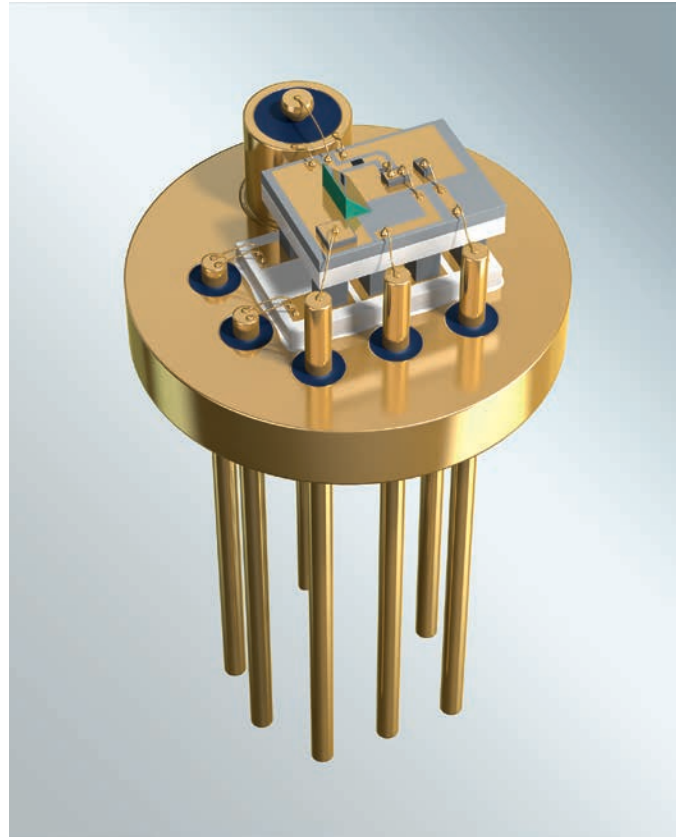
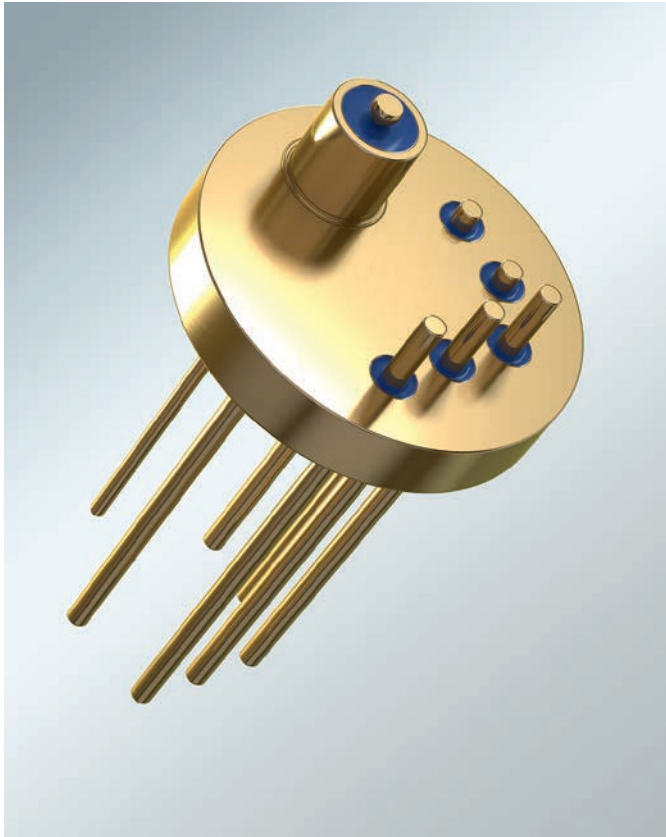


# SCHOTT® TEC TO

The concept for cooled devices on TO platforms



## Product Information

The SCHOTT TEC TO package is a newly developed transistor outline (TO) which optimizes the transmission of high-speed data in the tele- and data communications market. TEC TO is ideal for 10Gbit/s laser diodes that require a thermoelectric cooler (TEC). The thermoelectric cooler allows for controlled heat dissipation, which leads to regulated and stable laser wave lengths.

Since the package is based on a TO footprint, it is also reduced in size compared to the conventional box packages. The new design is also based on an extended radio-frequency feedthrough, which boasts shortened wire-bonds to minimize signal losses to the laser diode, thereby improving the overall performance.

## Advantages

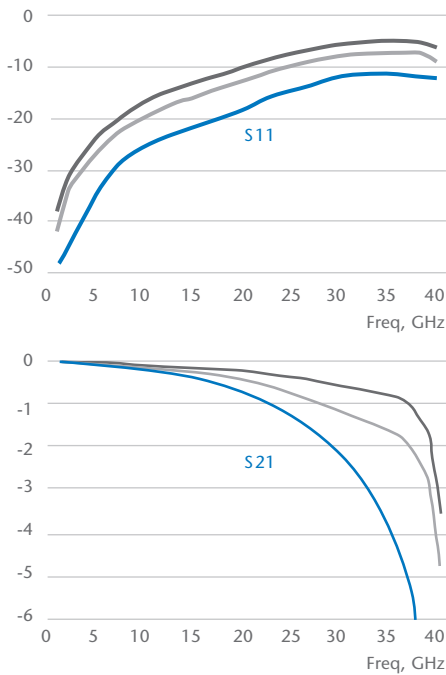
- Suitable for up to 10G transmitters with option for cooled devices
- Economical substitute for box package
- 1 x 50-ohm or 2 x 25-ohm RF feedthrough
- 2 TEC pins
- 3 DC pins (MPD, thermistor and laser bias)
- 1 CASE ground pin
- Center of TO: up to 3.0 mm x 2.0 mm space available
- Option of improved heat dissipation through heat sink made of material with higher thermal conductivity (e.g. Cu, CuW)
- Alternative version with pedestal for edge emitter without 45-deg mirror

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## RF Performance

- Typical s-Parameter Results for different ground connection methods (blue is optimal)

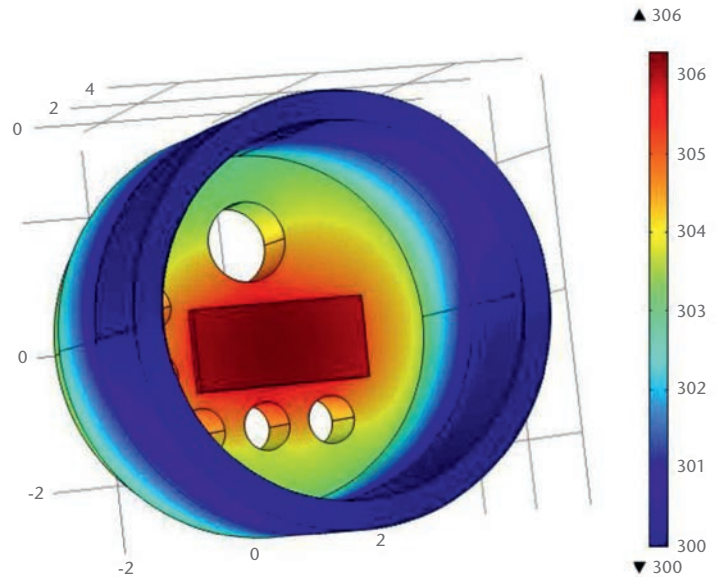


## Background Information

Hermetic packaging is important for high-speed tele- and data communications products. Electronic chips are highly sensitive to the effects of humidity as well as heat fluctuation. If humidity level is high, condensation of water can occur, especially at lower temperatures. This can cause corrosion of the semiconductor metallization. With increasing bandwidth demands, these chips can be even more sensitive and susceptible to degradation, due to the exposure of harmful gases and the environment. Even leaks of traceable amounts of hydrogen and water vapor can compromise the functions of the opto-electronic components. Humidity can cause semiconductor elements to degrade leading to the failure of the entire unit. This is why high performance chips require high performance housing.

## Thermal Performance

- Heat Dissipation by shell welded to base
- Shell outside kept at 300K on two locations (Transceiver casing contact)
- Thermal Power dissipated by full TEC contact surface
- For total power dissipation of 0.5W,  $\Delta T < 6.5K$



## About SCHOTT Electronic Packaging

SCHOTT is an international technology group with more than 130 years of experience in the areas of specialty glasses and materials.

More than 600 scientists and engineers are working for and with SCHOTT customers all over the world, while setting the pace by developing new, cutting edge technologies for the requirements of today and tomorrow.

The SCHOTT Group with a workforce of about 15,400 employees maintains close proximity to its customers with manufacturing and sales units in 35 different countries.

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