



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

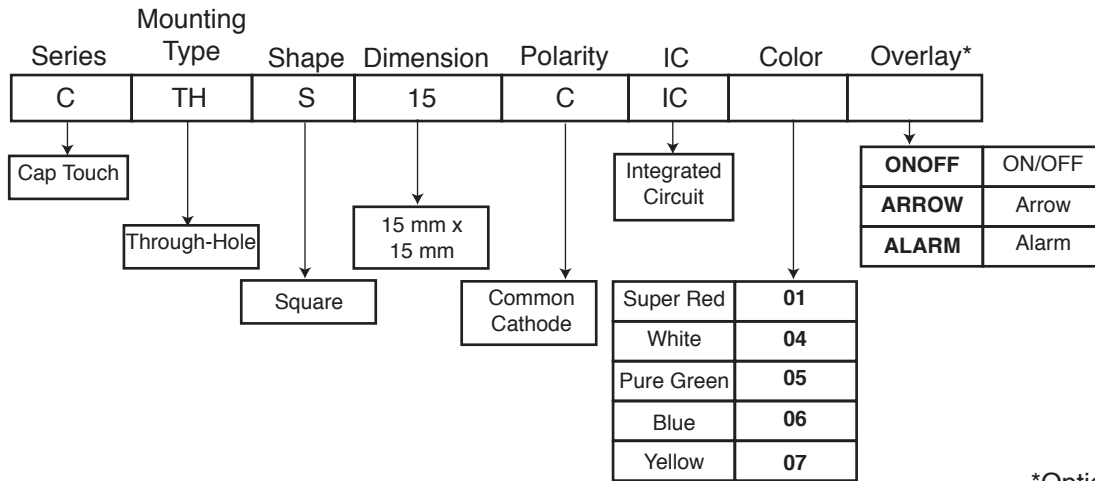
- Mobile communication devices
- Electronic devices
- Point of sale Terminals
- Gaming
- Industrial control displays
- Touch Screen Monitors
- Portable Instruments
- Media Players
- Medical devices
- Appliances and consumer equipments

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
- Capacitive sensor still functional when hands are wet
- Capacitive sensor still functional when hands are covered with certain types of gloves

Ordering Data

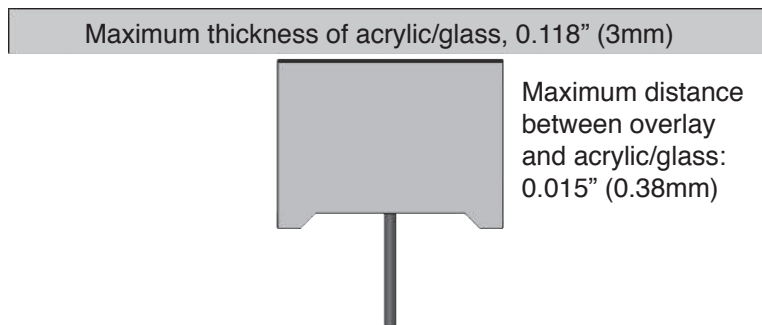
The CTH Series (Cap Touch) is available in a range of standard features and options. To specify your Cap Touch Display, simply choose one option from each column.






*Optional

Overlay

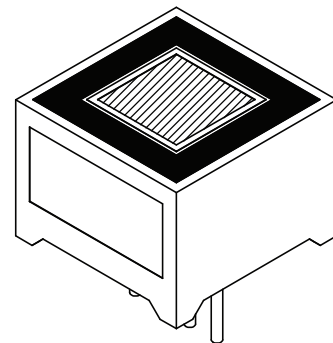
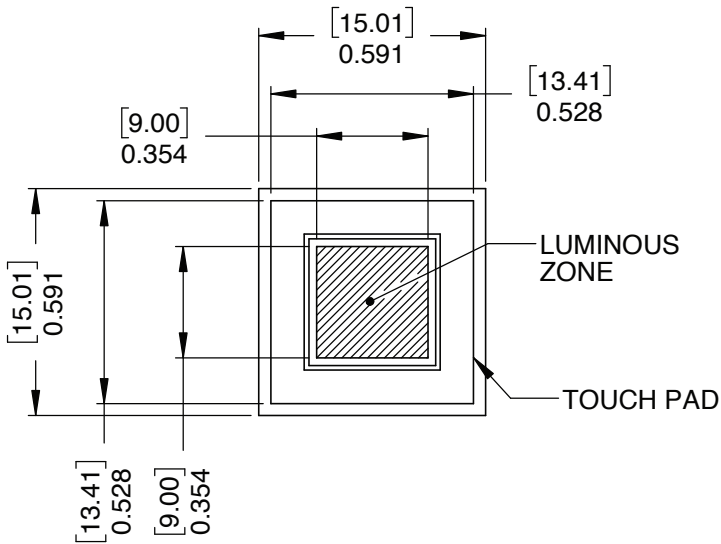
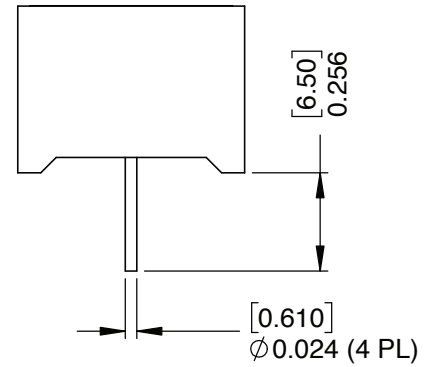
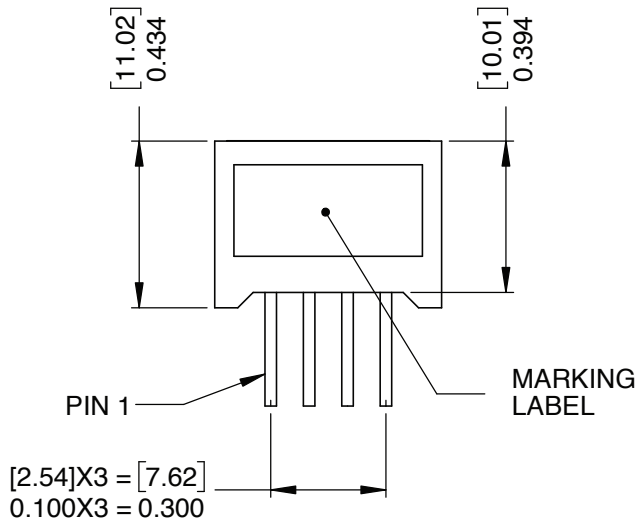
- Different LED colors can indicate the mode in which an electronic device is operating, depending on the icon associated with it.
- Optional graphic overlay made with polished LEXAN™ Polycarbonate 8010 Film 0.007" (0.175 mm) thick has reverse printed translucent white icon, in order to still see it 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.
- Adhesive: 3 M waterclear
- 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.
- Suggested overlay size: 0.590" x 0.590"



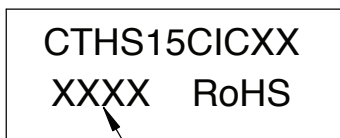
- Suggested icon size: 0.34" x 0.34" (max.)

	Overlay On/Off
	Overlay Arrow
	Overlay Alarm

Package Dimensions



MARKING LABEL INFO

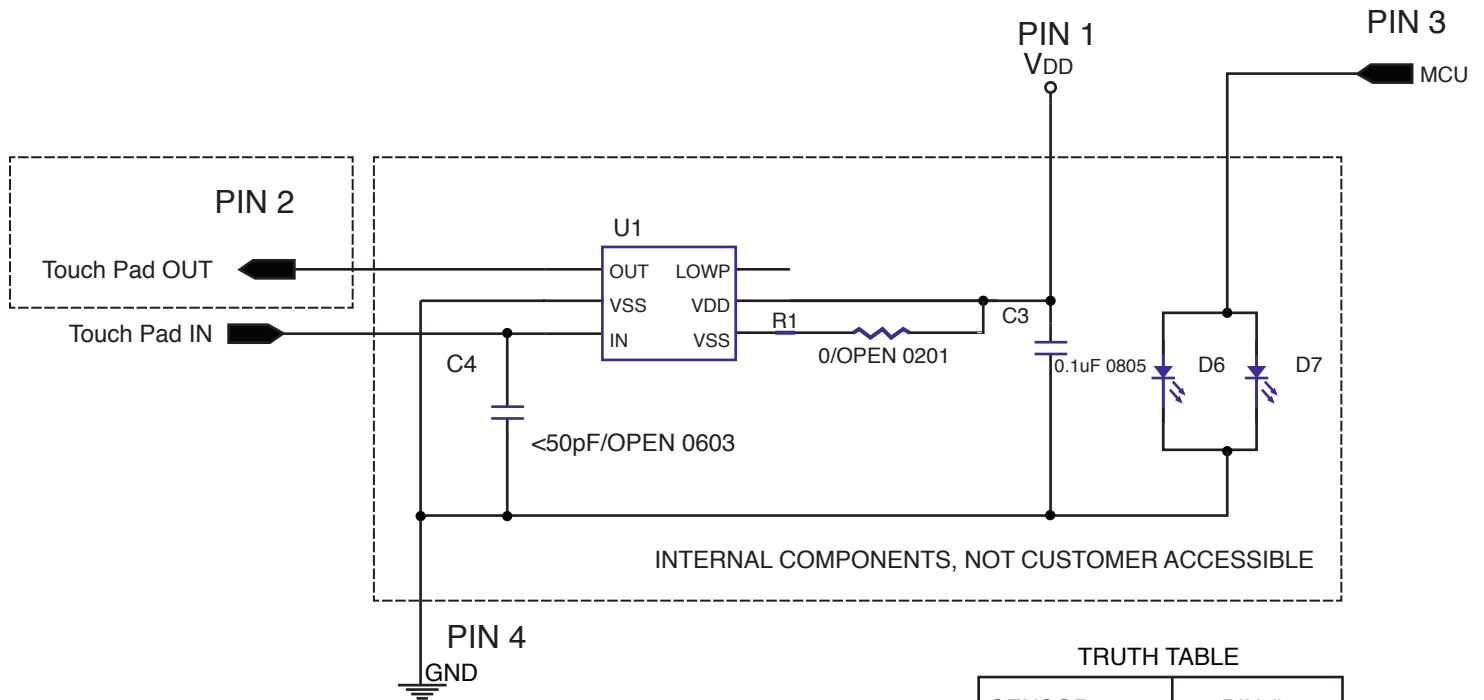


DATE CODE

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



TRUTH TABLE

SENSOR	PIN # 2
NOT TOUCHED	LOW
TOUCHED	HIGH

Internal IC Electrical Characteristics

(TA = 25°C, unless otherwise specified)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units.
VDD	Supply Voltage (Pin#1)		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 (Pin#2)	@ VDD = 3V, VOL = 1V		30		mA
IOH	High Level Output Current (Pin#2)	@ VDD = 3V, VOL = 2V		8		mA

Product Specifications

ABSOLUTE MAXIMUM RATING FOR LED

(Ta=25°C)

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

ELECTRO-OPTICAL CHARACTERISTICS

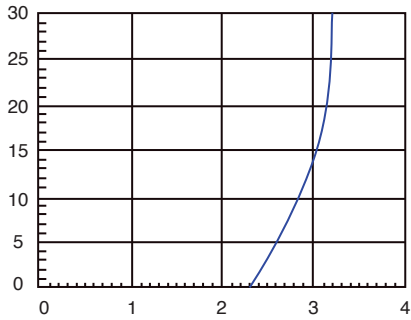
(Ta=25°C)

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

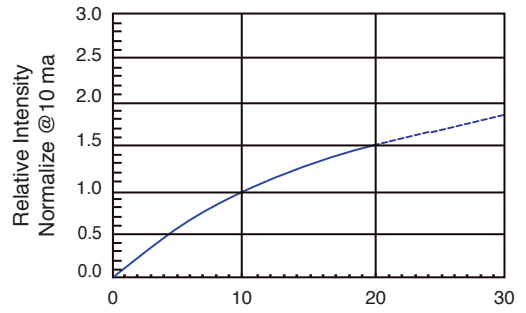
Product Specifications

ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

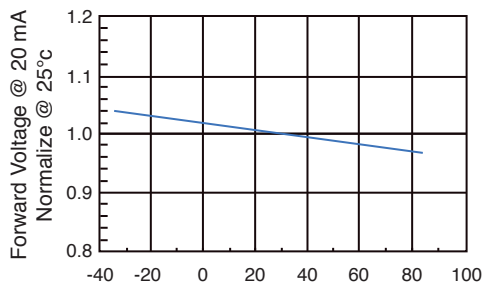
($T_a=25^\circ\text{C}$)



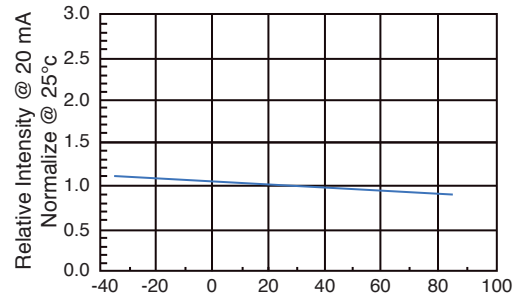
Forward Voltage (V)
Forward Current vs. Forward Voltage



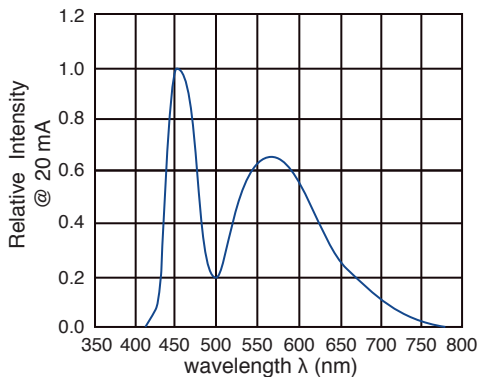
Forward Voltage (mA)
Relative Intensity vs. Forward Current



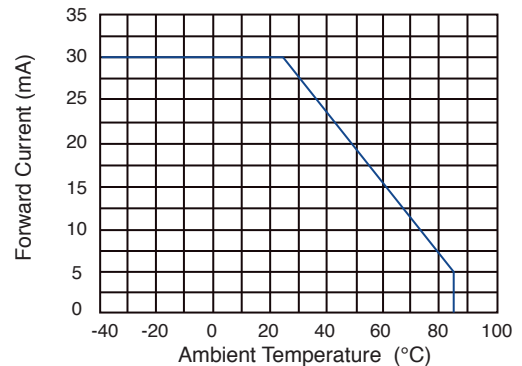
Ambient Temperature (°C)
Forward Voltage vs. Temperature



Ambient Temperature (°C)
Relative Intensity vs. Temperature



wavelength λ (nm)
Relative Intensity vs. Wavelength



Ambient Temperature (°C)
Forward Current vs. Temperature

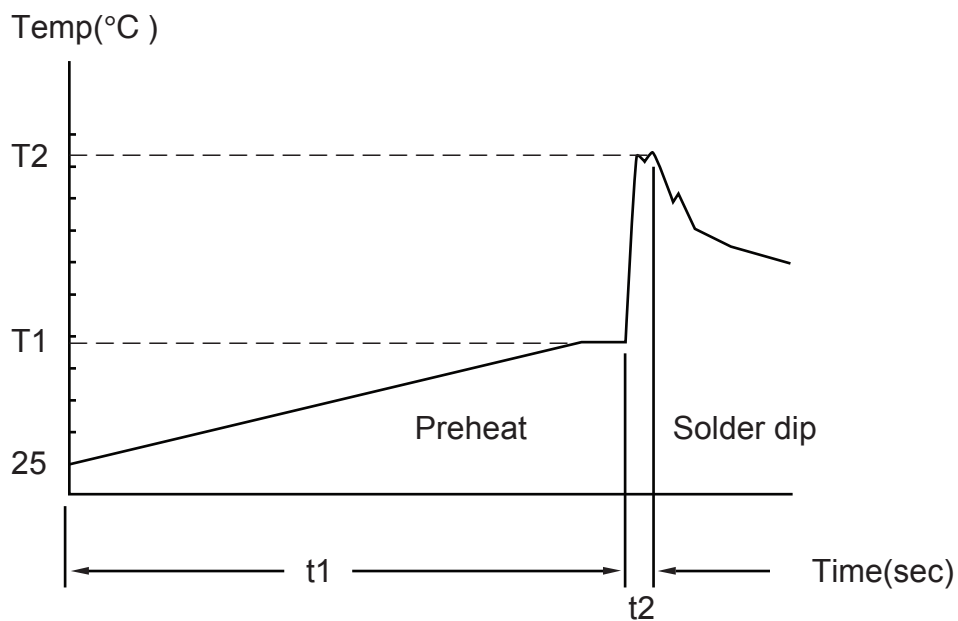
Product Specifications

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)

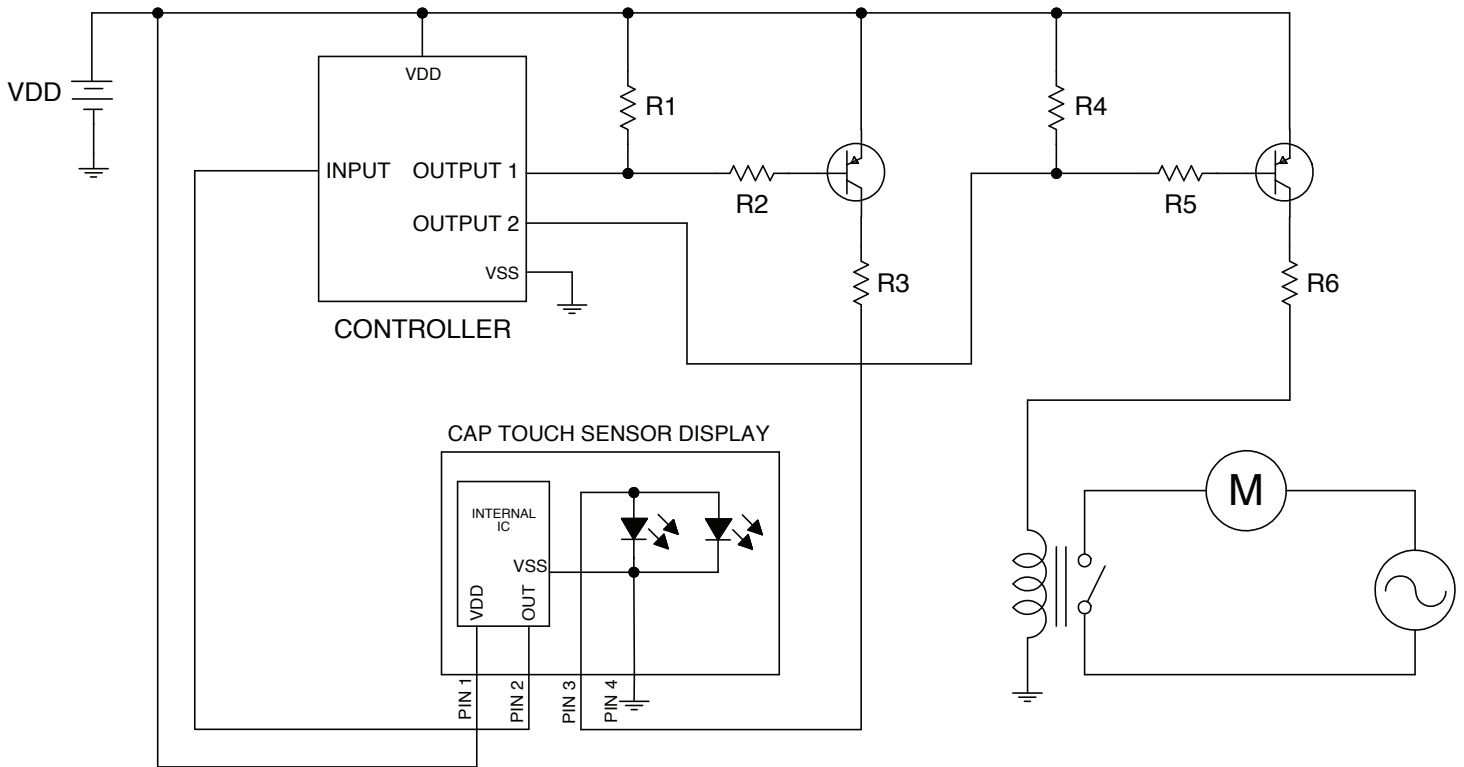
Soldering Iron: 30W Max

Temperature 350°C Max

Soldering Time: 3 Seconds Max (One Time)

Distance: 1.6mm min (From Seating Plane)

Application Circuit



Compliances and Approvals



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