

Read me file:

University of Southampton – Electronics and Computer Science –

James Byers – jb2u16@soton.ac.uk

Professor Shinichi Saito – ss1a11@ecs.soton.ac.uk

Date of data collection: February 2018

Date that doi file was created: 19th September 2018

Licence: Creative Commons Attributions

The excel file contains experimental and simulation data for the paper “Silicon Slot Waveguide on Bonded Double-SOI for Low-Power Accumulation Modulator Fabricated by Anisotropic Wet Etching Technique”. In particular:

Fig 2 (B) (i): Simulated normalized frequency (*band_air* and *band_die*) as a function of wave vector (*k_norm*)

Fig 2 (B) (ii): Simulated group index (*abs(1/vg_air)* and *abs(1/vg_die)*) as a function of wavelength (*Wave_air_band* and *Wave_die_band*)

Fig 2 (B) (ii): Simulated group index (*abs(1/vg_air)* and *abs(1/vg_die)*) as a function of wavelength (*Wave_air_band* and *Wave_die_band*)

Fig 3: Simulated $V_{\pi}L$, optical loss and f3dB, each with fins and without fins, as a function of waveguide width (*Wg_width*)

Fig 6: Measured capacitance (*C*) as a function of gate bias (*VBias*) for MOScap device

Fig 7 Reference: Measured absolute transmission loss (dB) as a function of wavelength (μm), of 12 strip waveguides (strip waveguide lengths: 3x250 μm , 3x500 μm , 3x1000 μm , 3x2000 μm) which were used to calculate the 0 μm waveguide length reference.

Fig 7 (A-D): Measured absolute transmission loss (dB) as a function of wavelength (μm), of 12 fin-waveguides (fin-waveguide lengths: 3x250 μm , 3x500 μm , 3x1000 μm , 3x2000 μm) which were Fabrey-Perot error corrected and averaged. Sheets Fig 7 (A-D) contain data for their respective Fig 7 (A-D) in the paper. This data was also used to extrapolate normalized loss (Fig 7 (E)).

Fig 8: Measured absolute transmission loss (dB) as a function of wavelength (μm) for a single design #4 fin-waveguide with fin-waveguide length = 250 μm .

Fig 9: Measured absolute transmission loss (dB) as a function of wavelength (μm), for a design #3 fin-waveguide MZI with “phase-shifter” fin-waveguide length = 250 μm for $\Delta L_{\text{arm}}=200\mu\text{m}$ (*ext_GC2_17deg_MMI2_a*) and $\Delta L_{\text{arm}}=400\mu\text{m}$ (*extext_GC1_17deg_MMI2_a*)