

TLC-100™

THERMOCHROMIC LIQUID CRYSTAL KIT

The TLC-100™ is a Thermochromic Liquid Crystal Kit designed for heat transfer studies and mapping temperature fields on electronic components or boards. The TLC-100™ features thermochromic liquid crystals (TLCs) which change color at a specified temperature starting at red, changing to green then blue. For electronics cooling applications, this provides the user accurate information about the location of hot spots on a device, their temperature and temperature gradient.

To map the temperature profile of a component or board, black ink is airbrushed on to the specimen. Then, TLCs with a particular temperature range (depending on the application), are sprayed onto the measurement surface. Once the device is turned on and the components are brought to activation temperature, the liquid crystals will begin turning red, then into different colors, representing the temperature distribution of the component or board. Black ink and TLCs are non-destructive and wash off with the aid of soap and water. Thermochromic liquid crystals are available in a variety of temperature ranges from 20 to 120°C, each one with a particular bandwidth from 1 to 20°C.

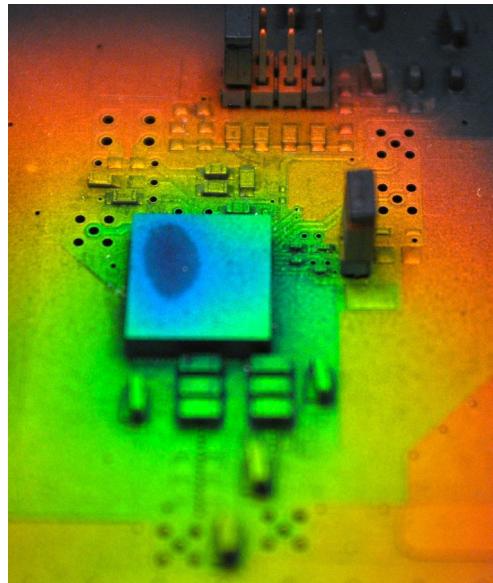
Liquid Crystal Number*	Starting Temp (°C)	Bandwidth	Temp Range (°C)
1	20	20	20-40
5	40	20	40-60
6a	50	10	50-60
8	60	10	60-70
10	70	10	70-80
12	80	10	80-90
13a	90	10	90-100
15a	100	20	100-120

*Liquid Crystal Number must be associated with TLC-100™ prefix to form part number (e.g. TLC-100-1-15a). See instructions below.

Part Number Selection:

Part numbers are determined according to the temperature ranges of the required liquid crystals. To determine the correct part number for your order, select the temperature range you would like for the first bottle from the table on the right. Combine liquid crystals number to the part number prefix (TLC-100™). Repeat this step for the second selection. For example, part number TLC-100-1-15a represents a kit which includes a bottle of liquid crystals that begins activating at 20°C and extends to 40°C. The second bottle of liquid crystals starts activating at 100°C and extends to 120°C.

For further technical information, contact Advanced Thermal Solutions, Inc. at 781-769-2800 or ats-hq@qats.com.



The temperature map of the component is shown after being sprayed with liquid crystals.

FEATURES:

» Comprehensive Kit

Everything required for thermal mapping, right out of the box

» Wide Temperature Range

TLCs available starting at 20°C to 120°C

» Versatile

Can be used for measurements at both the component and board-level

APPLICATIONS:

- » Heat Mapping Studies
- » Component Temperature Testing
- » PCB Testing
- » Hot Spot & Defect Identification



KIT COMPONENTS:

An airbrush for coating the component or board's surface with black backing ink and liquid crystals.

Air hose with couplings, valve for propellant cans and a 1/4" pipe adapter for use with an air compressor

Two 30 ml bottles of Thermochromic Liquid Crystals (temperature ranges specified when ordering).

One 30 ml bottle of sprayable black backing ink for pre-treating the surface to be studied.

Two glass jars, which attach to the airbrush, for dispensing ink and liquid crystals.

Two portable and disposable, 340 g (12 oz.) cans of CFC-free airpropellant. (only included in U.S. Sale)

Mouser Electronics

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[TLC-100-DIST](#)