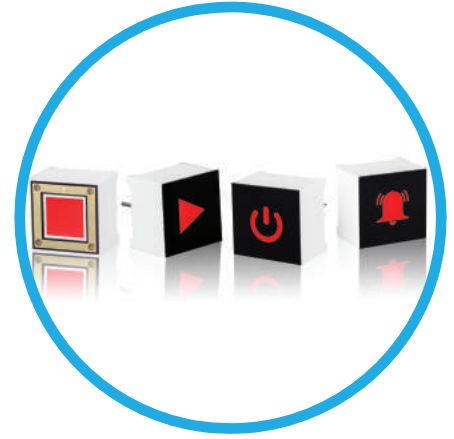




## CTH Series

### Capacitive Touch Sensor Display

15.0 x 15.0 x 11.0 mm



CTHS15CIC01 - Super Red 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

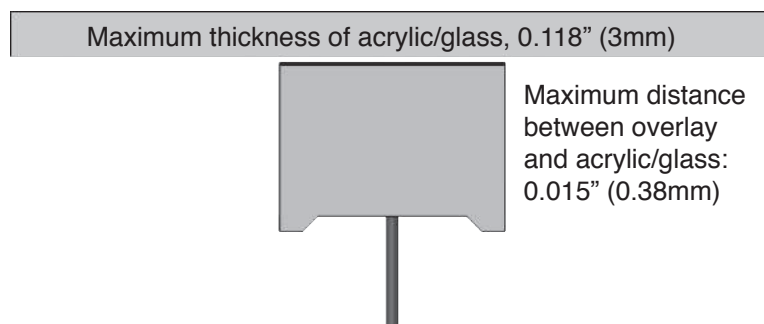
The CTH Series (Cap Touch) is available in a range of standard features and options. To specify your Cap Touch Display, simply choose one option from each column.

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		ON/OFF	ON/OFF
							ARROW	Arrow
							ALARM	Alarm
						Super Red	01	
						White	04	
						Pure Green	05	
						Blue	06	
						Yellow	07	

\*Optional

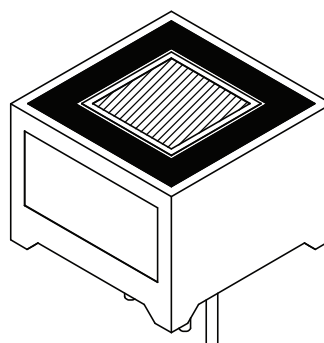
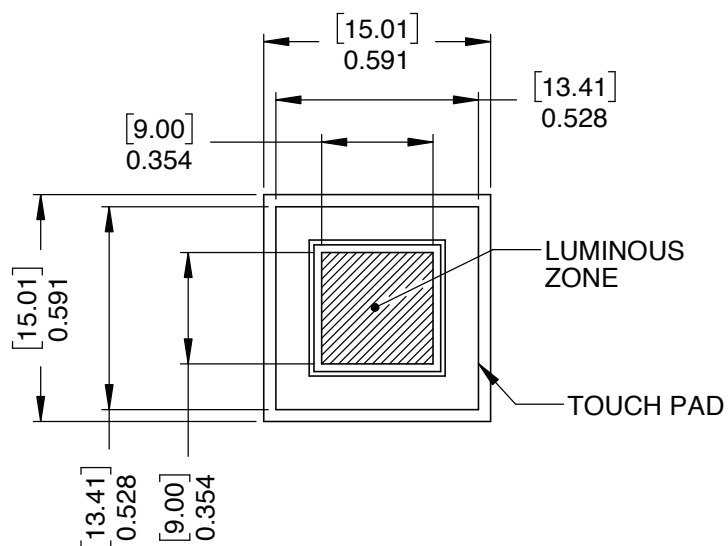
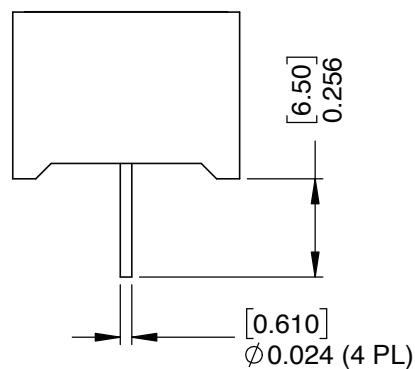
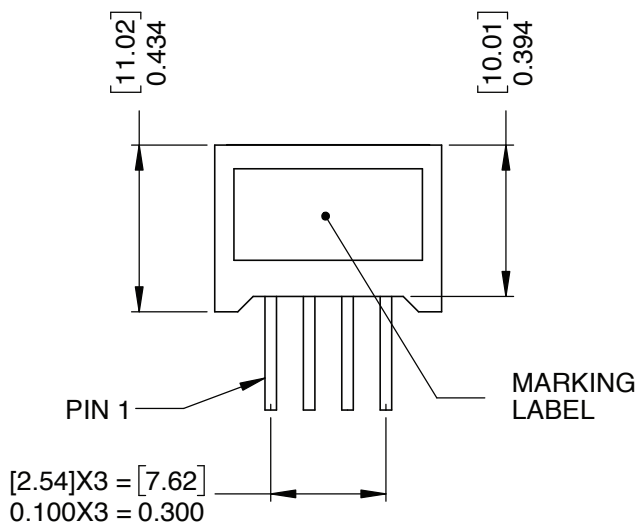
## Overlay

- 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

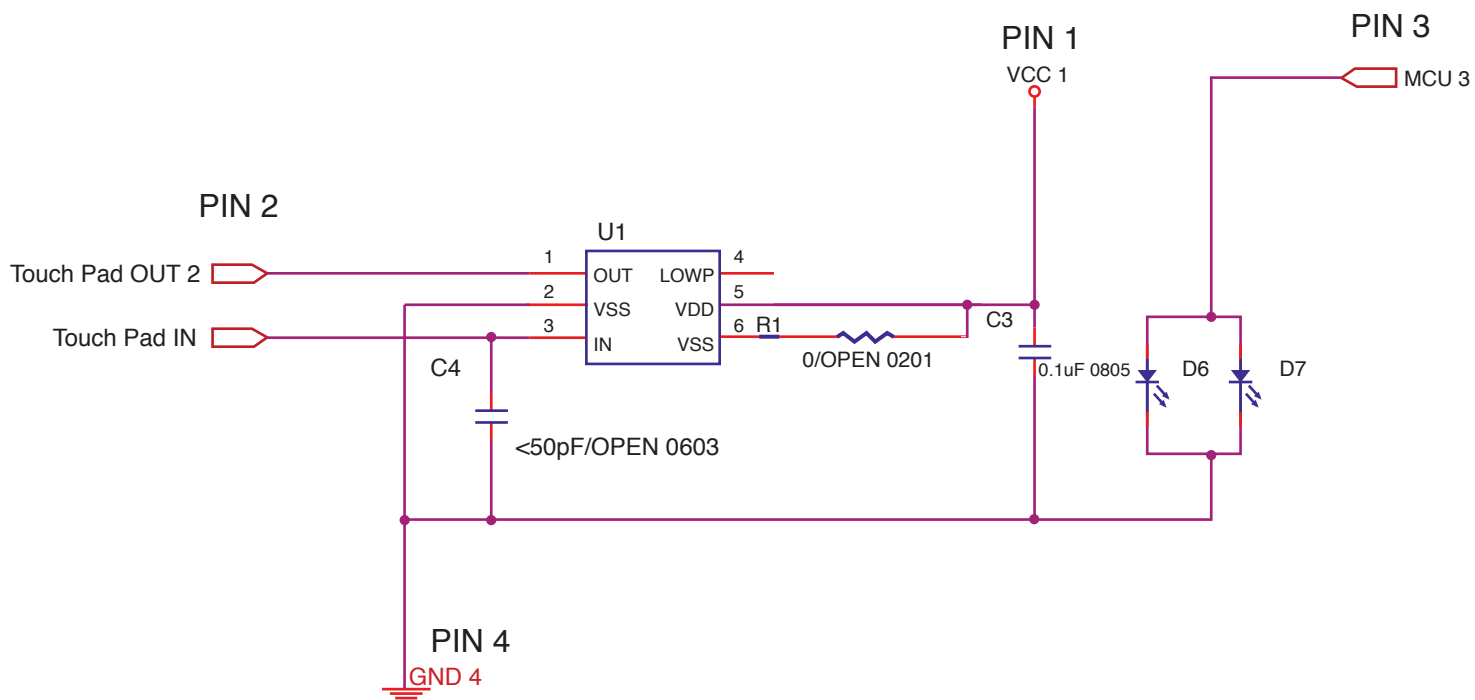
CTHS15CICXX  
XXXX RoHS

DATE CODE

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

(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
		Red	
Power Dissipation Per Dice	PAD	70	mW
Derating Liner from 25°C per Dice	-	0.33	mA/°C
Continuous Forward Current Per Dice	IAF	25	mA
Peak Current Per Dice (duty cycle 1/10,1KHz)	IPF	90	mA
Reverse Voltage Per Dice	VR	5	V
Operating Temp.	Topr	-35 ~ +85	°C
Storage Temp.	Tstg	-35 ~ +85	°C

### ELECTRO-OPTICAL CHARACTERISTICS

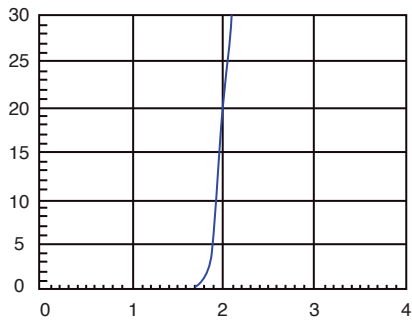
(Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	17	31	--	mcd	IF = 20 mA
Forward Voltage	VF	--	2.0	2.8	V	IF = 20 mA
Peak Emission Wavelength	λP	--	660	--	nm	IF = 20 mA
Dominant Wavelength	λD	--	645	--	nm	IF = 20 mA
Spectrum Radiation Bandwidth	Δλ	--	20	--	nm	IF = 20 mA
Luminous Intensity Matching Ratio	Iv-M	--	-	2 : 1	--	IF = 10 mA
Reverse Current	IR		-	100	μA	VR = 5V

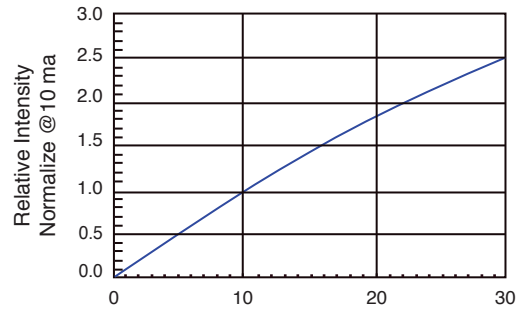
## Product Specifications

### ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

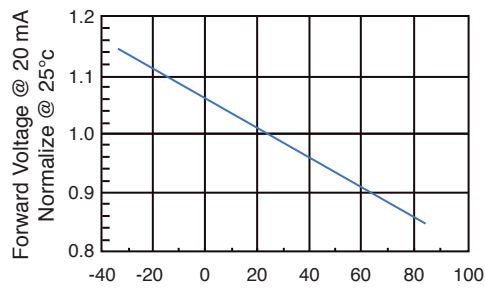
(Ta=25°C)



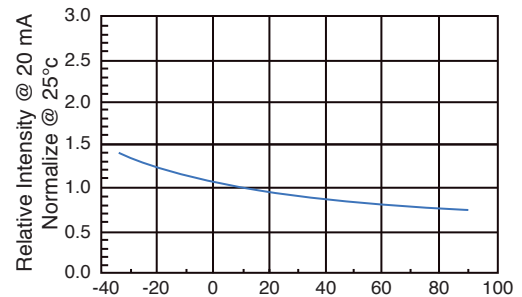
Forward Voltage (V)  
Forward Current vs. Forward Voltage



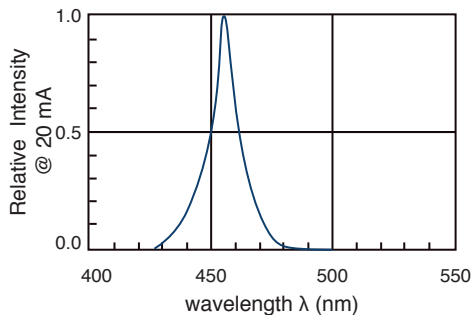
Forward Voltage (mA)  
Relative Intensity vs. Forward Current



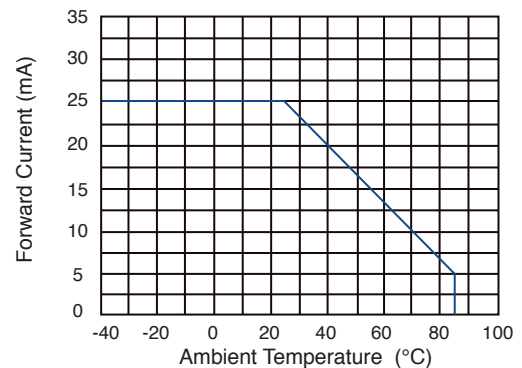
Ambient Temperature (°C)  
Forward Voltage vs. Temperature



Ambient Temperature (°C)  
Relative Intensity vs. Temperature



wavelength λ (nm)  
Relative Intensity vs. Wavelength



Ambient Temperature (°C)  
Forward Current vs. Temperature

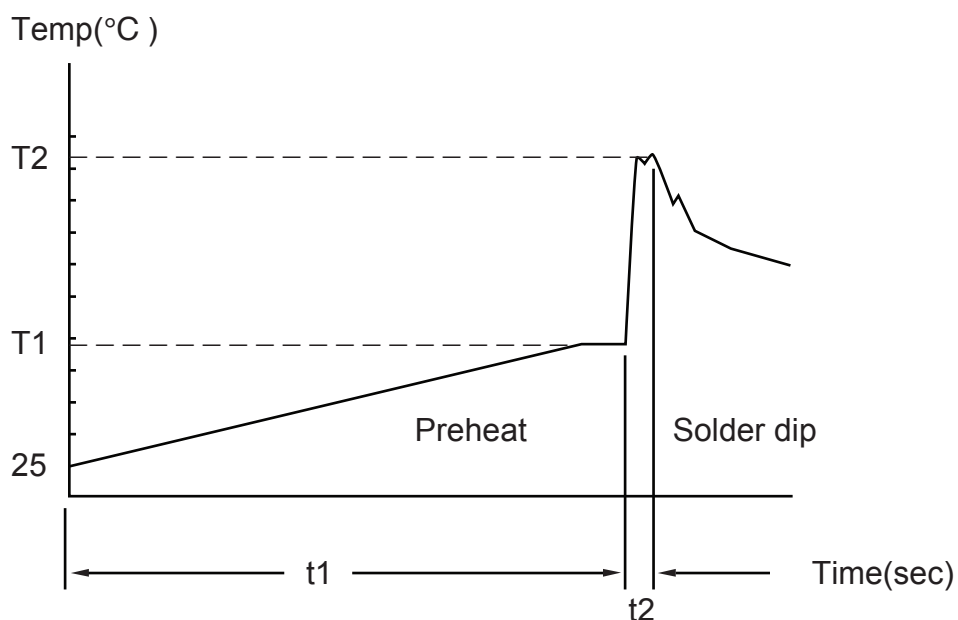
## Product Specifications

### 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



#### 2. Hand Soldering (Iron Condition)

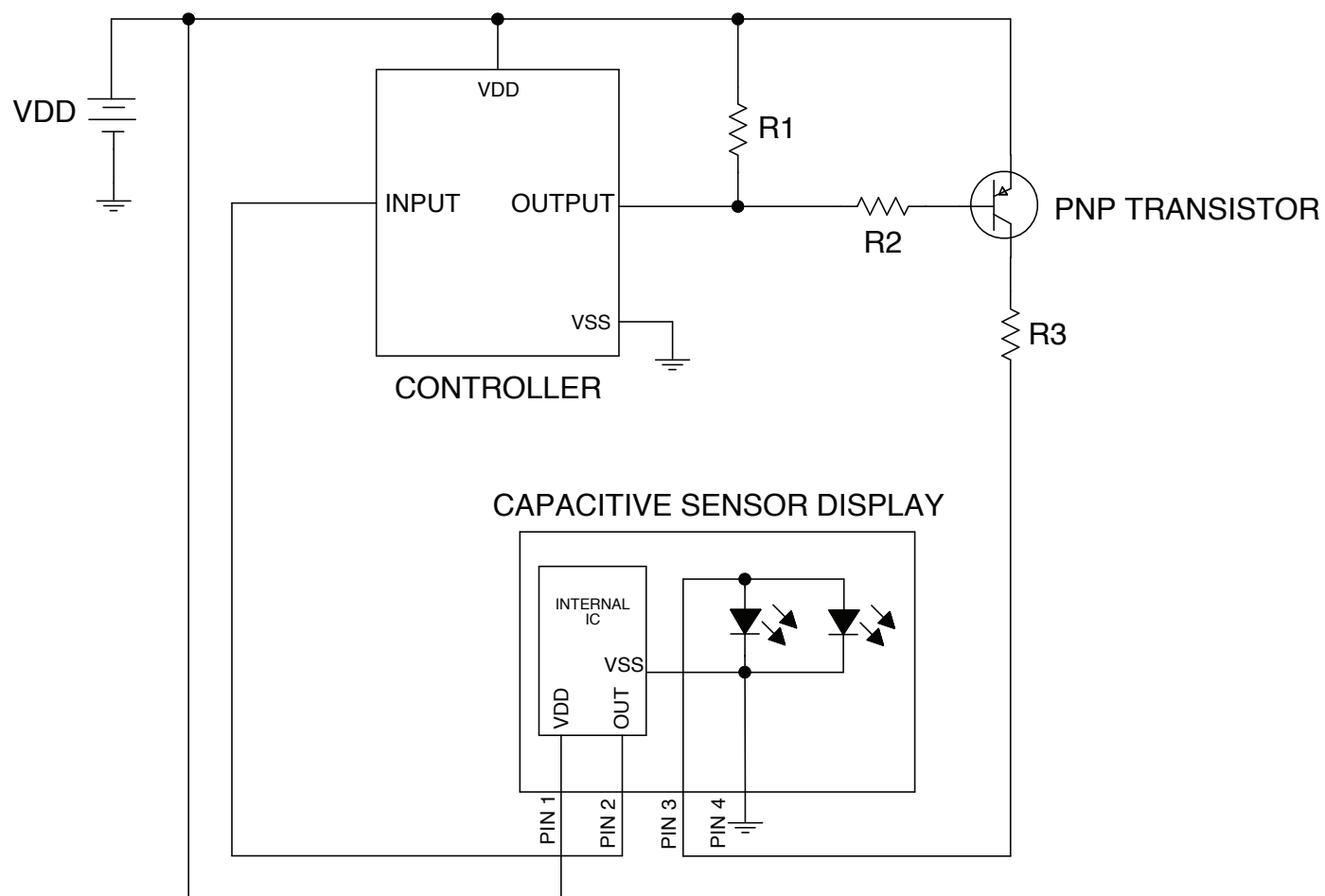
Soldering Iron: 30W Max

Temperature 350°C Max

Soldering Time: 3 Seconds Max (One Time)

Distance: 1.6mm min (From Seating Plane)

## Application Circuit



## Compliances and Approvals

