

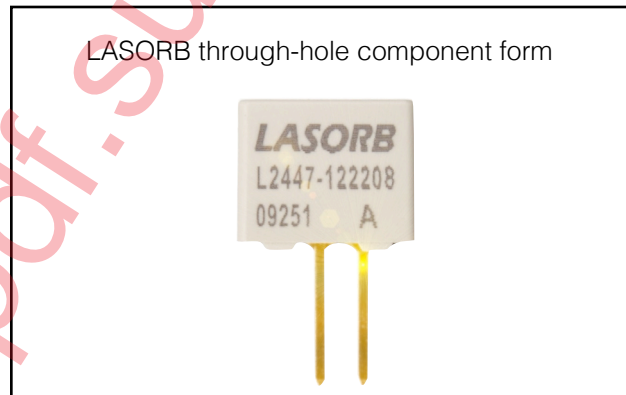


LASORB Component Purchasing Options

LASORB is a hybrid electronic device, which consists of passive electrical and active silicon components. LASORB was made to protect laser diodes from damage caused by electrostatic discharge (ESD) and power surges. LASORB is available in several standard formulations, each optimized for IR, Red, Blue, and BLU-RAY laser diode use, as well as series-connected strings, and QLCs. All LASORB part formulations and their corresponding datasheet can be found online at the following link: <http://www.lasorb.com/lasorb-datasheets/>. Pangolin currently sells LASORB in two component forms (through-hole form, and SMT LASORB KIT form), and these are described in more depth below.

LASORB Through-Hole Component Form

The most common method of purchasing LASORB is in its through-hole component form, as seen in the picture below. Customers can purchase this device from Pangolin directly (<https://www.pangolin.com/orders/lasorb.php>), or through one of our distribution partners. The through-hole version of LASORB provides a convenient way to add ESD protection to a laser device, in a single electronic component.

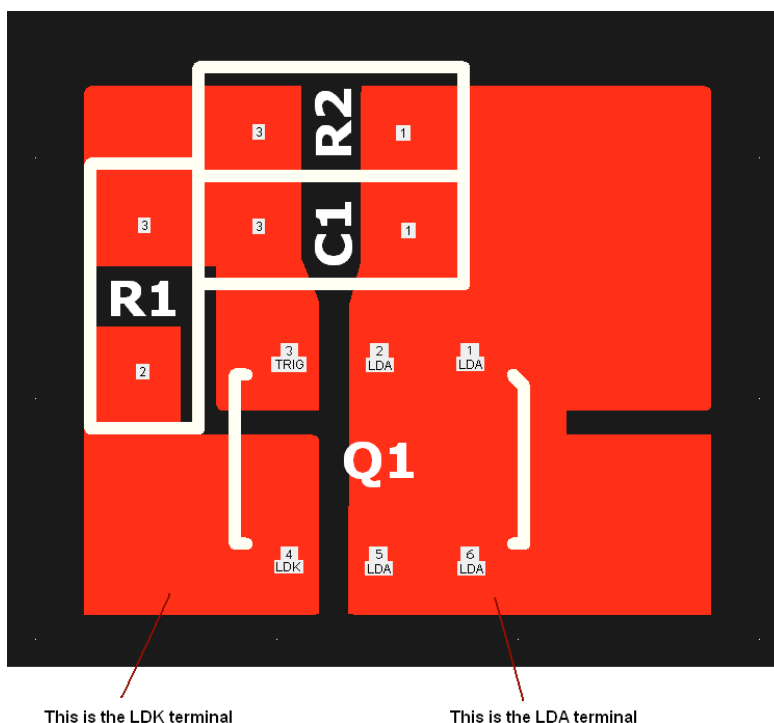


SMT LASORB KIT Form

When customers need to accommodate smaller overall package requirements, or need to employ entirely SMT-based assembly techniques, Pangolin provides an alternative method of obtaining LASORB. We refer to this alternative method as "SMT LASORB KIT", where we supply a kit of the same components that we use in our through-hole part. The kit usually consists of two resistors, a capacitor, and our TSOP6/4G-20V semiconductor.

Pangolin invented LASORB in 2007 and then spent a year perfecting the part formulation and choosing the best semiconductor manufacturer that could accomplish what was needed in the semiconductor portion of LASORB. And the resistors and capacitors are chosen to have special RF qualities. Although it is possible to purchase your own resistors and capacitors, the ones that we include along with our semiconductor part have gone through extensive testing. This is why purchasing the collection of components from Pangolin ensures that you will achieve the same degree of ESD protection that we achieve with our packaged through-hole LASORB.

To help you understand how the individual components in the kit should be connected together and connected to a laser diode, we have included the circuit layout of our LASORB through-hole part. The circuit layout clearly identifies R1, R2, C1 and Q1.



Each LASORB part formulation (i.e. the numbers which indicate the laser diodes that are best protected by LASORB) uses different values for R1, R2 and C1. **When ordering LASORB SMT KIT components, Pangolin has a minimum order quantity of 100 units per order. We also ask that you please discuss your laser diode protection requirements with Pangolin so that the most appropriate R1, R2 and C1 values are chosen and delivered to you along with Q1, the TSOP6/4G-20V semiconductor device.**

LASORB Patent Information

Since the invention of LASORB in 2007, Pangolin has obtained patents in two countries. More patents are also pending in other countries. If you are interested in learning more about how LASORB works, you can refer to our patent application on the World Intellectual Property Organization (wipo.org) web site. Our International Patent Application number is WO 2010/006094 A2.

LASORB - A division of Pangolin Laser Systems

9501 Satellite Boulevard, Suite 109, Orlando, FL 32837
+1 (407) 299-2088, fax +1 (407) 299-6066, contact@lasorb.com
www.LASORB.com