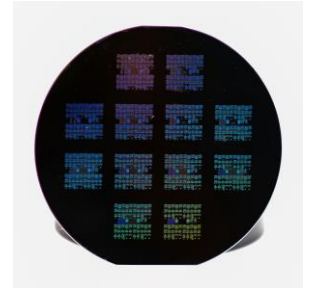


## C Band 145 GHz IQ Modulator

### Key Features

- 3-dB electro-optical bandwidth >145 GHz
- Lumped, low-capacitance RF design
- Chip dimensions 1.5 mm x 2 mm
- C band operation
- Single-ended (SD) or differential-drive (DD) geometry



### Performance Data

	SD	DD
Peak wavelength	1550 nm	1550 nm
Insertion loss (IL)	<17 dB	<17 dB
Static extinction ratio (ER)	>25 dB	>25 dB
DC bias on/off voltage	<1.5 V	<1.5 V
3-dB EO bandwidth	>145 GHz	>110 GHz
$V_{\pi,eq}$ @ 100 kHz @ 50 Ohm*	<5 V	<5 V

### Maximum Ratings

	SD	DD
Optical input power**	6 dBm	6 dBm
RF input power @ 50 Ohm	18 dBm	18 dBm
DC voltage at RF input	0 V	0 V
DC bias voltage	2.5 V	2.5 V
DC bias current	15 mA	15 mA
Operating / storage temperature	~25 °C	~25 °C

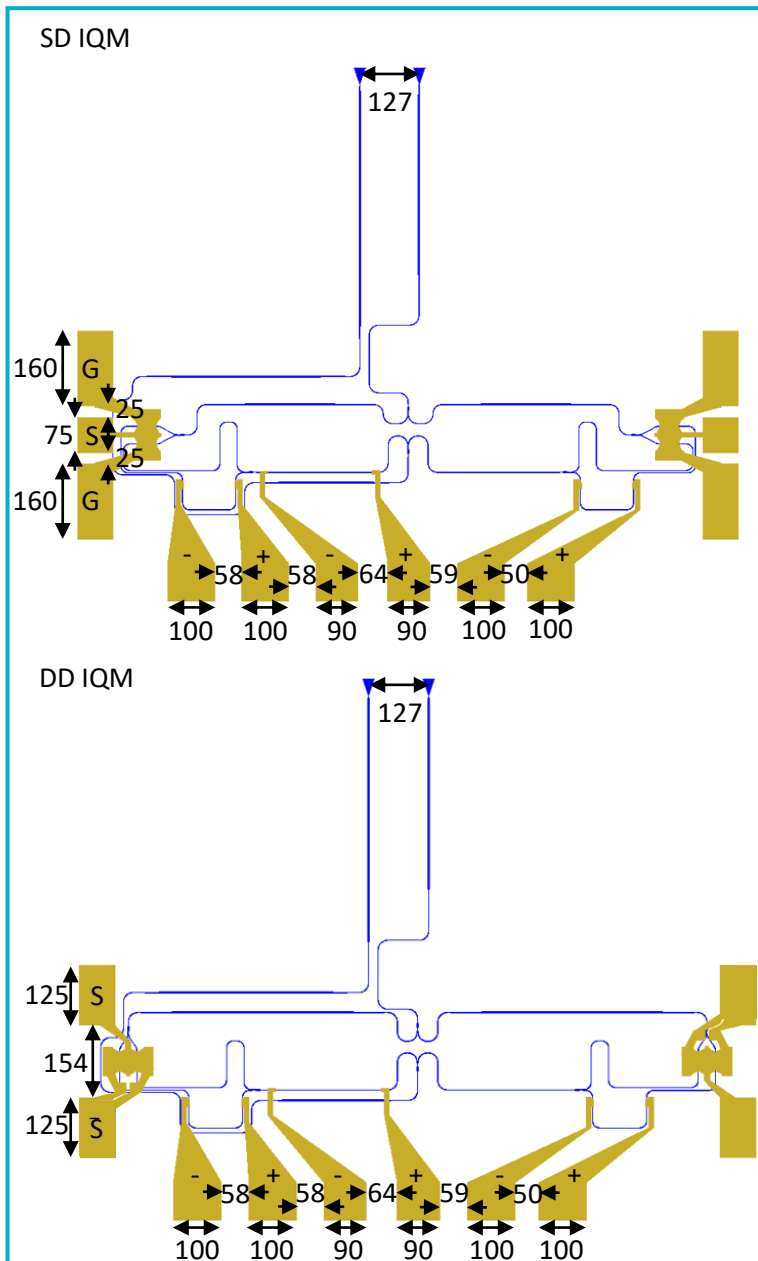
\* Plasmonic modulators are high-impedance devices. Twice the voltage provided by a 50-Ohm signal source will drop across the plasmonic modulator. Using a DC source or a high-impedance-matched driver, double the voltage is required to switch the modulator from the on to the off state.

\*\* Operation time of 8000 h at 20°C with a  $V_{\pi}$  degradation < 10%.

## Mechanical and Optical Specifications

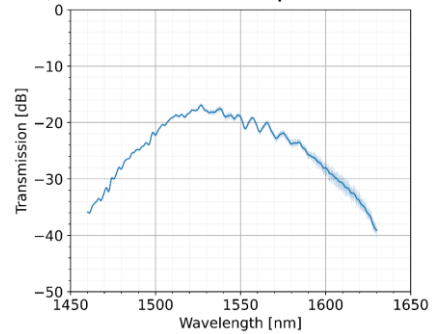
	SD	DD
Optical input and output	Grating coupler (GC), 127 $\mu\text{m}$ pitch	Grating coupler (GC), 127 $\mu\text{m}$ pitch
Center wavelength at GC angle	1550 nm at 8°	1550 nm at 8°
Optical source needed	Peak WL laser source	Peak WL laser source
Electrical RF interface	G-S-G, 70 – 215 $\mu\text{m}$ pitch	S-S, 170 – 400 $\mu\text{m}$ pitch
Electrical DC interface	+ - / + - / + -, 150 $\mu\text{m}$ pitch	+ - / + - / + -, 150 $\mu\text{m}$ pitch

## Drawings and Dimensions



## Key Plots

SD/DD Transmission Spectrum



SD/DD DC Bias Power

