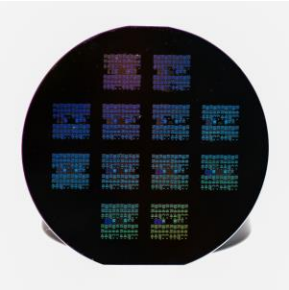
# O/C Band 145 GHz
# Ring Resonator Modulator

## Key Features

- 3-dB electro-optical bandwidth >145 GHz
- Lumped, low-capacitance RF design
- Chip dimensions 1.5 mm x 2 mm
- O/C band operation
- Possible electrical drive: Single, differential, or dual
- Available as single or 4-channel device



## Performance Data

| | O band | C band |
|---|---|---|
| Peak wavelength | 1310 nm | 1550 nm |
| Insertion loss (IL) | <10 dB | <8 dB |
| Static extinction ratio (ER) | >8 dB | >8 dB |
| DC bias on/off voltage | <1.5 V | <1.5 V |
| 3-dB EO bandwidth | >145 GHz | >145 GHz |
| $V_{drive,\,eq}$ @ 50 Ohm* | <2 V | <2 V |
| Free Spectral Range | ~ 4.7 nm | ~ 4.7 nm |

## Maximum Ratings

| | O band | C band |
|---|---|---|
| Optical input power** | tbd | 7 dBm |
| RF input power @ 50 Ohm | 18 dBm | 18 dBm |
| DC voltage at RF input | 0 V | 0 V |
| DC bias voltage<br>DC bias current | 2.5 V<br>15 mA | 2.5 V<br>15 mA |
| Operating / storage temperature** | ~25 °C | ~25 - 50 °C |

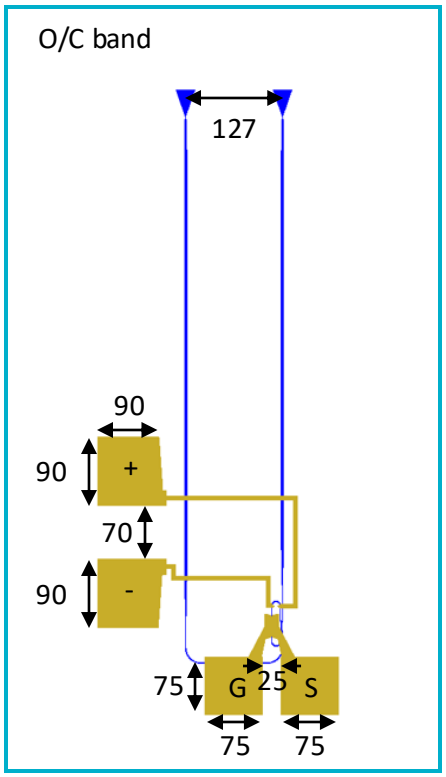
* Plasmonic modulators are high-impedance devices. Twice the voltage provided by a 50-Ohm signal source will drop across the plasmonic modulator. Using a DC source or a high-impedance-matched driver, double the voltage is required to switch the modulator from the on to the off state.
** Based on reliability data for 500 h at 50°C and 9 dBm input power with a $V_\pi$ degradation < 10%.

Polariton Technologies AG | Soodstrasse 52, 8134 Adliswil | Contact info@polariton.ch
www.polariton.ch

## Mechanical and Optical Specifications

| | O band | C band |
|---|---|---|
| Optical input and output | Grating coupler (GC), 127 um pitch | Grating coupler (GC), 127 um pitch |
| Center wavelength at GC angle | 1310 nm at 8° | 1550 nm at 8° |
| Optical source needed | Tunable laser source, 1310 nm ± 10 nm range | Tunable laser source, 1550 nm ± 10 nm range |
| Electrical RF interface | G-S, S-G, S-S̄, S̄-S, or $S_1$-$S_2$ 30 – 170 µm pitch | G-S, S-G, S-S̄, S̄-S, or $S_1$-$S_2$ 30 – 170 µm pitch |
| Electrical DC interface | +/-, 75 – 245 µm pitch | +/-, 75 – 245 µm pitch |

## Drawings and Dimensions




## Transmission Spectrum