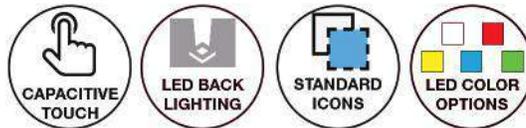# CTH Series
Capacitive Touch Sensor Display
15.0 x 15.0 x 11.0 mm

CTHS15CIC06 - Blue Capacitive Touch Sensor Through Hole with a Display Size of 0.59 x 0.59 inches (15 x 15 mm) square

CAPACITIVE TOUCH · LED BACK LIGHTING · STANDARD ICONS · LED COLOR OPTIONS
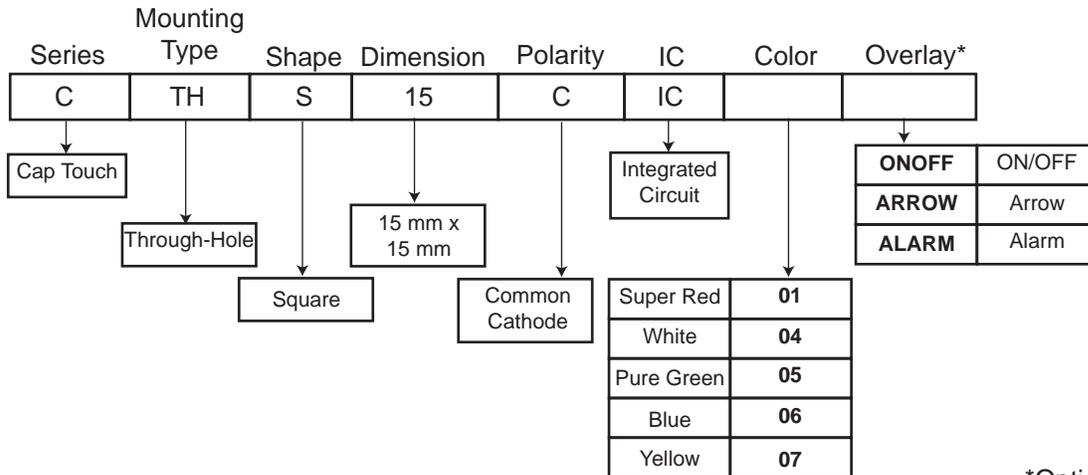
Applications

- 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
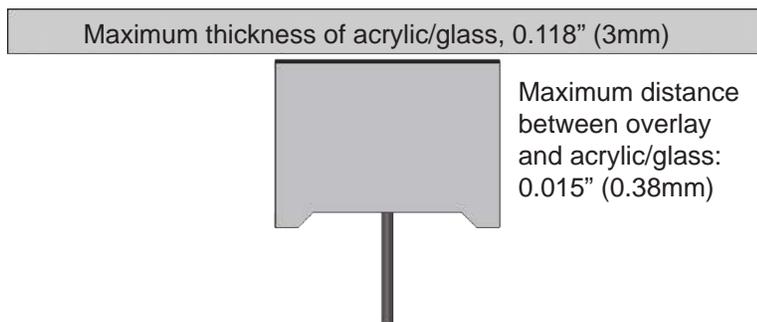- Compliant with RoHS and REACH requirements

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.

Series	Mounting Type	Shape	Dimension	Polarity	IC	Color	Overlay*
C	TH	S	15	C	IC		

- Cap Touch
- Through-Hole
- Square
- 15 mm x 15 mm
- Common Cathode
- Integrated Circuit

Color	
Super Red	01
White	04
Pure Green	05
Blue	06
Yellow	07

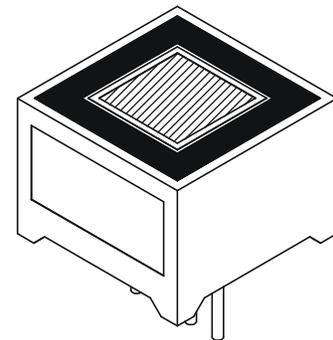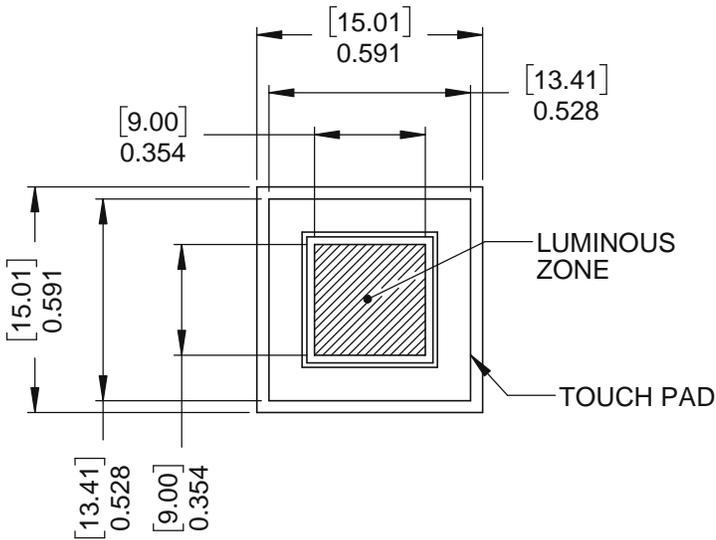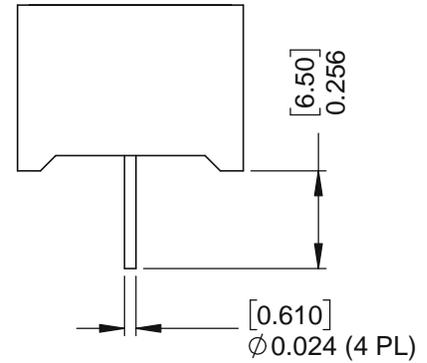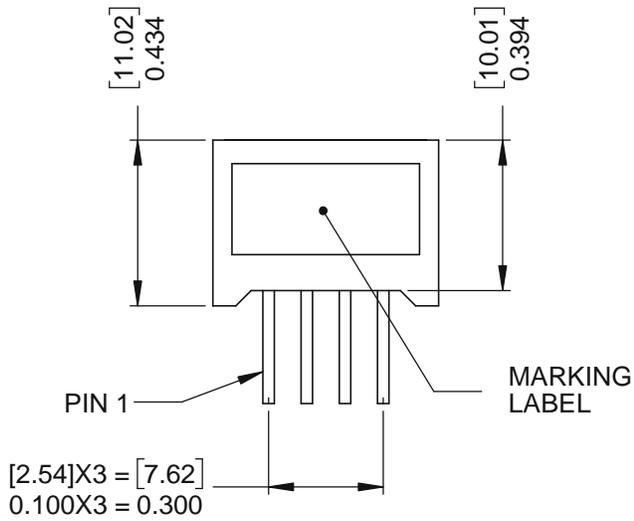| Overlay	
ONOFF	ON/OFF
ARROW	Arrow
ALARM	Alarm

*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.
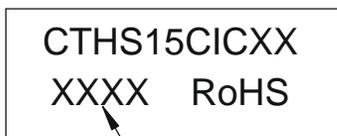
Maximum thickness of acrylic/glass, 0.118" (3mm)

Maximum distance between overlay and acrylic/glass: 0.015" (0.38mm)

Icon	Description
⏻	Overlay On Off
▶	Overlay Arrow
🔔	Overlay Alarm

Package Dimensions

[11.02]
0.434

[10.01]
0.394

PIN 1

MARKING
LABEL

[2.54]X3 = [7.62]
0.100X3 = 0.300

[6.50]
0.256

[0.610]
⌀0.024 (4 PL)

[15.01]
0.591

[13.41]
0.528

[9.00]
0.354

[15.01]
0.591

LUMINOUS
ZONE

TOUCH PAD

[13.41]
0.528

[9.00]
0.354

MARKING LABEL INFO

CTHS15CICXX
XXXX   RoHS

DATE CODE

Dimensions in [mm] inches
General tolerances unless other-
wise specified:

	inches	mm
.X	± .020	± .508
.XX	± .010	± .254
.XXX	± .005	± .127

Internal Circuit Diagram

PIN 1
VCC 1

PIN 3
MCU 3

PIN 2

U1

Touch Pad OUT 2 — 1 OUT   LOWP 4
2 VSS   VDD 5
Touch Pad IN — 3 IN   VSS 6   R1   C3

0/OPEN 0201

0.1uF 0805   D6   D7

C4

<50pF/OPEN 0603

PIN 4
GND 4

Internal IC Electrical Characteristics

(TA = 25°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
		Blue	
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
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	I_V	44	92	--	mcd	I_F = 20 mA
Forward Voltage	V_F	--	3.2	3.8	V	I_F = 20 mA
Peak Emission Wavelength	λP	--	--	--	nm	I_F = 20 mA
Dominant Wavelength	λD	--	470	--	nm	I_F = 20 mA
Spectrum Radiation Bandwidth	$\triangle \lambda$	--	30	--	nm	I_F = 20 mA
Luminous Intensity Matching Ratio	I_{V-M}	--	-	2 : 1	--	I_F = 10 mA
Reverse Current	I_R		-	50	µA	V_R = 5V

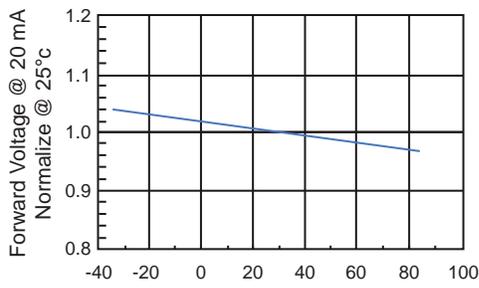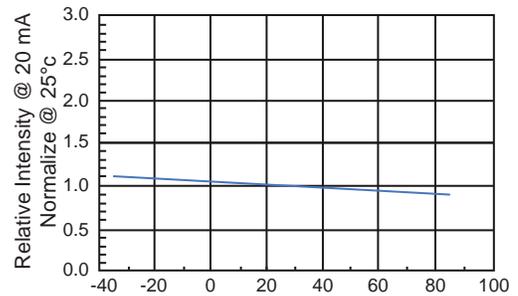## ELECTRICAL/OPTICAL CHARACTERISTICES CURVES   (Ta=25°C)
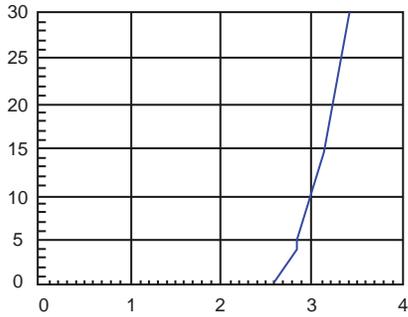
Forward Voltage (V)
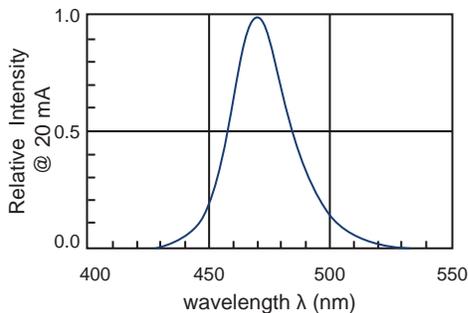**Forward Current vs. Forward Voltage**
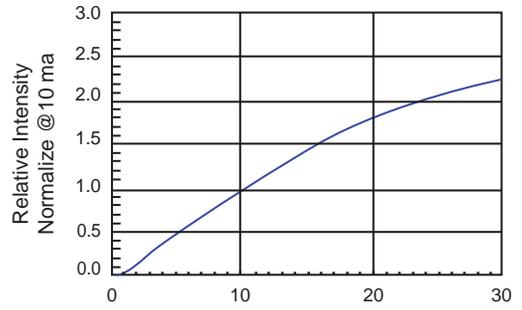
Forward Voltage (mA)
Relative Intensity vs. Forward Current
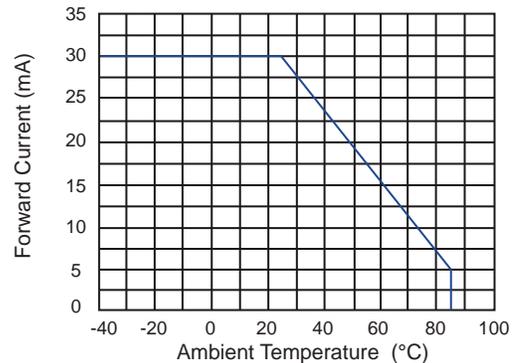

Ambient Temperature (°C)
Forward Voltage vs. Temperature

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

Temp(°C)

T2

T1

25

Preheat   Solder dip

t1   t2   Time(sec)
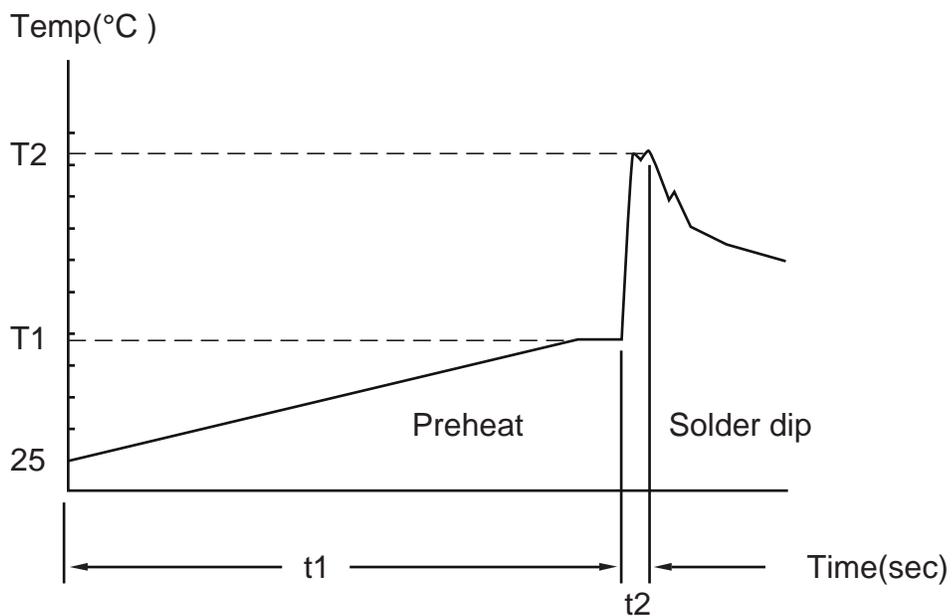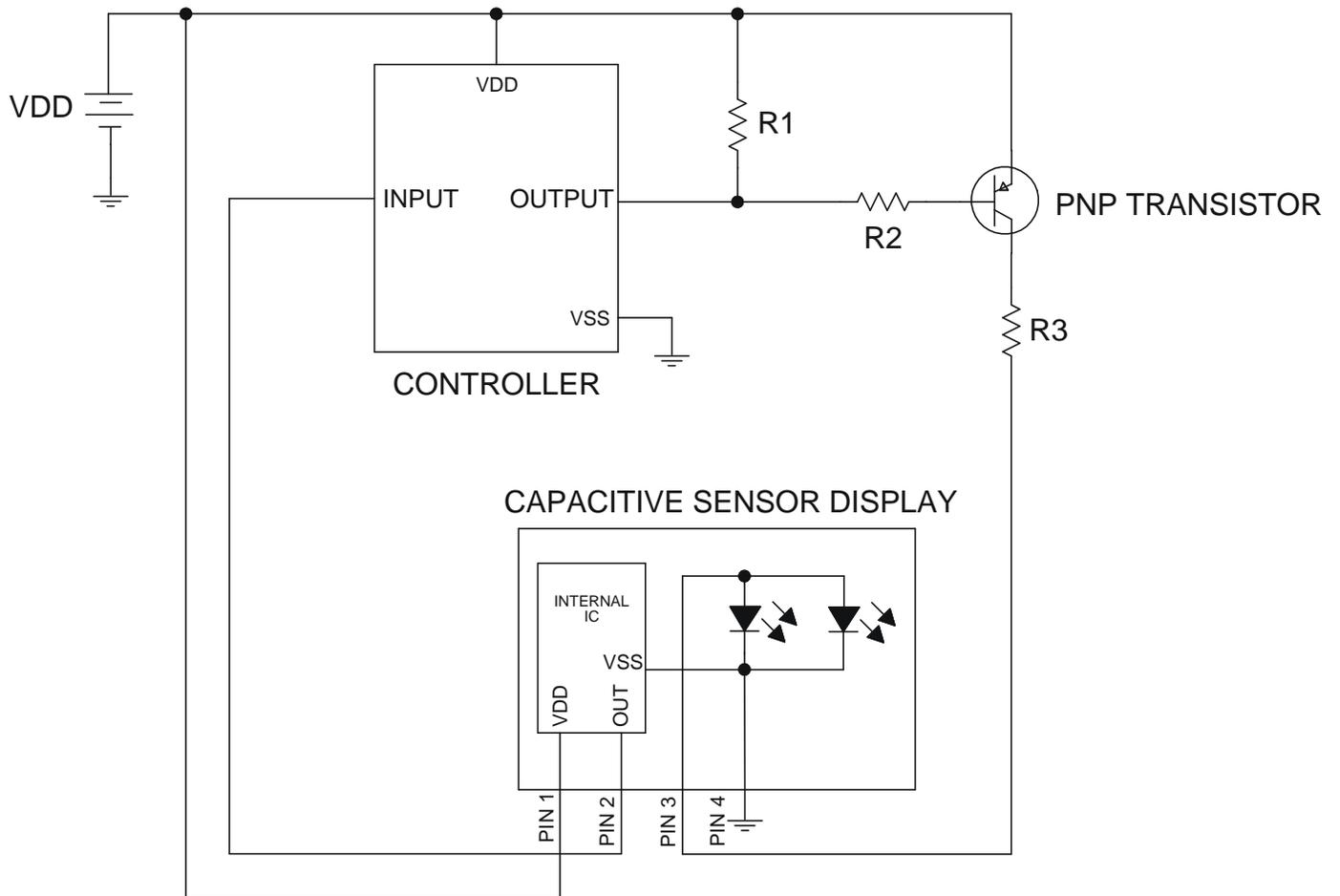
2. Hand Soldering (Iron Condition)

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

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CTHS15CIC07ARROW CTHS15CIC04ONOFF CTHS15CIC07ALARM CTHS15CIC01ONOFF CTHS15CIC01ARROW CTHS15CIC07 CTHS15CIC04ARROW CTHS15CIC07ONOFF CTHS15CIC06ARROW CTHS15CIC05ONOFF CTHS15CIC05ARROW CTHS15CIC05ALARM CTHS15CIC05 CTHS15CIC01 CSMS15CIC04 IS01BBFRGB IS01EBFRGB IS15BBFP4RGB IS15EBFP4RGB-09YN IS15ESBFP4RGB IS18WWC1W ISC15ANP4 ISF15ACP4 CSMS15CIC01 CSMS15CIC05 CSMS15CIC06 CSMS15CIC07 CTHS15CIC01ALARM CTHS15CIC06ONOFF CTHS15CIC06ALARM CTHS15CIC06 CTHS15CIC04ALARM IS15ABCP4CF IS15ABFP4RGB IS15SBCP4EF IS15SBFP4B IS15SBCP4CF