounting type: through hole (industry standard pitch 0.100")
- Available in one standard size: 15.0mm x 15.00mm x 11.00mm
- Available in 5 colors: super red, white, pure green, blue or yellow
- Touch sensor: integrated circuit (IC)
- Uniform illumination and high optical clarity due to LED technology
- Robust design due to no mechanical moving parts
- Simplifies devices design and manufacturability
- Optional overlay (icons): on/off, arrow, alarm
- Custom overlay icon can be manufactured upon request - contact VCC
- Compliant with RoHS and REACH requirements

Ordering Data

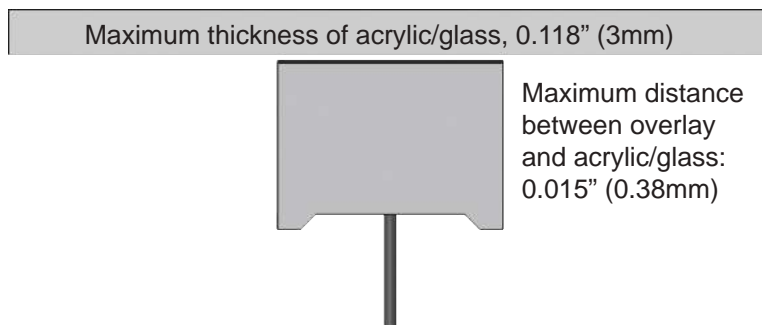
The CTH Series (Cap Touch) is available in a range of standard features and options. To specify your Cap Touch Display, simply choose one option from each column.






*Optional

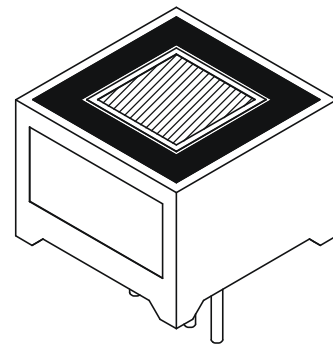
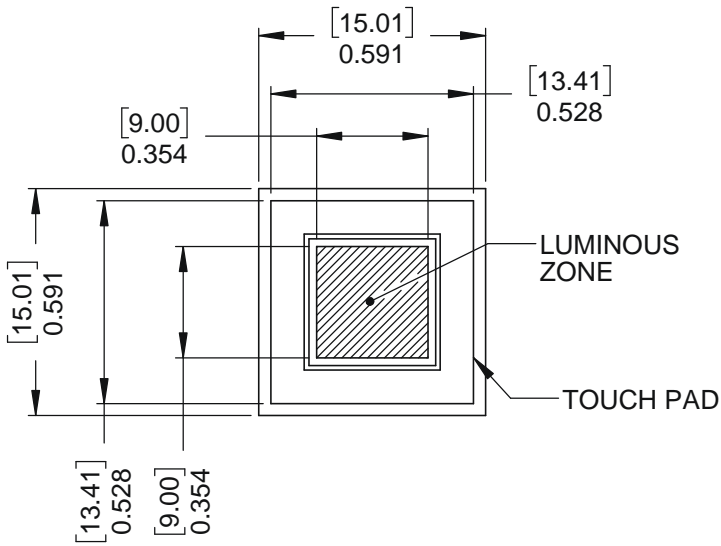
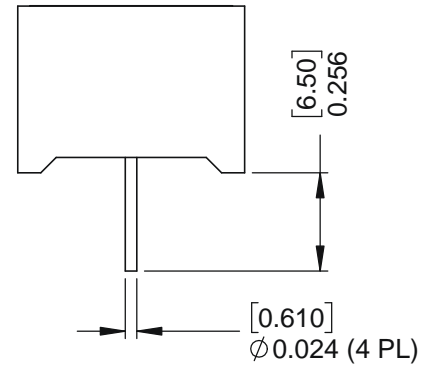
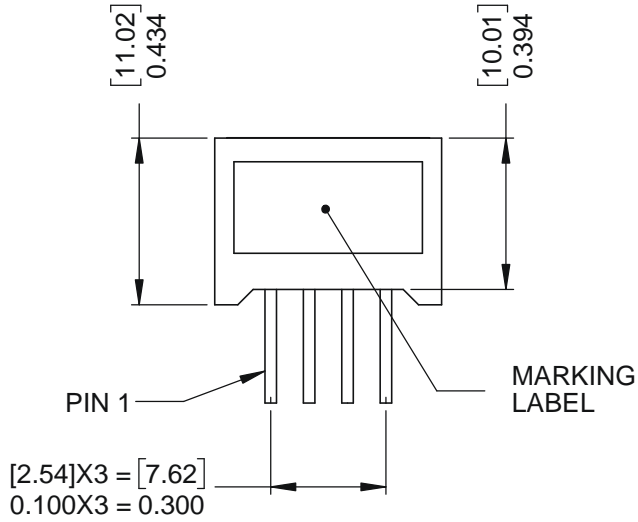
Overlay

- Different LED colors can indicate the mode in which an electronic device is operating, depending on the icon associated with it.
- Optional graphic overlay made with polished LEXAN™ Polycarbonate 8010 Film 0.007" (0.175 mm) thick has reverse printed translucent white icon, in order to still see it even when the back lighting is off.
- Lexan 8010 is a transparent polycarbonate film and offers hardness, chemical and abrasion resistance, stiffness, and high temperature capability.
- Three standard icons are available: alarm, arrow and on-off. Custom icons are also available upon request.
- Capacitive Touch Display can also be mounted behind clear glass or plastic layer such as polycarbonate or acrylic, as shown in the picture below.

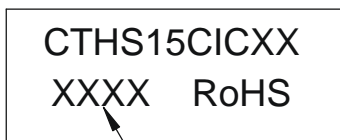


| | |
|---|----------------|
|  | Overlay On Off |
|  | Overlay Arrow |
|  | Overlay Alarm |

Package Dimensions



MARKING LABEL INFO

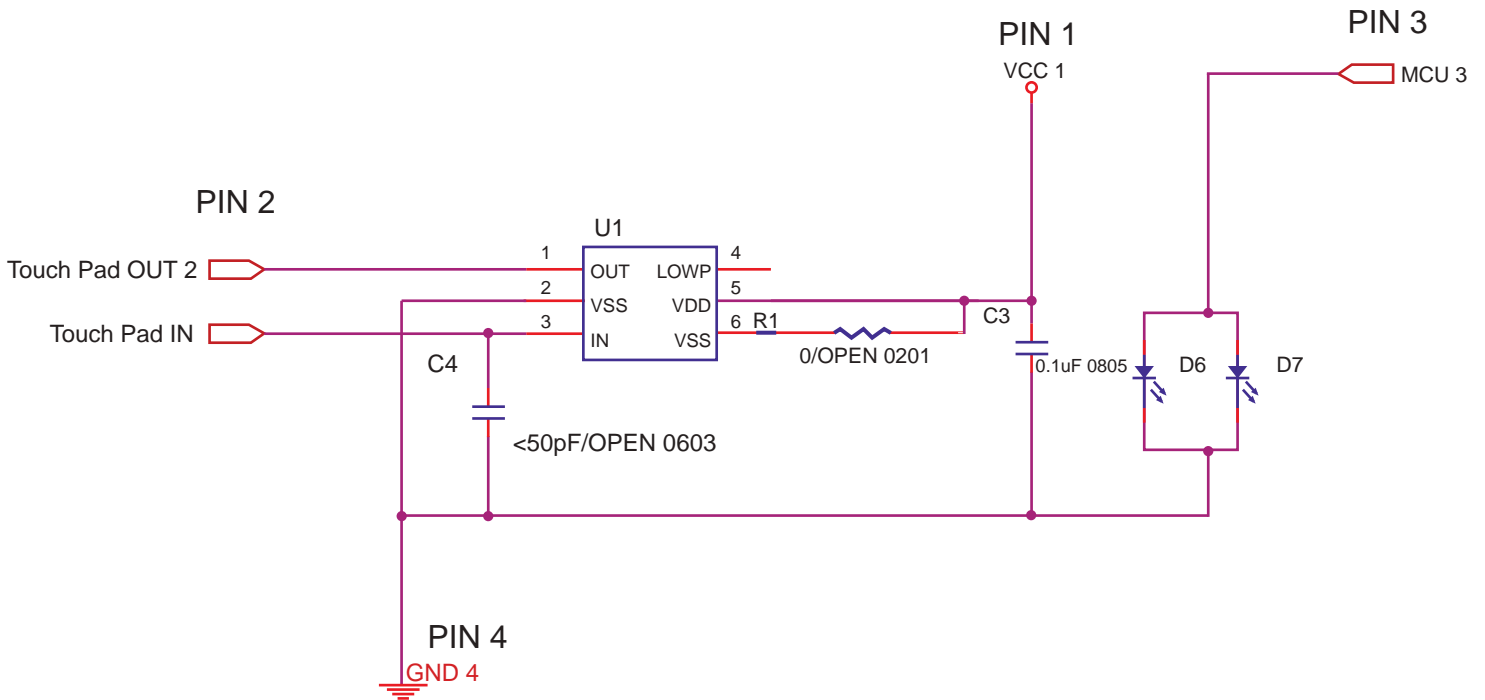


DATE CODE

Dimensions in [mm] inches
General tolerances unless otherwise specified:

| | inches | mm |
|------|------------|------------|
| .X | $\pm .020$ | $\pm .508$ |
| .XX | $\pm .010$ | $\pm .254$ |
| .XXX | $\pm .005$ | $\pm .127$ |

Internal Circuit Diagram



Internal IC Electrical Characteristics

($T_A = 25^{\circ}\text{C}$, unless otherwise specified)

| Symbol | Parameter | Condition | Min. | Typ. | Max. | Units. |
|--------|-----------------------------------|----------------------|--------|------|--------|---------------|
| VDD | Supply Voltage | | 2.0 | | 5.5 | V |
| VIH | High Level Input Voltage | @ VDD = 5V | 0.7VDD | | VDD | V |
| VIL | Low Level Input Voltage | @ VDD = 5V | | | 0.3VDD | V |
| IDD1 | Operating Current | @ VDD = 5V , no load | | 16 | | μA |
| | | @ VDD = 3V , no load | | 3.5 | | |
| IDD2 | Operating Current (SLRT=VDD) | @ VDD = 5V , no load | | 10.5 | | μA |
| | | @ VDD = 3V , no load | | 2.5 | | |
| IOL | Low Level Output Current | @ VDD = 3V, VOL = 1V | | 30 | | mA |
| IOH | High Level Output Current | @ VDD = 3V, VOL = 2V | | 8 | | mA |

Product Specifications

ABSOLUTE MAXIMUM RATING FOR LED

(Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|---|--------|-----------|-------|
| | | White | |
| Power Dissipation Per Dice | PAD | 114 | mW |
| Derating Liner from 25°C per Dice | - | 0.4 | mA/°C |
| Continuous Forward Current Per Dice | IAF | 30 | mA |
| Peak Current Per Dice (duty cycle 1/10,1KHz) | IPF | 100 | mA |
| Reverse Voltage Per Dice | VR | 5 | V |
| Electrostatic Discharge (HBM) | ESD | 1500 | V |
| Operating Temp. | Topr | -35 ~ +85 | °C |
| Storage Temp. | Tstg | -35 ~ +85 | °C |

ELECTRO-OPTICAL CHARACTERISTICS

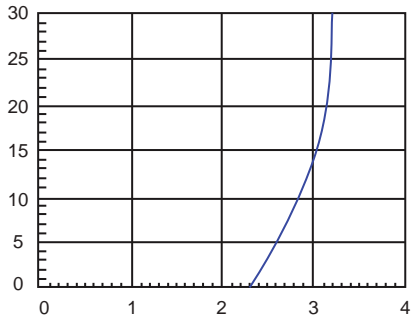
(Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|--|--------|------|------|-------|------|------------|
| Luminous Intensity | Iv | 133 | 232 | -- | mcd | IF = 20 mA |
| Forward Voltage | VF | -- | 3.2 | 3.8 | V | IF = 20 mA |
| Chromaticity Coordinates (Tolerance: ±0.01) | x | -- | 0.27 | -- | nm | IF = 10 mA |
| | y | -- | 0.25 | -- | nm | IF = 10 mA |
| Spectrum Radiation Bandwidth | Iv-M | -- | - | 2 : 1 | -- | IF = 10 mA |
| Luminous Intensity Matching Ratio | IR | | - | 50 | μA | VR = 5V |

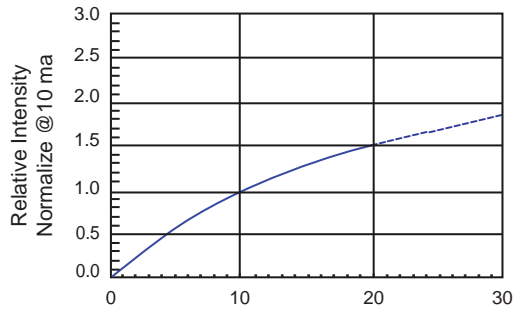
Product Specifications

ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

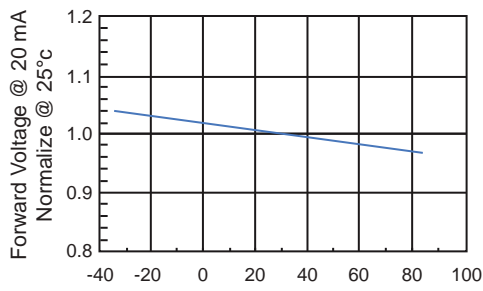
($T_a=25^\circ\text{C}$)



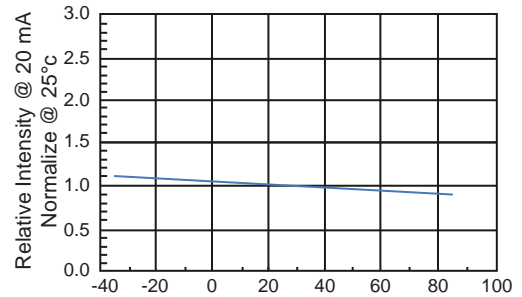
Forward Voltage (V)
Forward Current vs. Forward Voltage



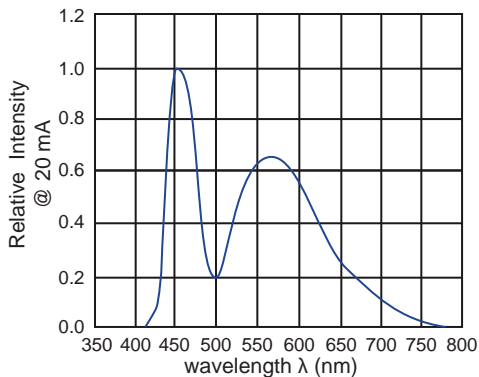
Forward Voltage (mA)
Relative Intensity vs. Forward Current



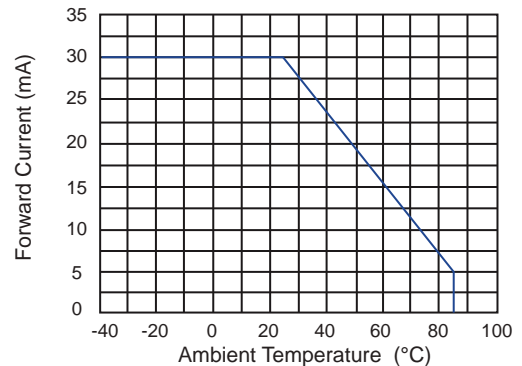
Ambient Temperature (°C)
Forward Voltage vs. Temperature



Ambient Temperature (°C)
Relative Intensity vs. Temperature



wavelength λ (nm)
Relative Intensity vs. Wavelength



Ambient Temperature (°C)
Forward Current vs. Temperature

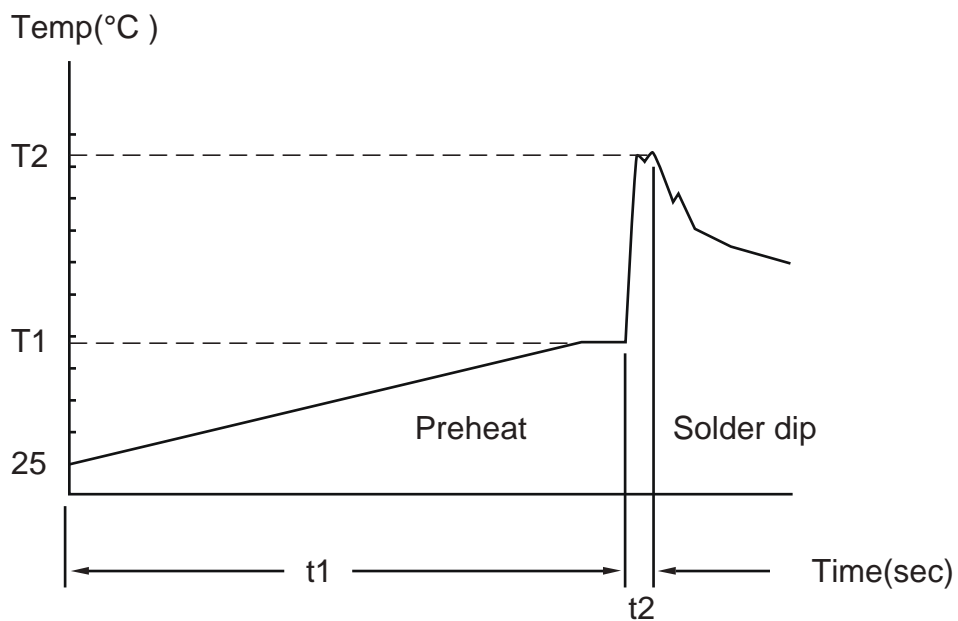
Product Specifications

SOLDERING CONDITIONS

1. Wave Soldering Profile

Distance: 1.6mm min (From Seating Plane)

| Item | Condition | | Note |
|------------|----------------|-------------|---|
| Preheat | Temperature T1 | 80 – 120 °C | PWB Temperature (Soldering Side Surface) |
| | Time t1 | 60 – 180sec | |
| Solder Dip | Temperature T2 | 230 – 260°C | Bath Temperature |
| | Time t2 | 2 – 4 sec | Solder Tank Passage Time |



2. Hand Soldering (Iron Condition)

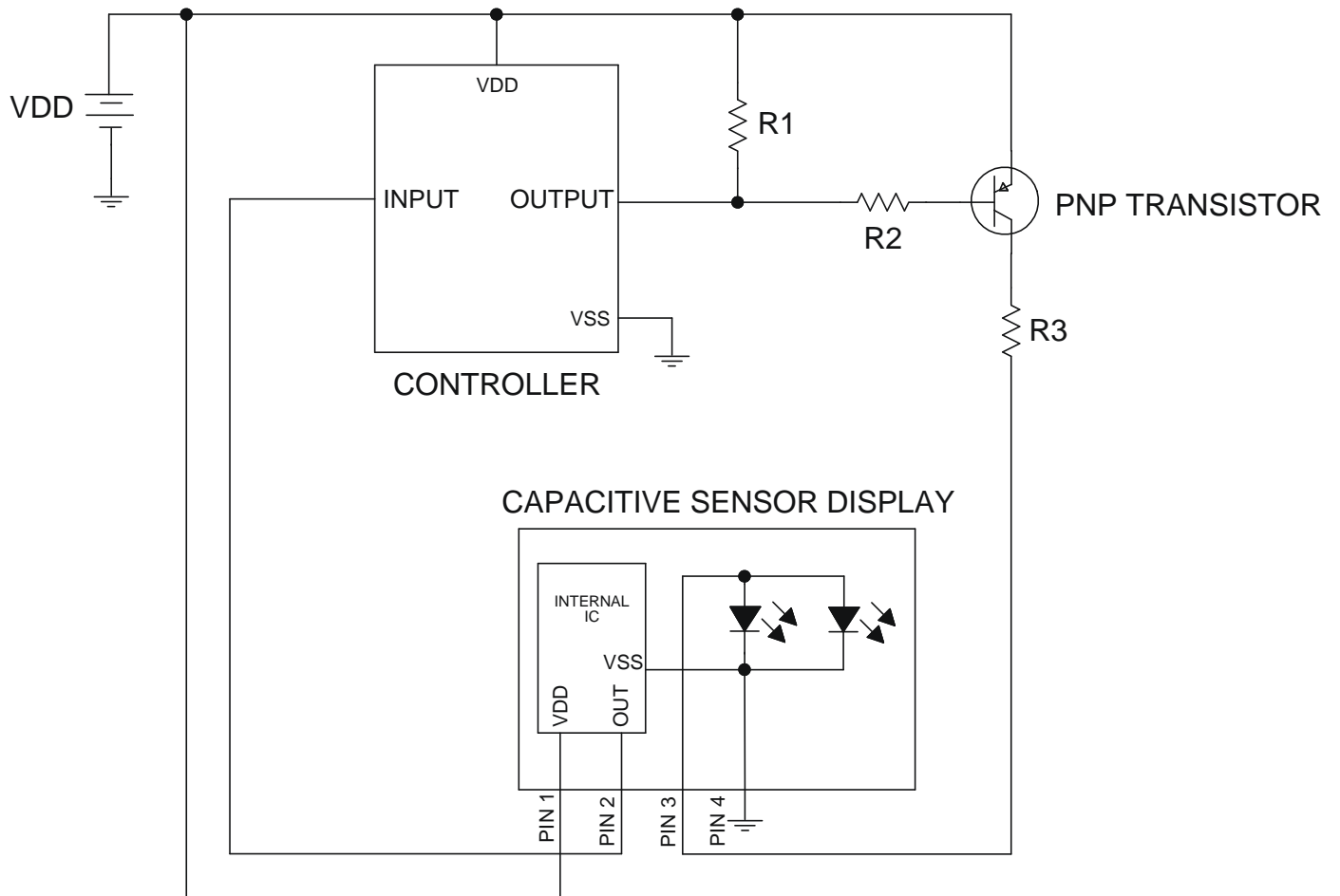
Soldering Iron: 30W Max

Temperature 350°C Max

Soldering Time: 3 Seconds Max (One Time)

Distance: 1.6mm min (From Seating Plane)

Application Circuit



Compliances and Approvals

