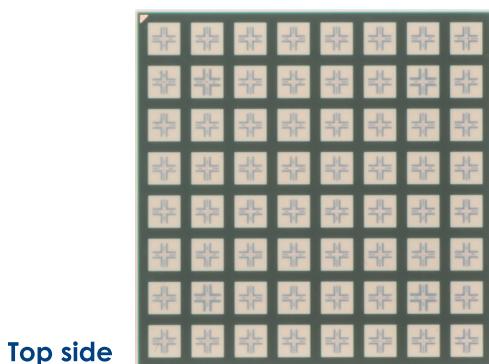


# FutureAccess™

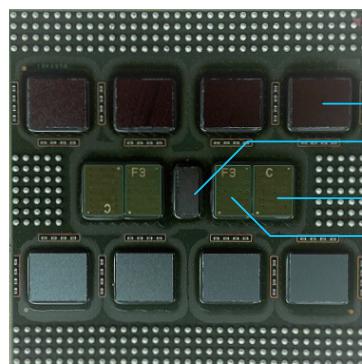
## 28GHz Phased Array Antenna Module(PAAM)

### Overview

Fujikura PAAM operates at 24-30 GHz and supports concurrent dual-pol. It integrates RF-ICs, filter and array antenna and benefits customers with optimal TCO and reduced development time.



Top side



Bottom side

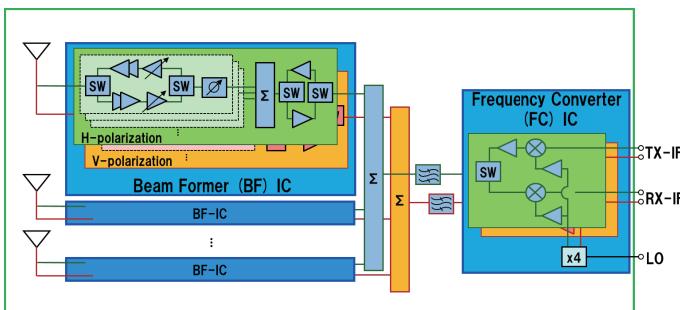
size(mm): 42.5(W) x 42.5(H) x 2.5 (D)

### Features

- Fast beam-switching of <220 ns<sup>\*1</sup>, supports >30,000 beams
- High power-efficiency optimization with >20% peak PAE
- Scalable configuration with 8x8-element PAAM as a unit
- Calibration free

\*1: including command transaction time

### Block diagram



### Evaluation board

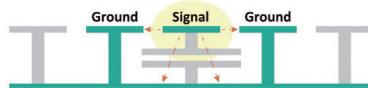


# Tunable true-time-delay phase shifter

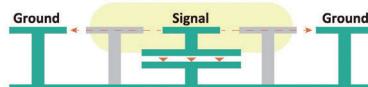
~ enabling precise and calibration-free gain/phase control ~

## Phase control using tunable transmission line phase shifter

Small  $L$ , small  $C$   
Low Delay =  $\sqrt{L_1 C_1}$



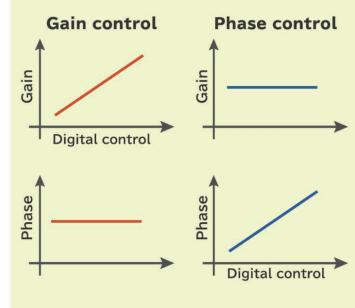
Large  $L$ , large  $C$   
High Delay =  $\sqrt{L_2 C_2}$



$$\text{Constant characteristic impedance: } \sqrt{\frac{L_1}{C_1}} = \sqrt{\frac{L_2}{C_2}} = Z_o$$

## Tunable transmission line

### Ideal



### Independent gain/phase control

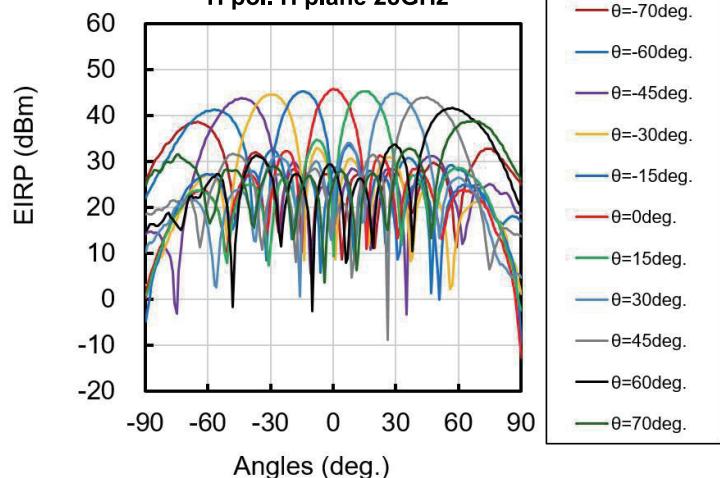
## Specifications

Frequency	24.25 to 29.5 GHz
Band	n257/n258/n261
Polarization	Vertical, Horizontal
Beams number	2T2R
Beam-scan range	Elevation: +/-60° Azimuth: +/-60°
EIRP	45 dBm (8dB backoff from P1dB)
Beam states	>30,000
Beam switching time *1	<220 ns
Power consumption	Tx: 30 W, Rx: 16W
Rx NF	4 dB (Typical)
Supply voltage	1.2V / 1.5V / 1.8V / 2.7V
Operating temperature	-40 to 85 °C

\*1: including command transaction time

## Beamforming performance

### Measurement data H pol. H plane 28GHz



## Applications



- Fixed Wireless Access
- Mobile Wireless Access
- Backhaul
- Private 5G

Part Number	Frequency
FA28PMD88B-F1-CB1A2-DTC	24.25 - 26.10 GHz
FA28PMD88B-F2-CB1A2-DTC	25.65 - 27.50 GHz
FA28PMD88B-F3-CB1A2-DTC	26.50 - 28.35 GHz
FA28PMD88B-F4-CB1A2-DTC	27.65 - 29.50 GHz

Caution: All contents in this paper are subject to change without notice.