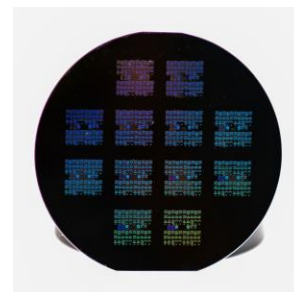


C Band 145 GHz IQ Modulator

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**	9 dBm	9 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

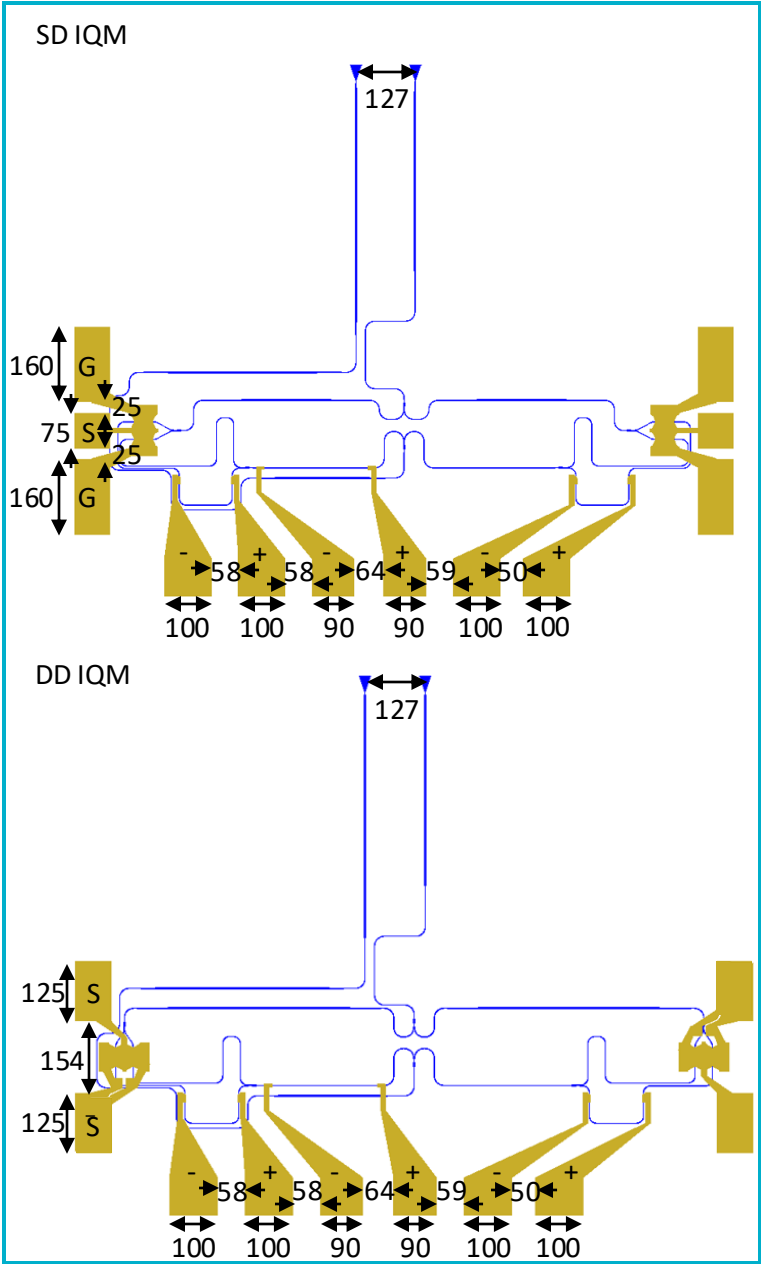
* Plasmonic modulators are high-impedance devices. Twice the voltage provided by a 50-Ohm signal source will drop across the plasmonic modulator. Using a DC source or a high-impedance-matched driver, double the voltage is required to switch the modulator from the on to the off state.

** Based on reliability data for 500 h at 50 °C and 9 dBm input power with a V_{π} degradation < 10%.

Mechanical and Optical Specifications

	SD	DD
Optical input and output	Grating coupler (GC), 127 μm pitch	Grating coupler (GC), 127 μm 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 μm pitch	S- $\bar{\text{S}}$, 170 – 400 μm pitch
Electrical DC interface	+ - / + - / + -, 150 μm pitch	+ - / + - / + -, 150 μm pitch

Drawings and Dimensions



Key Plots

